

## OMNIMATE Data – RJ45 konektory – transformátor RJ45G1 R1V 3.3N4YG/YG TY

**Weidmüller Interface GmbH & Co. KG**  
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RJ45 vysílače (magnetické) pro gigabitové aplikace (1000 base-T) s integrovanou kompenzací aktivně působí proti indukčním a kapacitním spojkám a šetří prostor na desce plošných spojů.

- Proces pájení průchozím otvorem (THT) nebo pájení přetavením průchozím otvorem (THR)
- Široká řada různých variant včetně integrovaných kontrol LED a stíněných kontaktů
- Baleno na podnosu (TY) nebo na roli (pás na cívce, RL)
- Rozšířený teplotní rozsah -40 °C až +85 °C
- Vyztuženo vrstvou zlata pro lepší ochranu proti korozi
- Přenosová rychlost až 1 Gbit/s

### Všeobecné objednací údaje

|                 |                                                                                                                                                                                                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typ             | RJ45G1 R1V 3.3N4YG/YG TY                                                                                                                                                                                                                                    |
| Objednací číslo | <a href="#">1534760000</a>                                                                                                                                                                                                                                  |
| Verze           | Zásuvný konektor PCB plug in, RJ45 konektory – transformátor, 1000 Mbps , Připojení pájením přetavením průchozím otvorem, 180°, Stínění: žádné, 30-80 µ" Ni / 30- µ" Au , LED: Ano, zelená / žlutá, zelená / žlutá, Počet pólů: 10, Zásobník (ruční montáž) |
| GTIN (EAN)      | 4050118338423                                                                                                                                                                                                                                               |
| Mnž.            | 120 ks                                                                                                                                                                                                                                                      |
| Balení          | Zásobník (ruční montáž)                                                                                                                                                                                                                                     |

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## Technické údaje

### Rozměry a váhy

|                              |            |                   |            |
|------------------------------|------------|-------------------|------------|
| Šířka                        | 16 mm      | Šířka (v palcích) | 0,63 inch  |
| Výška                        | 20,3 mm    | Výška (v palcích) | 0,799 inch |
| Nejvyšší nebo nejnižší verze | 17 mm      | Hloubka           | 16,8 mm    |
| Hloubka (v palcích)          | 0,661 inch | Čistá hmotnost    | 3,783 g    |

### Teploty

|                          |       |                          |        |
|--------------------------|-------|--------------------------|--------|
| Provozní teplota, max.   | 85 °C | Provozní teplota, min.   | -40 °C |
| Skladovací teplota, max. | 85 °C | Skladovací teplota, min. | -40 °C |

### Shoda produktu s prostředím

|            |                |
|------------|----------------|
| REACH SVHC | Lead 7439-92-1 |
|------------|----------------|

### Balení

|           |                         |           |        |
|-----------|-------------------------|-----------|--------|
| Balení    | Zásobník (ruční montáž) | Délka VPE | 25 mm  |
| Šířka VPE | 175 mm                  | Výška VPE | 300 mm |

### Specifikace systému

|                                              |                                                   |                              |                                                      |
|----------------------------------------------|---------------------------------------------------|------------------------------|------------------------------------------------------|
| Barva levé LED                               | zelená / žlutá                                    | Barva pravé LED              | zelená / žlutá                                       |
| Cykly zapojování                             | 750                                               | LED                          | Ano                                                  |
| Materiál stínění                             | Mosaz                                             | Montáž na PCB desku          | Připojení pájením<br>přetavením průchozím<br>otvorem |
| Plocha stínění                               | poniklované                                       | Počet pájených kolíků na pól | 1                                                    |
| Počet pólů                                   | 10                                                | Propojení                    | 10 vodičů                                            |
| Průměr otvoru pájecího oka (D)               | 0,9 mm                                            | Pájecí kolík, délka (l)      | 3,2 mm                                               |
| Přenosová rychlost                           | 1000 Mbps                                         | Rozměry pájecích pinů        | 0,40 x 0,30 mm, LED<br>kontakty = 0,50 x<br>0,50 mm  |
| Rozteč v mm (P)                              | 1,27 mm                                           | Rozteč v palcích (P)         | 0,05 inch                                            |
| Skupina produktů                             | OMNIMATE Data – RJ45<br>konektory – transformátor | Stupeň krytí                 | IP20                                                 |
| Stínění                                      | ano                                               | Stínění                      | žádné                                                |
| Tolerance průměru otvoru pájecího oka<br>(D) | ± 0,1 mm                                          | Typ připojení                | Patice                                               |
| Výstupní tvarovka                            | 180°                                              |                              |                                                      |

### Elektrické vlastnosti

|                                         |           |                                         |           |
|-----------------------------------------|-----------|-----------------------------------------|-----------|
| Dielektrická pevnost, kontakt / kontakt | 1000 V DC | Dielektrická pevnost, kontakt / stínění | 1500 V DC |
| Izolační síla                           | > 500 MΩ  | Jmenovité napětí                        | 125 V AC  |
| Jmenovitý proud                         | 1,5 A     |                                         |           |

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## Technické údaje

### Údaje o materiálu

|                                     |                         |                              |                |
|-------------------------------------|-------------------------|------------------------------|----------------|
| Izolační materiál                   | PA 9T                   | Barevný                      | Černá          |
| Barevný graf (podobné)              | RAL 9011                | Skupina izolačního materiálu | II             |
| CTI                                 | ≥ 500                   | Izolační síla                | > 500 MΩ       |
| Moisture Level (MSL)                | 1                       | Klasifikace hořlavosti UL 94 | V-0            |
| Contact base material               | Fosforový bronz         | Povrch kontaktu              | Zlato na niklu |
| Struktura vrstev kontaktu konektoru | 30-80 μ" Ni / 30- μ" Au | Skladovací teplota, min.     | -40 °C         |
| Skladovací teplota, max.            | 85 °C                   | Provozní teplota, min.       | -40 °C         |
| Provozní teplota, max.              | 85 °C                   |                              |                |

### Klasifikace

|            |             |            |             |
|------------|-------------|------------|-------------|
| ETIM 6.0   | EC002637    | eClass 6.2 | 27-25-05-04 |
| eClass 7.1 | 27-25-05-04 | eClass 8.1 | 19-17-01-25 |
| eClass 9,1 | 27-44-04-02 | eClass 9.0 | 27-44-04-02 |

### Osvědčení

Schválení



ROHS

Shoda

### Soubory ke stažení

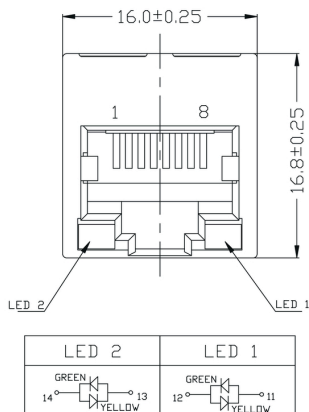
|                         |                                                                                                                  |
|-------------------------|------------------------------------------------------------------------------------------------------------------|
| Brožura/Katalog         | <a href="#">MB FREECONTACT EN</a><br><a href="#">FL FIELDWIRING EN</a><br><a href="#">PI PROFINET CABLING EN</a> |
| Technické údaje         | <a href="#">STEP</a>                                                                                             |
| Uživatelská dokumentace | <a href="#">MAN IE GUIDE DE</a><br><a href="#">MAN IE GUIDE EN</a>                                               |

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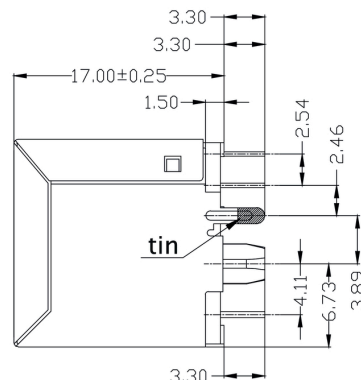
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## Nákresy

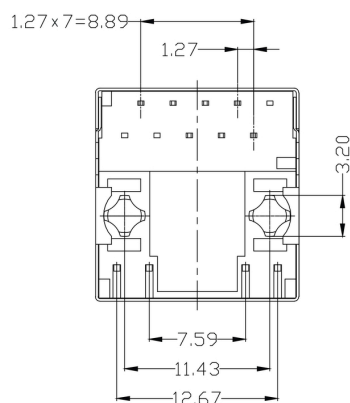
### Rozměrový výkres



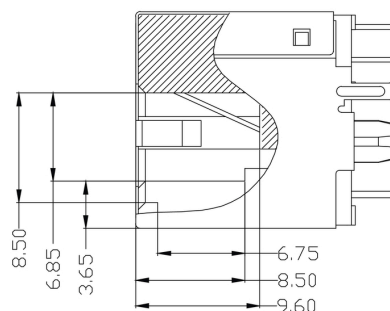
### Rozměrový výkres



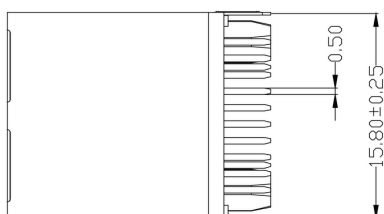
### Rozměrový výkres



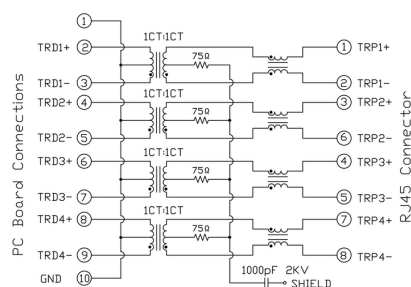
### Rozměrový výkres



### Rozměrový výkres



### Schéma připojení

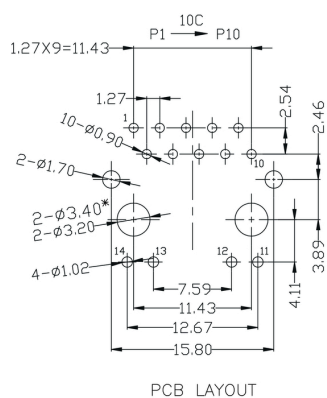


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## Nákresy

### DPS design



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## Nákresy

### Schematic

#### Characteristics

|                       |                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------|
| Inductance            | 350 µH min. @ 100 kHz,<br>100 mV, 8 mA DC Bias                                        |
| Leakage Inductance    | 0.3 µH max. @ 100 kHz, 100 mV                                                         |
| Insertion Loss        | 1.1 dB max. @ (1 - 100) MHz                                                           |
| Return Loss           | 18 dB min. @ (1 - 30) MHz<br>16 dB min. @ (30 - 60) MHz<br>12 dB min. @ (60 - 80) MHz |
| Cross Talk            | 30 dB min. @ (1 - 100) MHz                                                            |
| Common Mode Rejection | 30 dB min. @ (1 - 100) MHz                                                            |

### Type codes

|                           |             |                                                |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|---------------------------|-------------|------------------------------------------------|---|---|-----|---|---|-------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----|-------------------------------|--|----|-----------------------------------|-----|-----|--------------|--|-----|-------------------------|--|-------|---------------------------|--|-----|--------------|--|-----|------------|--|-----|-------------------------------------|--|---|-------------|---------------------------|---|------------------------------------------------|---------------------------|---|-------------------|--|---|----------------------|-------------------|-----|--------|--|-----|--------|--|---|-----|------------------------|---|----------------------------------------|--|---|------------------------------------------|--|---|----------------------------|--|---|--------------------------|-----------------|---|--------|--|-------------|-------------------------------------|--|-----------|------------------------------------------|-----------------|---|---------------------------|--|---|---------------------------------------------|--|---|--------------------------------|--|--|-------------------------------------|--|--|-------------------------------|--|--|-------------------------|----------------------|----|------------|--|----|------------|--|-----|-------------|--|-----|-------------|--|---|-------------|--|----|------------------|--|-----|---------|--|---|------------|--|----|----------------------|--|-----|-----------------------|
| RJ45                      | G1          | R                                              | 1 | U | 3.2 | E | 4 | GY/GY | TY | RJ45G1 R1U 3.2E4GY/GY TY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           |             |                                                |   |   |     |   |   |       |    | <table><tr><td>Packaging</td><td>TY</td><td>Tray in box (manual assembly)</td></tr><tr><td></td><td>RL</td><td>Tape on Reel (automated assembly)</td></tr><tr><td>LED</td><td>Y/G</td><td>Yellow/Green</td></tr><tr><td></td><td>G/Y</td><td>Green/Yellow (standard)</td></tr><tr><td></td><td>GY/GY</td><td>Green-Yellow/Green-Yellow</td></tr><tr><td></td><td>O/G</td><td>Orange/Green</td></tr><tr><td></td><td>R/O</td><td>Red/Orange</td></tr><tr><td></td><td>...</td><td>... (further combinations possible)</td></tr><tr><td></td><td>N</td><td>without LED</td></tr><tr><td>Contact surface thickness</td><td>4</td><td>1 = 3µ", 2 = 6µ", 3 = 15µ", 4 = 30µ", 5 = 50µ"</td></tr><tr><td>EMI tabs (ground fingers)</td><td>E</td><td>E = with EMI tabs</td></tr><tr><td></td><td>N</td><td>N = without EMI tabs</td></tr><tr><td>Solder Pin length</td><td>3.2</td><td>3.2 mm</td></tr><tr><td></td><td>1.6</td><td>1.6 mm</td></tr><tr><td></td><td>D</td><td>SMD</td></tr><tr><td>Direction, latch style</td><td>U</td><td>Horizontal (90°, side entry), latch up</td></tr><tr><td></td><td>D</td><td>Horizontal (90°, side entry), latch down</td></tr><tr><td></td><td>V</td><td>Vertical (180°, top entry)</td></tr><tr><td></td><td>Y</td><td>Diagonal (45°), latch up</td></tr><tr><td>Number of Ports</td><td>1</td><td>1 Port</td></tr><tr><td></td><td>12; 14; ...</td><td>multi ports side by side, Multiport</td></tr><tr><td></td><td>2; 4; ...</td><td>multi ports about each other, Multilevel</td></tr><tr><td>Assembly on PCB</td><td>R</td><td>Through Hole Reflow - THR</td></tr><tr><td></td><td>S</td><td>Soldering process: Wave or Reflow soldering</td></tr><tr><td></td><td>T</td><td>Surface Mount Technology - SMT</td></tr><tr><td></td><td></td><td>Soldering process: Reflow soldering</td></tr><tr><td></td><td></td><td>Through Hole Technology - THT</td></tr><tr><td></td><td></td><td>Soldering process: Wave</td></tr><tr><td>Performance Category</td><td>C5</td><td>Category 5</td></tr><tr><td></td><td>C6</td><td>Category 6</td></tr><tr><td></td><td>C6A</td><td>Category 6A</td></tr><tr><td></td><td>C5e</td><td>Category 5e</td></tr><tr><td></td><td>M</td><td>10/100 Mbit</td></tr><tr><td></td><td>G1</td><td>10/100/1000 Mbit</td></tr><tr><td></td><td>G10</td><td>10 Gbit</td></tr><tr><td></td><td>U</td><td>Unshielded</td></tr><tr><td></td><td>MP</td><td>10/100 Mbit with POE</td></tr><tr><td></td><td>MP+</td><td>10/100 Mbit with POE+</td></tr></table> | Packaging | TY | Tray in box (manual assembly) |  | RL | Tape on Reel (automated assembly) | LED | Y/G | Yellow/Green |  | G/Y | Green/Yellow (standard) |  | GY/GY | Green-Yellow/Green-Yellow |  | O/G | Orange/Green |  | R/O | Red/Orange |  | ... | ... (further combinations possible) |  | N | without LED | Contact surface thickness | 4 | 1 = 3µ", 2 = 6µ", 3 = 15µ", 4 = 30µ", 5 = 50µ" | EMI tabs (ground fingers) | E | E = with EMI tabs |  | N | N = without EMI tabs | Solder Pin length | 3.2 | 3.2 mm |  | 1.6 | 1.6 mm |  | D | SMD | Direction, latch style | U | Horizontal (90°, side entry), latch up |  | D | Horizontal (90°, side entry), latch down |  | V | Vertical (180°, top entry) |  | Y | Diagonal (45°), latch up | Number of Ports | 1 | 1 Port |  | 12; 14; ... | multi ports side by side, Multiport |  | 2; 4; ... | multi ports about each other, Multilevel | Assembly on PCB | R | Through Hole Reflow - THR |  | S | Soldering process: Wave or Reflow soldering |  | T | Surface Mount Technology - SMT |  |  | Soldering process: Reflow soldering |  |  | Through Hole Technology - THT |  |  | Soldering process: Wave | Performance Category | C5 | Category 5 |  | C6 | Category 6 |  | C6A | Category 6A |  | C5e | Category 5e |  | M | 10/100 Mbit |  | G1 | 10/100/1000 Mbit |  | G10 | 10 Gbit |  | U | Unshielded |  | MP | 10/100 Mbit with POE |  | MP+ | 10/100 Mbit with POE+ |
| Packaging                 | TY          | Tray in box (manual assembly)                  |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | RL          | Tape on Reel (automated assembly)              |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
| LED                       | Y/G         | Yellow/Green                                   |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | G/Y         | Green/Yellow (standard)                        |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | GY/GY       | Green-Yellow/Green-Yellow                      |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | O/G         | Orange/Green                                   |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | R/O         | Red/Orange                                     |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | ...         | ... (further combinations possible)            |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | N           | without LED                                    |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
| Contact surface thickness | 4           | 1 = 3µ", 2 = 6µ", 3 = 15µ", 4 = 30µ", 5 = 50µ" |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
| EMI tabs (ground fingers) | E           | E = with EMI tabs                              |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | N           | N = without EMI tabs                           |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
| Solder Pin length         | 3.2         | 3.2 mm                                         |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | 1.6         | 1.6 mm                                         |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | D           | SMD                                            |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
| Direction, latch style    | U           | Horizontal (90°, side entry), latch up         |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | D           | Horizontal (90°, side entry), latch down       |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | V           | Vertical (180°, top entry)                     |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | Y           | Diagonal (45°), latch up                       |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
| Number of Ports           | 1           | 1 Port                                         |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | 12; 14; ... | multi ports side by side, Multiport            |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | 2; 4; ...   | multi ports about each other, Multilevel       |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
| Assembly on PCB           | R           | Through Hole Reflow - THR                      |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | S           | Soldering process: Wave or Reflow soldering    |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | T           | Surface Mount Technology - SMT                 |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           |             | Soldering process: Reflow soldering            |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           |             | Through Hole Technology - THT                  |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           |             | Soldering process: Wave                        |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
| Performance Category      | C5          | Category 5                                     |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | C6          | Category 6                                     |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | C6A         | Category 6A                                    |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | C5e         | Category 5e                                    |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | M           | 10/100 Mbit                                    |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | G1          | 10/100/1000 Mbit                               |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | G10         | 10 Gbit                                        |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | U           | Unshielded                                     |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | MP          | 10/100 Mbit with POE                           |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|                           | MP+         | 10/100 Mbit with POE+                          |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |

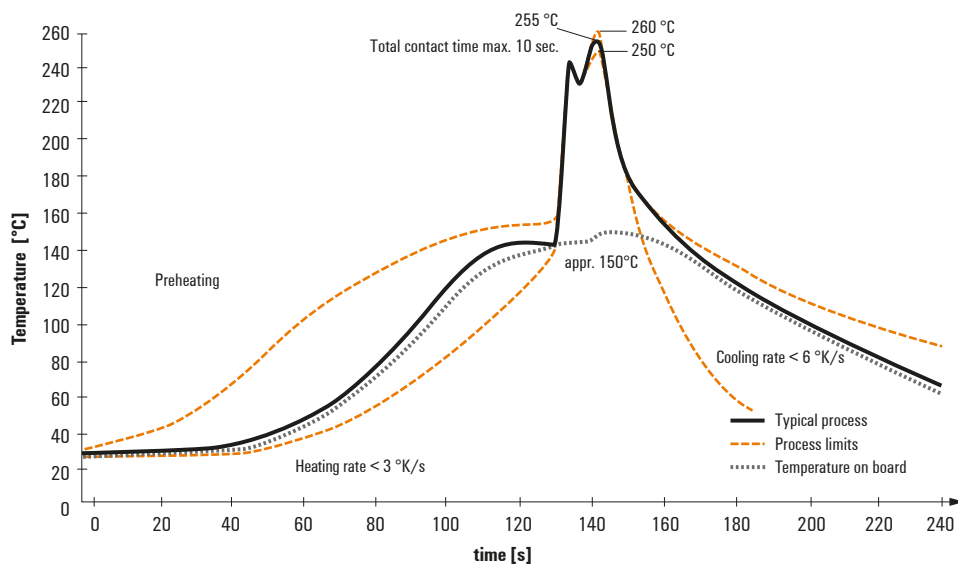
## Recommended wave soldering profiles

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
D-32758 Detmold  
Germany  
Fon: +49 5231 14-0  
Fax: +49 5231 14-292083  
www.weidmueller.com

### Single Wave:



### Double Wave:



### Wave soldering profiles

Wired connection elements should be processed in accordance with the DIN EN 61760-1 standard. We have included two recommendations for practical wave soldering profiles, with which Weidmüller PCB terminals and connectors are qualified.

When choosing a suitable profile for your application, the following factors also need to be considered:

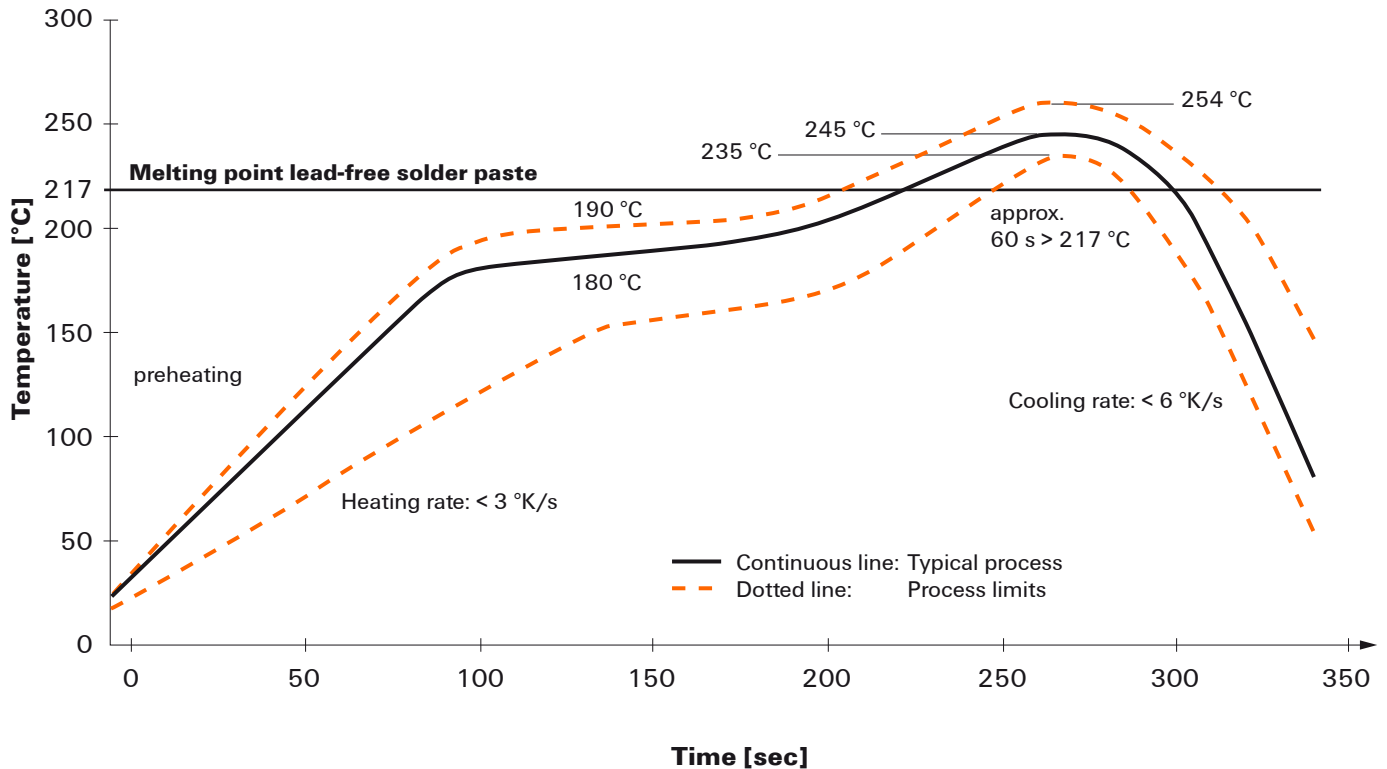
- PCB thickness
- Proportion of Cu in the layers
- Single/double-sided assembly
- Product range
- Heating and cooling rates

The single and double wave profiles each indicate the recommended operating range, including the maximum soldering temperature of  $260\text{ °C}$ . In practice, the maximum soldering temperature is quite often well below the above maximum profile.

We reserve the right to make technical changes.

## Recommended reflow soldering profile

**Weidmüller Interface GmbH & Co. KG**  
Klingenbergstraße 16  
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## Reflow soldering profile

The perfect soldering profile for SMT Surface Mount Technology is one the most exiting question in SMT production. But there are more than one correct answer: The diagram of temperature-on-time is related to processing features of solder paste and to maximum load of components.

We have to consider the following parameters:

- Time for pre heating
- Maximum temperature
- Time above melting point
- Time for cooling
- Maximum heating rate
- Maximum cooling rate

We recommend a typical solder profile with associated process limits. With preheating components and board are prepared smoothly for the solder phase. Heating rate is typically  $\leq +3\text{K/s}$ . In parallel the solder paste is 'activated'. The time above melting point of 217°C the paste gets liquid and components and boards begin to connect. The maximum temperature of 245°C to 254°C should stay between 10 and 40 seconds. In the cooling phase at  $\geq -6\text{K/s}$  solder is cured. Board and components cool down while avoiding cold cracks.