

## Datos OMNIMATE - Transformador de conectores RJ45 RJ45M R1V 3.3N4Y/G TY

**Weidmüller Interface GmbH & Co. KG**  
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Conectores hembra de transmisores RJ45 (magnéticos) para aplicaciones de gigabit (1000 base-T) con compensación integrada contrarrestan activamente acoplamientos inductivos y capacitivos y ahorran espacio en el PCB.

- Procedimientos de soldadura THT o THR
- Amplia gama de diferentes tipos de diseño, también con LED integrados y lengüetas de contacto de apantallado
- Embalaje en bandeja (TY) o en rollo (embalaje en cinta, RL)
- Rango de temperaturas ampliado de -40 °C a +85 °C
- Capa de oro reforzada para protección mejorada contra la corrosión
- Velocidades de transmisión de hasta 1 Gbit/s

### Datos generales para pedido

|            |                                                                                                                                                                                                                                                   |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tipo       | RJ45M R1V 3.3N4Y/G TY                                                                                                                                                                                                                             |
| Código     | <a href="#">2461070000</a>                                                                                                                                                                                                                        |
| Versión    | Conector para placa c.i., Transformador de conectores RJ45, 10/100 MBit/s, Conexión por soldadura THT/THR, 180°, Anillo de apantallado: ninguno, 30-80 µ" Ni / 30- µ" Au, LED: Sí, amarillo, verde, Número de polos: 8, Bandeja (conjunto manual) |
| GTIN (EAN) | 4050118476071                                                                                                                                                                                                                                     |
| U.E.       | 120 Pieza                                                                                                                                                                                                                                         |
| Embalaje   | Bandeja (conjunto manual)                                                                                                                                                                                                                         |

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## Datos técnicos

### Dimensiones y pesos

|                          |            |                    |            |
|--------------------------|------------|--------------------|------------|
| Anchura                  | 16 mm      | Anchura (pulgadas) | 0,63 inch  |
| Altura                   | 20,3 mm    | Altura (pulgadas)  | 0,799 inch |
| Altura construcción baja | 17 mm      | Profundidad        | 16,8 mm    |
| Profundidad (pulgadas)   | 0,661 inch | Peso neto          | 3,658 g    |

### Temperaturas

|                                     |       |                                     |        |
|-------------------------------------|-------|-------------------------------------|--------|
| Temperatura de almacenamiento, max. | 85 °C | Temperatura de almacenamiento, min. | -40 °C |
| Temperatura de servicio, max.       | 85 °C | Temperatura de servicio, min.       | -40 °C |

### Conformidad medioambiental del producto

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

### Especificaciones del sistema

|                                              |                                |                              |                                                   |
|----------------------------------------------|--------------------------------|------------------------------|---------------------------------------------------|
| Angulo de salida                             | 180°                           | Anilla de apantallado        | ninguno                                           |
| Apantallamiento                              | Sí                             | Ciclos de enchufado          | 750                                               |
| Color de LED derecho                         | verde                          | Color de LED izquierdo       | amarillo                                          |
| Diámetro de la perforación (D)               |                                | Familia del producto         | Datos OMNIMATE - Transformador de conectores RJ45 |
|                                              | 0,9 mm                         | Material del apantallamiento | Latón                                             |
| LED                                          | Sí                             | Número de polos              | 8                                                 |
| Montaje sobre placas c.i.                    | Conexión por soldadura THT/THR | Paso en mm (P)               | 1,27 mm                                           |
| Número de terminales de soldadura por polo   | 1                              | Superficie de apantallado    | niquelado                                         |
| Paso en pulgadas (P)                         | 0,05 inch                      | Tipo de protección           | IP20                                              |
| Tipo de conexión                             | Conector hembra                | Velocidad de transmisión     | 10/100 MBit/s                                     |
| Tolerancia de diámetro de la perforación (D) | ± 0,1 mm                       |                              |                                                   |

### Propiedades eléctricas

|                                                       |           |                                                          |           |
|-------------------------------------------------------|-----------|----------------------------------------------------------|-----------|
| Intensidad nominal                                    | 1,5 A     | Resistencia a tensiones eléctricas, contacto/apantallado | 1500 V DC |
| Resistencia a tensiones eléctricas, contacto/contacto | 1000 V DC | Resistencia de aislamiento                               | > 500 MΩ  |
| Tensión nominal                                       | 125 V AC  |                                                          |           |

### Datos del material

|                                               |                         |                                     |                  |
|-----------------------------------------------|-------------------------|-------------------------------------|------------------|
| Materiales aislantes                          | PA 9T                   | Color                               | negro            |
| Carta de colores (similar)                    | RAL 9011                | Grupo de materiales aislantes       | II               |
| CTI                                           | ≥ 500                   | Resistencia de aislamiento          | > 500 MΩ         |
| Moisture Level (MSL)                          | 1                       | Grado inflamabilidad según UL 94    | V-0              |
| Material del contacto                         | Fósforo, bronce         | Superficie de contacto              | Oro sobre níquel |
| Estructura de capas del contacto del conector | 30-80 μ" Ni / 30- μ" Au | Temperatura de almacenamiento, min. | -40 °C           |
| Temperatura de almacenamiento, max.           | 85 °C                   | Temperatura de servicio, min.       | -40 °C           |
| Temperatura de servicio, max.                 | 85 °C                   |                                     |                  |

### Embalaje

|             |                           |                 |     |
|-------------|---------------------------|-----------------|-----|
| Embalaje    | Bandeja (conjunto manual) | Longitud de VPE | 0 m |
| Anchura VPE | 0 m                       | Altura de VPE   | 0 m |

Fecha de creación 1 de agosto de 2019 14:05:42 CEST

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## Datos técnicos

### Clasificaciones

|            |             |            |             |
|------------|-------------|------------|-------------|
| ETIM 6.0   | EC002637    | eClass 6.2 | 27-25-05-04 |
| eClass 9.0 | 27-44-04-02 | eClass 9.1 | 27-44-04-02 |

### Homologaciones en línea

Homologaciones



ROHS Conformidad

### Descargas

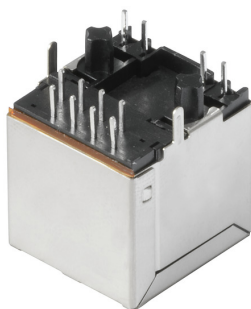
|                                    |                                                                    |
|------------------------------------|--------------------------------------------------------------------|
| Datos de ingeniería                | <a href="#">STEP</a>                                               |
| Documentación del usuario          | <a href="#">MAN IE GUIDE DE</a><br><a href="#">MAN IE GUIDE EN</a> |
| Notificación de cambio de producto | <a href="#">PCN</a><br><a href="#">PCN</a>                         |

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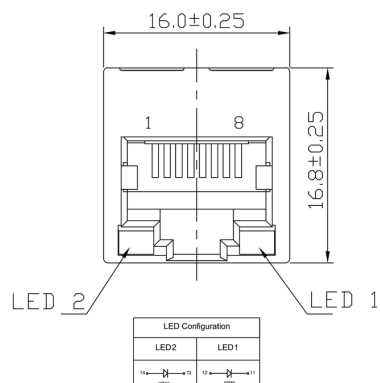
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## Dibujos

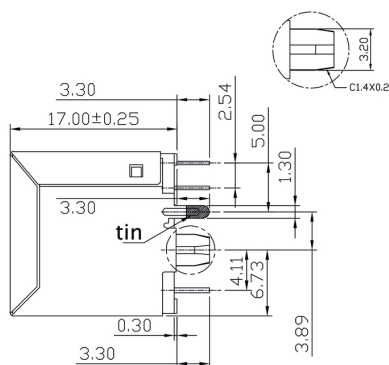
### Dibujo acotado



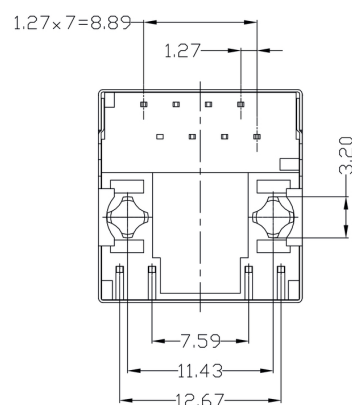
### Dimensional drawing



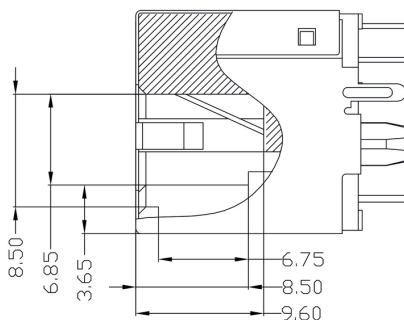
### Dimensional drawing



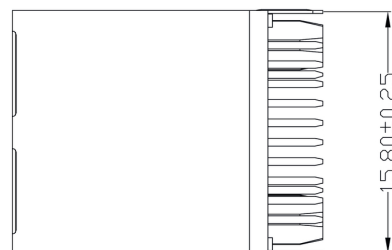
### Dimensional drawing



### Dimensional drawing



### Dimensional drawing

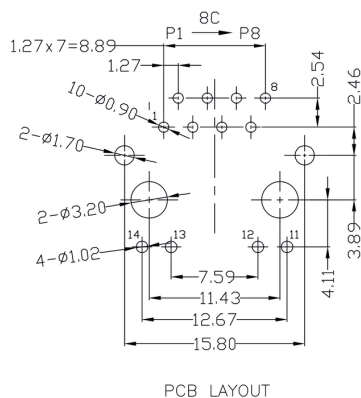


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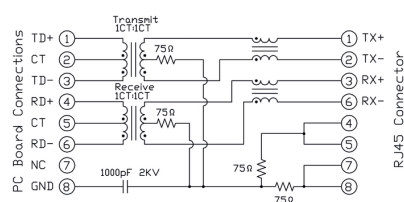
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## Dibujos

### Diseño de la placa de circuito impreso



### Esquema de conexiones



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## Dibujos

## Gráfico

### 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                                                            |

## Códigos de tipo

|                           |             |                                                |   |   |     |   |   |       |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |    |                               |  |    |                                   |     |     |              |  |     |                         |  |       |                           |  |     |              |  |     |            |  |     |                                     |  |   |             |                           |   |                                                |                           |   |                   |  |   |                      |                   |     |        |  |     |        |  |   |     |                        |   |                                        |  |   |                                          |  |   |                            |  |   |                          |                 |   |        |  |             |                                     |  |           |                                          |                 |   |                           |  |   |                                             |  |   |                                |  |  |                                     |  |  |                               |  |  |                         |                      |    |            |  |    |            |  |     |             |  |     |             |  |   |             |  |    |                  |  |     |         |  |   |            |  |    |                      |  |     |                       |
|---------------------------|-------------|------------------------------------------------|---|---|-----|---|---|-------|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----|-------------------------------|--|----|-----------------------------------|-----|-----|--------------|--|-----|-------------------------|--|-------|---------------------------|--|-----|--------------|--|-----|------------|--|-----|-------------------------------------|--|---|-------------|---------------------------|---|------------------------------------------------|---------------------------|---|-------------------|--|---|----------------------|-------------------|-----|--------|--|-----|--------|--|---|-----|------------------------|---|----------------------------------------|--|---|------------------------------------------|--|---|----------------------------|--|---|--------------------------|-----------------|---|--------|--|-------------|-------------------------------------|--|-----------|------------------------------------------|-----------------|---|---------------------------|--|---|---------------------------------------------|--|---|--------------------------------|--|--|-------------------------------------|--|--|-------------------------------|--|--|-------------------------|----------------------|----|------------|--|----|------------|--|-----|-------------|--|-----|-------------|--|---|-------------|--|----|------------------|--|-----|---------|--|---|------------|--|----|----------------------|--|-----|-----------------------|
| 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

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Klingenbergstraße 16  
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### 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°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

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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.