

Construction

- Polar tantalum capacitors with solid electrolyte
- Conventional Ta-MnO₂ technology
- Flame-retardant plastic case (UL 94 V-0)
- Optionally tinned or gold-plated terminals



Features

- Ultra-high volumetric efficiency
- Excellent solderability
- Stable temperature and frequency characteristics
- Low leakage current, low dissipation factor
- Low self-inductance
- High resistance to shock and vibration
- Suitable for use without series resistor
(recommended operating voltage see “General Technical Information”, page 111, 4.4)

Applications

- Telecommunications (e.g. mobile phones, private branch exchanges)
- Data processing (e.g. laptops, main frames)
- Measuring and control engineering (e.g. voltage regulators)
- Automotive electronics
- Medical engineering
- DC/DC converters

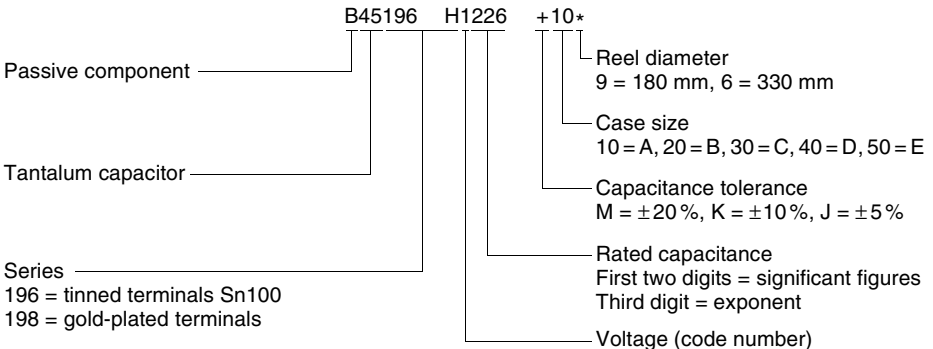
Soldering

Suitable for reflow soldering (IR and vapor phase) and wave soldering

Delivery mode

Taped and reeled in accordance with IEC 60286-3

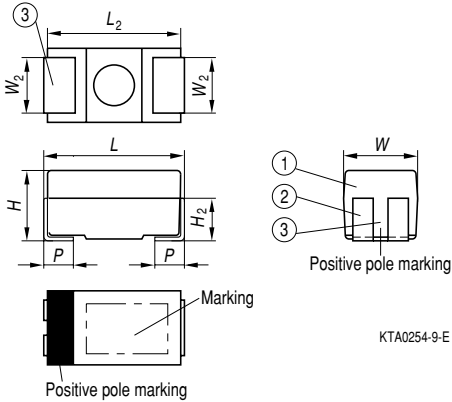
Ordering code structure




Specifications and characteristics in brief

For characteristic curves see “General Technical Information”, page 107 ff.

| | | |
|---|---|---------------------|
| | HighCap | |
| Series | B45196H | B45198H |
| Technology | Ta-MnO ₂ | Ta-MnO ₂ |
| Terminals | Tinned | Gold-plated |
| Rated voltage V_R (up to 85 °C) | 4 ... 50 Vdc | |
| Rated capacitance C_R | 0,15 ... 1500 μ F | |
| Capacitance tolerance | $\pm 10\%$, $\pm 20\%$ $\pm 5\%$ (on request) | |
| Operating temperature | -55 ... +125 °C | |
| Failure rate | At 40 °C; $\leq V_R$, $R_S \geq 3 \Omega/V$ (1 fit = $1 \cdot 10^{-9}$ failures/h) | |
| $C_R \cdot V_R \leq 330 \mu\text{F} \cdot \text{V}$ | ≤ 8 fit | |
| $C_R \cdot V_R > 330 \mu\text{F} \cdot \text{V}$ | ≤ 24 fit | |
| Service life | > 500 000 h | |
| Leakage current (V_R , 5 min, 20 °C) | 10 nA/ μ C | |
| Detail specification (tinned terminals) | CECC 30801-802 | |
| IEC climatic category | To IEC 60068-1 55/125/56 (-55/+125 °C; 56 days damp heat test) | |

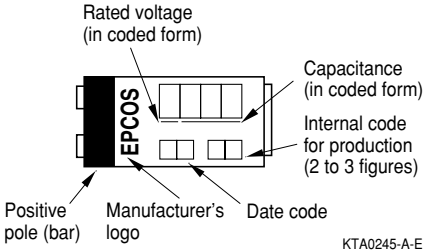
Dimensional drawing


- ① Encapsulation: molded epoxy resin
- ② NiFe; tinned surface Sn100 or gold-plated
- ③ Reduced slot length for case size A

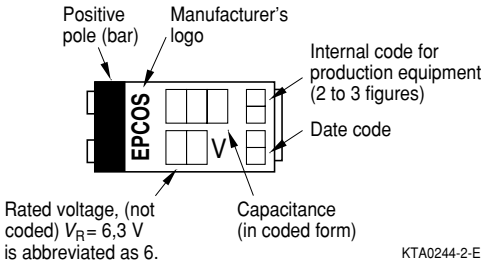
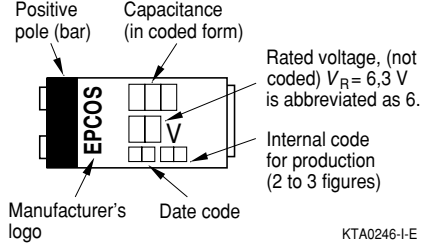
| Case size | Dimensions in mm (inches) | | | | | | |
|-----------|---------------------------|--------------------------|--------------------------|----------------------------|--|----------------------------|---------------------------|
| | <i>L</i> | <i>W</i> | <i>H</i> | <i>L</i> ₂ typ. | <i>W</i> ₂ ± 0,1 ±(,004) | <i>H</i> ₂ typ. | <i>p</i> ± 0,3 ±(,012) |
| A (10) | 3,2 ± 0,2 (,126±,008) | 1,6 ± 0,2 (,063±,008) | 1,6 ± 0,2 (,063±,008) | 3,0 (,118) | 1,2 (,047) | 1,0 (,039) | 0,8 (,031) |
| B (20) | 3,5 ± 0,2 (,138±,008) | 2,8 ± 0,2 (,110±,008) | 1,9 ± 0,2 (,075±,008) | 3,3 (,130) | 2,2 (,087) | 1,2 (,047) | 0,8 (,031) |
| C (30) | 6,0 ± 0,3 (,236±,012) | 3,2 ± 0,3 (,126±,012) | 2,5 ± 0,3 (,098±,012) | 5,8 (,228) | 2,2 (,087) | 1,5 (,059) | 1,3 (,051) |
| D (40) | 7,3 ± 0,3 (,287±,012) | 4,3 ± 0,3 (,169±,012) | 2,8 ± 0,3 (,110±,012) | 7,1 (,280) | 2,4 (,094) | 1,6 (,062) | 1,3 (,051) |
| E (50) | 7,3 ± 0,3 (,287±,012) | 4,3 ± 0,3 (,169±,012) | 4,1 ± 0,3 (,157±,012) | 7,1 (,280) | 2,4 (,094) | 1,6 (,062) | 1,3 (,051) |

Marking

Case size A



Case size B



Case sizes C, D, E

Voltage coding for case size A

| | | | | | | | | |
|---------------|---|-----|----|----|----|----|----|----|
| Rated voltage | 4 | 6,3 | 10 | 16 | 20 | 25 | 35 | 50 |
| Code letter | G | J | A | C | D | E | V | T |

Capacitance coding

| | |
|-------------------|---|
| 1st and 2nd digit | Capacitance in pF |
| 3rd digit | Multiplier: 4 = 10^4 pF 5 = 10^5 pF 6 = 10^6 pF 7 = 10^7 pF 8 = 10^8 pF |

Date coding

| Year | Month | |
|----------|--------------|---------------|
| M = 2000 | 1 = January | 7 = July |
| N = 2001 | 2 = February | 8 = August |
| P = 2002 | 3 = March | 9 = September |
| R = 2003 | 4 = April | O = October |
| S = 2004 | 5 = May | N = November |
| T = 2005 | 6 = June | D = December |

In addition to the year and month of manufacture, the stamp includes another two or three figures which internally allow us an assignment to production equipment.

Overview of available types

| Series | B45196H, tinned terminals B45198H, gold-plated terminals | | | | | | | | | | | | | | |
|---------------------------|---|-----|---|----|----|----|----|----|----|---|---|---|---|---|---|
| V_R (Vdc) up to 85°C | 4 | 6,3 | | 10 | 16 | 20 | 25 | 35 | 50 | | | | | | |
| C_R (μF) ¹⁾ | | | | | | | | | | | | | | | |
| 0,15 | | | | | | | | | | | | | | A | |
| 0,22 | | | | | | | | | | | | | | A | |
| 0,33 | | | | | | | | | | | | | | | |
| 0,47 | | | | | | | | | | | | A | | B | |
| 0,68 | | | | | | | | | | | | A | | | |
| 1,0 | | | | | | | | A | | A | | | | | |
| 1,5 | | | | | | | A | A | | B | | | | C | |
| 2,2 | | | | | A | | A | A | | B | | | | C | |
| 3,3 | | | | A | | A | A | | B | | B | | | | |
| 4,7 | | | A | | A | | A | B | | B | | C | | | |
| 6,8 | A | | A | | A | B | | B | B | C | | C | D | E | |
| 10 | A | | A | A | B | A | B | B | C | | C | C | | E | |
| 15 | A | A | B | A | B | B | C | | C | | C | D | | E | |
| 22 | A | B | A | B | A | B | C | B | C | | C | C | D | D | E |
| 33 | A | B | A | B | C | B | C | | C | C | D | D | E | E | |
| 47 | A | B | C | B | C | B | C | C | D | D | E | D | E | E | |
| 68 | B | C | B | C | C | D | C | D | D | E | | E | | | |
| 100 | B | C | B | C | D | C | D | D | E | | E | | | | |
| 150 | C | D | C | D | D | C | D | E | D | E | | | | | |
| 220 | C | D | C | D | E | D | E | | E | | | | | | |
| 330 | C | D | E | D | E | D | E | | | | | | | | |
| 470 | D | E | D | E | | E | | | | | | | | | |
| 680 | D | E | | E | | E | | | | | | | | | |
| 1000 | | E | | E | | | | | | | | | | | |
| 1500 | | E | | | | | | | | | | | | | |

Upon request

1) Additional ratings upon request

Technical data and ordering codes

| V_R up to 85°C (up to 125°C) Vdc | C_R μF | Case size | $\tan \delta_{\max}$ (20°C, 120 Hz) | $I_{k, \max}$ (20°C, V_R , 5 min) μA | Z_{\max} (20°C, 100 kHz) Ω | Ordering code 1) Tinned terminals |
|---|----------------------------|--------------|---|--|--|--|
| 4 (2,5) | 6,8 | A | 0,06 | 0,5 | 6,0 | B45196H0685+10* |
| | 10 | A | 0,06 | 0,5 | 4,5 | B45196H0106+10* |
| | 15 | A | 0,06 | 0,6 | 4,0 | B45196H0156+10* |
| | 22 | A | 0,08 | 0,9 | 3,5 | B45196H0226+10* |
| | 22 | B | 0,06 | 0,9 | 3,0 | B45196H0226+20* |
| | 33 | A | 0,08 | 1,3 | 3,0 | B45196H0336+10* |
| | 33 | B | 0,06 | 1,3 | 2,5 | B45196H0336+20* |
| | 47 | A | 0,10 | 1,9 | 2,8 | B45196H0476+10* |
| | 47 | B | 0,06 | 1,9 | 2,3 | B45196H0476+20* |
| | 47 | C | 0,06 | 1,9 | 1,6 | B45196H0476+30* |
| | 68 | B | 0,06 | 2,7 | 1,8 | B45196H0686+20* |
| | 68 | C | 0,06 | 2,7 | 1,5 | B45196H0686+30* |
| | 100 | B | 0,08 | 4,0 | 1,6 | B45196H0107+20* |
| | 100 | C | 0,08 | 4,0 | 1,4 | B45196H0107+30* |
| | 150 | C | 0,08 | 6,0 | 1,3 | B45196H0157+30* |
| | 150 | D | 0,08 | 6,0 | 0,8 | B45196H0157+40* |
| | 220 | C | 0,15 | 8,8 | 1,2 | B45196H0227+30* |
| | 220 | D | 0,08 | 8,8 | 0,8 | B45196H0227+40* |
| | 330 | C | 0,15 | 13 | 1,2 | B45196H0337+30* |
| | 330 | D | 0,10 | 13 | 0,9 | B45196H0337+40* |
| | 330 | E | 0,08 | 13 | 0,8 | B45196H0337+50* |
| | 470 | D | 0,10 | 19 | 0,9 | B45196H0477+40* |
| | 470 | E | 0,08 | 19 | 0,6 | B45196H0477+50* |
| | 680 | D | 0,12 | 27 | 0,9 | B45196H0687+40* |
| 680 | E | 0,12 | 27 | 0,6 | B45196H0687+50* | |
| 1000 | E | 0,15 | 40 | 0,6 | B45196H0108+50* | |
| 1500 | E | 0,15 | 60 | 0,6 | B45196H0158+50* | |

Upon request

1) Replace 196H by 198H for gold-plated terminals

+ Code letter for capacitance tolerance: M = $\pm 20\%$, K = $\pm 10\%$ (J = $\pm 5\%$ upon request)

* Code number for required reel diameter: 9 = 180 mm, 6 = 330 mm

| V_R up to 85°C (up to 125°C) Vdc | C_R μF | Case size | $\tan \delta_{\max}$ (20°C, 120 Hz) | $I_{lk, \max}$ (20°C, V_R , 5 min) μA | Z_{\max} (20°C, 100 kHz) Ω | Ordering code ¹⁾ Tinned terminals |
|---|-----------------|--------------|---|--|---------------------------------------|---|
| 6,3 (4) | 4,7 | A | 0,06 | 0,5 | 5,5 | B45196H1475+10* |
| | 6,8 | A | 0,06 | 0,5 | 4,5 | B45196H1685+10* |
| | 10 | A | 0,06 | 0,6 | 4,0 | B45196H1106+10* |
| | 15 | A | 0,06 | 0,9 | 3,8 | B45196H1156+10* |
| | 15 | B | 0,06 | 0,9 | 3,0 | B45196H1156+20* |
| | 22 | A | 0,08 | 1,4 | 3,0 | B45196H1226+10* |
| | 22 | B | 0,06 | 1,4 | 2,5 | B45196H1226+20* |
| | 33 | A | 0,10 | 2,1 | 2,8 | B45196H1336+10* |
| | 33 | B | 0,06 | 2,1 | 2,2 | B45196H1336+20* |
| | 33 | C | 0,06 | 2,1 | 1,6 | B45196H1336+30* |
| | 47 | B | 0,06 | 3,0 | 2,0 | B45196H1476+20* |
| | 47 | C | 0,06 | 3,0 | 1,5 | B45196H1476+30* |
| | 68 | B | 0,08 | 4,3 | 1,8 | B45196H1686+20* |
| | 68 | C | 0,06 | 4,3 | 1,4 | B45196H1686+30* |
| | 100 | B | 0,12 | 6,3 | 1,6 | B45196H1107+20* |
| | 100 | C | 0,08 | 6,3 | 1,2 | B45196H1107+30* |
| | 100 | D | 0,08 | 6,3 | 0,8 | B45196H1107+40* |
| | 150 | C | 0,08 | 9,5 | 1,3 | B45196H1157+30* |
| | 150 | D | 0,08 | 9,5 | 0,8 | B45196H1157+40* |
| | 220 | C | 0,10 | 14 | 1,2 | B45196H1227+30* |
| | 220 | D | 0,08 | 14 | 0,8 | B45196H1227+40* |
| | 220 | E | 0,12 | 14 | 0,8 | B45196H1227+50* |
| | 330 | D | 0,08 | 21 | 0,8 | B45196H1337+40* |
| | 330 | E | 0,08 | 21 | 0,6 | B45196H1337+50* |
| | 470 | D | 0,15 | 30 | 0,9 | B45196H1477+40* |
| | 470 | E | 0,08 | 30 | 0,6 | B45196H1477+50* |
| | 680 | E | 0,15 | 43 | 0,6 | B45196H1687+50* |
| | 1000 | E | 0,15 | 63 | 0,6 | B45196H1108+50* |

Upon request

1) Replace 196H by 198H for gold-plated terminals

+ Code letter for capacitance tolerance: M = ± 20 %, K = ± 10 % (J = ± 5 % upon request)

* Code number for reel diameter: 9 = 180 mm, 6 = 330 mm

| V_R up to 85°C (up to 125°C) Vdc | C_R μF | Case size | $\tan \delta_{\max}$ (20°C, 120 Hz) | $I_{lk, \max}$ (20°C, V_R , 5 min) μA | Z_{\max} (20°C, 100 kHz) Ω | Ordering code ¹⁾ Tinned terminals |
|---|-----------------|--------------|---|--|---------------------------------------|---|
| 10 (6,3) | 3,3 | A | 0,06 | 0,5 | 5,5 | B45196H2335+10* |
| | 4,7 | A | 0,06 | 0,5 | 4,5 | B45196H2475+10* |
| | 6,8 | A | 0,06 | 0,7 | 4,0 | B45196H2685+10* |
| | 10 | A | 0,06 | 1,0 | 3,8 | B45196H2106+10* |
| | 10 | B | 0,06 | 1,0 | 3,0 | B45196H2106+20* |
| | 15 | A | 0,06 | 1,5 | 3,2 | B45196H2156+10* |
| | 15 | B | 0,06 | 1,5 | 2,5 | B45196H2156+20* |
| | 22 | A | 0,08 | 2,2 | 3,2 | B45196H2226+10* |
| | 22 | B | 0,06 | 2,2 | 2,3 | B45196H2226+20* |
| | 22 | C | 0,06 | 2,2 | 1,6 | B45196H2226+30* |
| | 33 | B | 0,06 | 3,3 | 2,0 | B45196H2336+20* |
| | 33 | C | 0,06 | 3,0 | 1,5 | B45196H2336+30* |
| | 47 | B | 0,08 | 4,7 | 1,6 | B45196H2476+20* |
| | 47 | C | 0,06 | 4,7 | 1,4 | B45196H2476+30* |
| | 68 | C | 0,06 | 6,8 | 1,2 | B45196H2686+30* |
| | 68 | D | 0,06 | 6,8 | 0,8 | B45196H2686+40* |
| | 100 | C | 0,08 | 10 | 1,2 | B45196H2107+30* |
| | 100 | D | 0,08 | 10 | 0,8 | B45196H2107+40* |
| | 150 | C | 0,10 | 15 | 1,0 | B45196H2157+30* |
| | 150 | D | 0,08 | 15 | 0,8 | B45196H2157+40* |
| | 150 | E | 0,08 | 15 | 0,8 | B45196H2157+50* |
| | 220 | D | 0,10 | 22 | 0,8 | B45196H2227+40* |
| | 220 | E | 0,08 | 22 | 0,6 | B45196H2227+50* |
| 330 | D | 0,12 | 33 | 0,9 | B45196H2337+40* | |
| 330 | E | 0,10 | 33 | 0,6 | B45196H2337+50* | |
| 470 | E | 0,12 | 47 | 0,6 | B45196H2477+50* | |
| 680 | E | 0,15 | 68 | 0,6 | B45196H2687+50* | |

Upon request

1) Replace 196H by 198H for gold-plated terminals

+ Code letter for capacitance tolerance: M = ± 20 %, K = ± 10 % (J = ± 5 % upon request)

* Code number for reel diameter: 9 = 180 mm, 6 = 330 mm

| V_R up to 85°C (up to 125°C) Vdc | C_R μF | Case size | $\tan \delta_{\max}$ (20°C, 120 Hz) | $I_{lk, \max}$ (20°C, V_R , 5 min) μA | Z_{\max} (20°C, 100 kHz) Ω | Ordering code ¹⁾ Tinned terminals |
|---|----------------------------|--------------|---|---|--|---|
| 16 | 2,2 | A | 0,06 | 0,5 | 6,5 | B45196H3225+10* |
| (10) | 3,3 | A | 0,06 | 0,5 | 5,0 | B45196H3335+10* |
| | 4,7 | A | 0,06 | 0,8 | 4,0 | B45196H3475+10* |
| | 6,8 | A | 0,06 | 1,1 | 3,8 | B45196H3685+10* |
| | 6,8 | B | 0,06 | 1,1 | 3,0 | B45196H3685+20* |
| | 10 | A | 0,06 | 1,6 | 3,0 | B45196H3106+10* |
| | 10 | B | 0,06 | 1,6 | 2,5 | B45196H3106+20* |
| | 15 | B | 0,06 | 2,4 | 2,3 | B45196H3156+20* |
| | 15 | C | 0,06 | 2,4 | 1,6 | B45196H3156+30* |
| | 22 | B | 0,06 | 3,5 | 2,6 | B45196H3226+20* |
| | 22 | C | 0,06 | 3,5 | 1,5 | B45196H3226+30* |
| | 33 | C | 0,06 | 5,3 | 1,4 | B45196H3336+30* |
| | 47 | C | 0,06 | 7,5 | 1,4 | B45196H3476+30* |
| | 47 | D | 0,06 | 7,5 | 0,8 | B45196H3476+40* |
| | 68 | C | 0,06 | 11 | 1,2 | B45196H3686+30* |
| | 68 | D | 0,06 | 11 | 0,8 | B45196H3686+40* |
| | 100 | D | 0,08 | 16 | 0,8 | B45196H3107+40* |
| | 100 | E | 0,08 | 16 | 0,8 | B45196H3107+50* |
| | 150 | D | 0,10 | 24 | 0,9 | B45196H3157+40* |
| | 150 | E | 0,08 | 24 | 0,6 | B45196H3157+50* |
| | 220 | E | 0,10 | 35 | 0,9 | B45196H3227+50* |

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* Code number for reel diameter: 9 = 180 mm, 6 = 330 mm

| V_R up to 85°C (up to 125°C) Vdc | C_R μF | Case size | $\tan \delta_{\max}$ (20°C, 120 Hz) | $I_{lk, \max}$ (20°C, V_R , 5 min) μA | Z_{\max} (20°C, 100 kHz) Ω | Ordering code ¹⁾ Tinned terminals |
|---|-----------------|--------------|---|--|---------------------------------------|---|
| 20 (13) | 1,5 | A | 0,06 | 0,5 | 8,0 | B45196H4155+10* |
| | 2,2 | A | 0,06 | 0,5 | 6,0 | B45196H4225+10* |
| | 3,3 | A | 0,06 | 0,7 | 4,0 | B45196H4335+10* |
| | 4,7 | A | 0,06 | 0,9 | 3,5 | B45196H4475+10* |
| | 4,7 | B | 0,06 | 0,9 | 3,0 | B45196H4475+20* |
| | 6,8 | B | 0,06 | 1,4 | 2,5 | B45196H4685+20* |
| | 10 | B | 0,06 | 2,0 | 2,3 | B45196H4106+20* |
| | 10 | C | 0,06 | 2,0 | 1,6 | B45196H4106+30* |
| | 15 | C | 0,06 | 3,0 | 1,5 | B45196H4156+30* |
| | 22 | C | 0,06 | 4,4 | 1,4 | B45196H4226+30* |
| | 33 | C | 0,06 | 6,6 | 1,5 | B45196H4336+30* |
| | 33 | D | 0,06 | 6,6 | 0,8 | B45196H4336+40* |
| | 47 | D | 0,06 | 9,4 | 0,8 | B45196H4476+40* |
| | 47 | E | 0,06 | 9,4 | 0,8 | B45196H4476+50* |
| | 68 | D | 0,06 | 14 | 0,9 | B45196H4686+40* |
| | 68 | E | 0,06 | 14 | 0,8 | B45196H4686+50* |
| 100 | E | 0,08 | 20,0 | 0,8 | B45196H4107+50* | |
| 25 (16) | 1,0 | A | 0,04 | 0,5 | 8,0 | B45196H5105+10* |
| | 1,5 | A | 0,06 | 0,5 | 7,0 | B45196H5155+10* |
| | 2,2 | A | 0,06 | 0,6 | 7,0 | B45196H5225+10* |
| | 3,3 | B | 0,06 | 0,8 | 4,0 | B45196H5335+20* |
| | 4,7 | B | 0,06 | 1,2 | 3,2 | B45196H5475+20* |
| | 6,8 | B | 0,06 | 1,7 | 2,8 | B45196H5685+20* |
| | 6,8 | C | 0,06 | 1,7 | 2,0 | B45196H5685+30* |
| | 10 | C | 0,06 | 2,5 | 1,6 | B45196H5106+30* |
| | 15 | C | 0,06 | 3,8 | 1,5 | B45196H5156+30* |
| | 22 | C | 0,06 | 5,5 | 1,4 | B45196H5226+30* |
| | 22 | D | 0,06 | 5,5 | 0,8 | B45196H5226+40* |
| | 33 | D | 0,06 | 8,3 | 0,8 | B45196H5336+40* |
| | 33 | E | 0,06 | 8,3 | 0,8 | B45196H5336+50* |
| | 47 | D | 0,06 | 12 | 0,8 | B45196H5476+40* |
| | 47 | E | 0,06 | 12 | 0,8 | B45196H5476+50* |
| | 68 | E | 0,06 | 17 | 0,9 | B45196H5686+50* |

Upon request

1) Replace 196H by 198H for gold-plated terminals

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* Code number for reel diameter: 9 = 180 mm, 6 = 330 mm

| V_R up to 85°C (up to 125°C) Vdc | C_R μF | Case size | $\tan \delta_{\max}$ (20°C, 120 Hz) | $I_{lk, \max}$ (20°C, V_R , 5 min) μA | Z_{\max} (20°C, 100 kHz) Ω | Ordering code ¹⁾ Tinned terminals |
|---|----------------------------|--------------|---|---|--|---|
| 35 (23) | 0,47 | A | 0,04 | 0,5 | 11 | B45196H6474+10* |
| | 0,68 | A | 0,04 | 0,5 | 8,0 | B45196H6684+10* |
| | 1,0 | A | 0,04 | 0,5 | 7,0 | B45196H6105+10* |
| | 1,5 | B | 0,06 | 0,5 | 6,0 | B45196H6155+20* |
| | 2,2 | B | 0,06 | 0,8 | 4,0 | B45196H6225+20* |
| | 3,3 | B | 0,06 | 1,2 | 3,5 | B45196H6335+20* |
| | 4,7 | C | 0,06 | 1,6 | 2,0 | B45196H6475+30* |
| | 6,8 | C | 0,06 | 2,4 | 1,8 | B45196H6685+30* |
| | 10 | C | 0,06 | 3,5 | 1,6 | B45196H6106+30* |
| | 15 | D | 0,06 | 5,3 | 0,8 | B45196H6156+40* |
| | 22 | D | 0,06 | 7,7 | 0,8 | B45196H6226+40* |
| | 22 | E | 0,06 | 7,7 | 0,8 | B45196H6226+50* |
| | 33 | E | 0,06 | 12 | 0,8 | B45196H6336+50* |
| 47 | E | 0,06 | 16 | 0,9 | B45196H6476+50* | |
| 50 (33) | 0,15 | A | 0,04 | 0,5 | 22 | B45196H7154+10* |
| | 0,22 | A | 0,04 | 0,5 | 18 | B45196H7224+10* |
| | 0,47 | B | 0,04 | 0,5 | 9,0 | B45196H7474+20* |
| | 1,5 | C | 0,06 | 0,8 | 4,4 | B45196H7155+30* |
| | 2,2 | C | 0,06 | 1,1 | 3,2 | B45196H7225+30* |
| | 6,8 | D | 0,06 | 3,4 | 0,8 | B45196H7685+40* |
| | 6,8 | E | 0,06 | 3,4 | 0,8 | B45196H7685+50* |
| | 10 | E | 0,06 | 5,0 | 0,8 | B45196H7106+50* |
| | 15 | E | 0,06 | 7,5 | 0,9 | B45196H7156+50* |

Upon request

1) Replace 196H by 198H for gold-plated terminals

+ Code letter for capacitance tolerance: M = $\pm 20\%$, K = $\pm 10\%$ (J = $\pm 5\%$ upon request)

* Code number for reel diameter: 9 = 180 mm, 6 = 330 mm

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