



Tantalum Chip Capacitors

B45192

Low Profile; $H_{max} = 1,5\text{ mm}$; Standard and Low ESR



Construction

- Polar tantalum capacitors with solid electrolyte
- Conventional Ta-MnO₂ technology
- Flame-retardant plastic case (UL 94 V-0)
- Tinned terminals
- Maximum height 1,5 mm

Features

- 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)
- Low ESR (version R)

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
- Switch-mode power supplies with very high clock frequencies (300 kHz)
- DC/DC converters

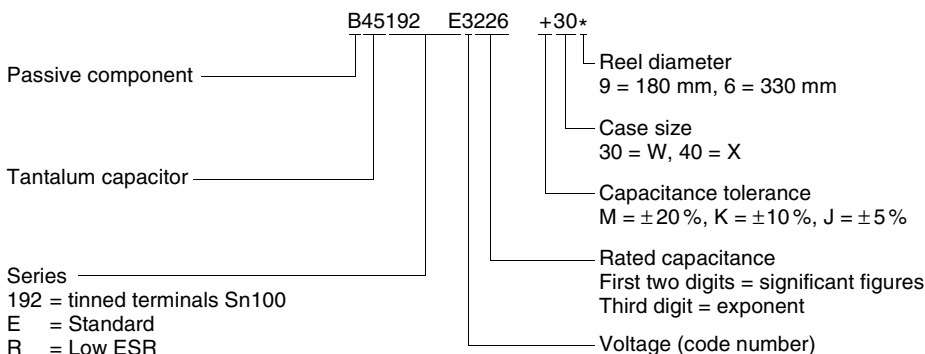
Soldering

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




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Specifications and characteristics in brief

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

| | Standard | Low ESR |
|--|---|---|
| Series | B45192E | B45192R |
| Technology | Ta-MnO ₂ | Ta-MnO ₂ |
| Terminals | Tinned | Tinned |
| Rated voltage V_R (up to 85 °C) | 4 ... 16 Vdc | 4 ... 16 Vdc |
| Rated capacitance C_R | 22 ... 220 μF | 22 ... 220 μF |
| Capacitance tolerance | $\pm 10\%$, $\pm 20\%$ $\pm 5\%$ (on request) | $\pm 10\%$, $\pm 20\%$ $\pm 5\%$ (on request) |
| Operating temperature | -55 ... +125 °C | -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) | |
| $C_R \cdot V_R > 330 \mu\text{F} \cdot \text{V}$ | ≤ 24 fit | ≤ 24 fit |
| Service life | > 500 000 h | > 500 000 h |
| Leakage current (V_R , 5 min, 20 °C) | 10 nA/ μC | 10 nA/ μC |
| ESR_{\max} (20 °C, 100 kHz) | — | 200 ... 500 m Ω |
| IEC climatic category | To IEC 60068-1 55/125/56 (-55/+125 °C; 56 days damp heat test) | |



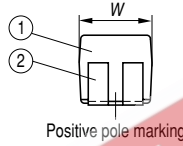
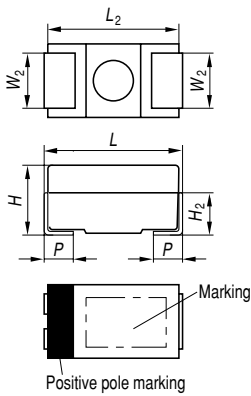
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Dimensional drawing



Positive pole marking

- ① Encapsulation: molded epoxy resin
- ② NiFe; tinned surface Sn100

KTA0209-E

| Case size | Dimensions in mm (inches) | | | | | | |
|-----------|------------------------------------|------------------------------------|----------------------|---------------|------------------------------|---------------|----------------------------|
| | L | W | H | L_2 typ. | $W_2 \pm 0,1$ $\pm(,004)$ | H_2 typ. | $p \pm 0,3$ $\pm(,012)$ |
| W (30) | $6,0 \pm 0,3$ (,236 \pm ,012) | $3,2 \pm 0,3$ (,126 \pm ,012) | 1,5 max (,059 mm) | 5,8 (,228) | 2,2 (,087) | 1,1 (,043) | 1,3 (,051) |
| X (40) | $7,3 \pm 0,3$ (,287 \pm ,012) | $4,3 \pm 0,3$ (,169 \pm ,012) | 1,5 max (,059 mm) | 7,1 (,280) | 2,4 (,094) | 1,1 (,043) | 1,3 (,051) |



Tantalum Chip Capacitors

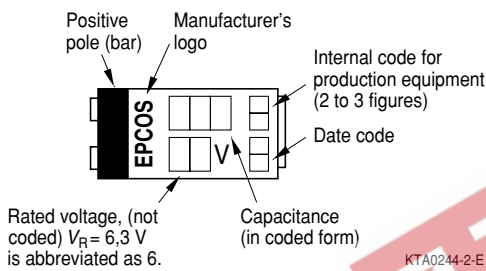
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Marking

Case sizes X, W



Capacitance coding

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



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Overview of available types

| | Standard | | | | Low ESR | | | |
|----------------------------|----------|-----|----|----|---------|-----|----|----|
| Series | B45192E | | | | B45192R | | | |
| V_R (Vdc) up to 85 °C | 4 | 6,3 | 10 | 16 | 4 | 6,3 | 10 | 16 |
| C_R (μF) | | | | | | | | |
| 22 | | | | W | | | | W |
| 33 | | | | W | | | | W |
| 47 | | | W | | | | W | |
| 68 | | W | W | X | | W | W | X |
| 100 | W | W | X | | W | W | X | |
| 150 | W | X | | | W | X | | |
| 220 | | X | | | | X | | |

Technical data and ordering codes for B45192E

| 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⁾ |
|---|------------------------|--------------|---|---|--|-----------------------------|
| 4 (2,5) | 100 | W | 0,08 | 4,0 | 1,4 | B45192E0107+30* |
| | 150 | W | 0,08 | 6,0 | 1,3 | B45192E0157+30* |
| 6,3 (4,0) | 68 | W | 0,06 | 4,3 | 1,4 | B45192E1686+30* |
| | 100 | W | 0,08 | 6,3 | 1,2 | B45192E1107+30* |
| | 150 | X | 0,08 | 9,5 | 0,8 | B45192E1157+40* |
| | 220 | X | 0,08 | 14 | 0,8 | B45192E1227+40* |
| 10 (6,3) | 47 | W | 0,06 | 4,7 | 1,4 | B45192E2476+30* |
| | 68 | W | 0,06 | 6,8 | 1,2 | B45192E2686+30* |
| | 68 | X | 0,06 | 6,8 | 1,2 | B45192E2686+40* |
| | 100 | X | 0,08 | 10 | 0,8 | B45192E2107+40* |
| 16 (10) | 22 | W | 0,06 | 3,5 | 1,5 | B45192E3226+30* |
| | 33 | W | 0,06 | 5,3 | 1,4 | B45192E3336+30* |

Upon request

1) + 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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Technical data and ordering codes for B45192R

| 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 | $ESR_{max}^{1)}$ (20°C, 100 kHz) m Ω | I_{ac} (20°C, 100 kHz) A | Ordering code ²⁾ |
|---|----------------------|--------------|--|--|--|-------------------------------------|-----------------------------|
| 4 (2,5) | 100 | W | 0,08 | 4,0 | 350 | 0,51 | B45192R0107+30* |
| | 150 | W | 0,08 | 6,0 | 350 | 0,51 | B45192R0157+30* |
| 6,3 (4,0) | 68 | W | 0,06 | 4,3 | 400 | 0,47 | B45192R1686+30* |
| | 100 | W | 0,08 | 6,3 | 350 | 0,51 | B45192R1107+30* |
| | 150 | X | 0,08 | 9,5 | 250 | 0,66 | B45192R1157+40* |
| | 220 | X | 0,08 | 14 | 250 | 0,66 | B45192R1227+40* |
| 10 (6,3) | 47 | W | 0,06 | 4,7 | 400 | 0,47 | B45192R2476+30* |
| | 68 | W | 0,06 | 6,8 | 300 | 0,55 | B45192R2686+30* |
| | 68 | X | 0,06 | 6,8 | 200 | 0,74 | B45192R2686+40* |
| | 100 | X | 0,08 | 10 | 200 | 0,74 | B45192R2107+40* |
| 16 (10) | 22 | W | 0,06 | 3,5 | 500 | 0,42 | B45192R3226+30* |
| | 33 | W | 0,06 | 5,3 | 400 | 0,47 | B45192R3336+30* |

■ Upon request

1) Other values upon request

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

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

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