



**Tantalum Chip Capacitors**

**B45192**

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



**Construction**

- Polar tantalum capacitors with solid electrolyte
- Conventional Ta-MnO<sub>2</sub> 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

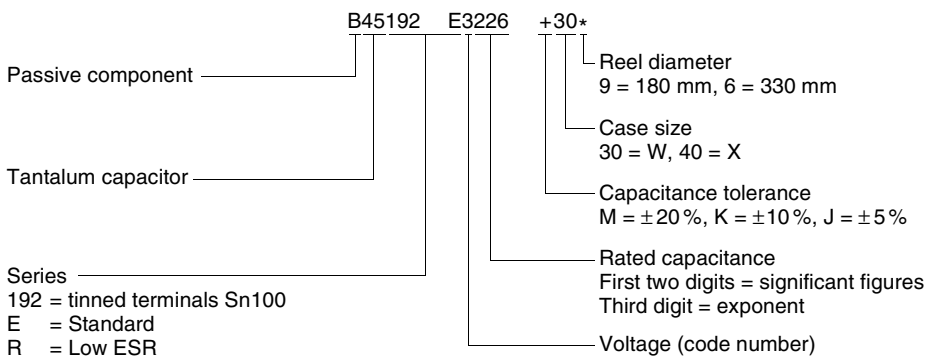
**Soldering**

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 <sub>2</sub>  | Ta-MnO <sub>2</sub>                               |
| Terminals  | Tinned   | Tinned  |
| Rated voltage $V_R$ (up to 85 °C)                | 4 ... 16 Vdc   | 4 ... 16 Vdc                                      |
| Rated capacitance $C_R$                          | 22 ... 220 $\mu\text{F}$   | 22 ... 220 $\mu\text{F}$                          |
| Capacitance tolerance                            | $\pm 10\%$ , $\pm 20\%$<br>$\pm 5\%$ (on request)  | $\pm 10\%$ , $\pm 20\%$<br>$\pm 5\%$ (on request) |
| Operating temperature                            | -55 ... +125 °C  | -55 ... +125 °C                                   |
| Failure rate                                     | At 40 °C; $\leq V_R$ , $R_S \geq 3 \Omega/\text{V}$ (1 fit = $1 \cdot 10^{-9}$ failures/h) |   |
| $C_R \cdot V_R > 330 \mu\text{F} \cdot \text{V}$ | $\leq 24$ fit  | $\leq 24$ fit                                     |
| Service life                                     | > 500 000 h  | > 500 000 h                                       |
| Leakage current<br>( $V_R$ , 5 min, 20 °C)       | 10 nA/ $\mu\text{C}$   | 10 nA/ $\mu\text{C}$                              |
| $ESR_{\max}$ (20 °C, 100 kHz)                    | —  | 200 ... 500 m $\Omega$                            |
| IEC climatic category                            | To IEC 60068-1<br>55/125/56 (-55/+125 °C; 56 days damp heat test)                          |   |



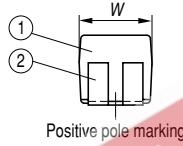
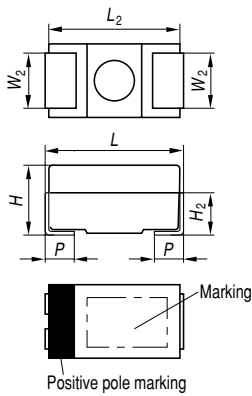
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**SMD**

Dimensional drawing



KTA0209-E

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



**Tantalum Chip Capacitors**

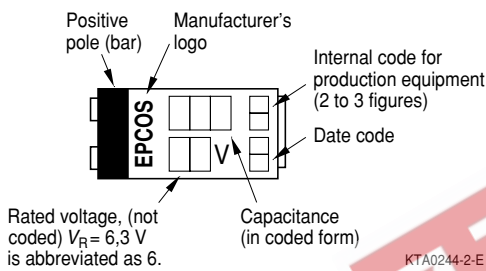
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**Marking**

Case sizes X, W



**Capacitance coding**

|                   |  |
|-------------------|--|
| 1st and 2nd digit | Capacitance in pF                          |
| 3rd digit         | Multiplier: 6 = $10^6$ pF<br>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)<br>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**

| $V_R$<br>up to 85 °C<br>(up to 125 °C)<br>Vdc | $C_R$<br>μF | Case<br>size | $\tan \delta_{max}$<br>(20 °C,<br>120 Hz) | $I_{lk, max}$<br>(20 °C, $V_R$ ,<br>5 min)<br>μA | $Z_{max}$<br>(20 °C,<br>100 kHz)<br>Ω | Ordering code <sup>1)</sup> |
|---|-------------|--------------|---|--|---------------------------------------|-----------------------------|
| 4<br>(2,5)                                    | 100         | W            | 0,08                                      | 4,0  | 1,4                                   | B45192E0107+30*             |
|   | 150         | W            | 0,08                                      | 6,0  | 1,3                                   | B45192E0157+30*             |
| 6,3<br>(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<br>(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<br>(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 = ± 20 %, K = ± 10 % (J = ± 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

| $V_R$<br>up to 85°C<br>(up to 125°C)<br>Vdc | $C_R$<br><br>$\mu\text{F}$ | Case<br>size | $\tan \delta_{max}$<br>(20°C,<br>120 Hz) | $I_{lk, max}$<br>(20°C, $V_R$ ,<br>5 min)<br>$\mu\text{A}$ | $ESR_{max}^{1)}$<br>(20°C,<br>100 kHz)<br>$\text{m}\Omega$ | $I_{ac}$<br>(20°C,<br>100 kHz)<br>A | Ordering code <sup>2)</sup> |
|---|----------------------------|--------------|--|--|--|-------------------------------------|-----------------------------|
| 4<br>(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<br>(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<br>(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<br>(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 =  $\pm 20 \%$ , K =  $\pm 10 \%$  (J =  $\pm 5 \%$  upon request)

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

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