



**Construction**

- Polar tantalum capacitors with solid electrolyte
- Conventional Ta-MnO<sub>2</sub> technology
- Flame-retardant plastic case (UL 94 V-0)
- Optionally tinned or gold-plated terminals



**Features**

- Outstanding reliability
- 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)
- Very low failure rate
- Operating temperature up to 150 °C

**Applications**

- Automotive electronics (safety applications e.g. airbag, ABS or motor management)
- Measuring and control engineering
- Medical engineering
- DC/DC converters
- Telecommunications (e.g. mobile phones, private branch exchanges)
- Data processing (e.g. laptops, main frames)

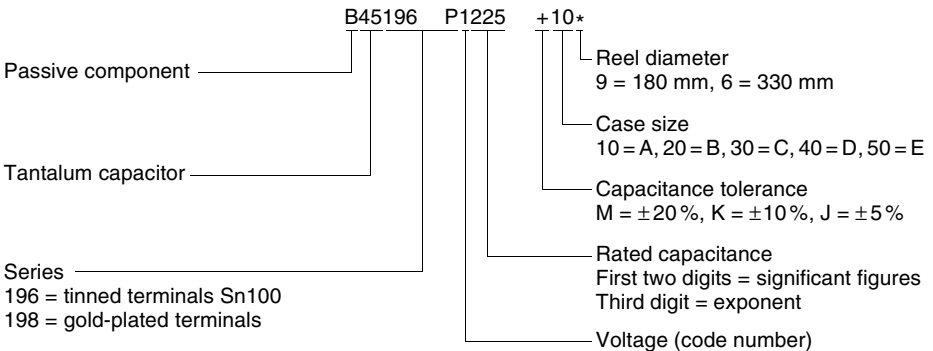
**Soldering**

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.

	Performance	
Series	B45196P	B45198P
Technology	Ta-MnO <sub>2</sub>	Ta-MnO <sub>2</sub>
Terminals	Tinned	Gold-plated
Rated voltage $V_R$ (up to 85 °C)	4 ... 50 Vdc	
Rated capacitance $C_R$	0,10 ... 150 $\mu$ 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)	
$C_R \cdot V_R \leq 330 \mu F \cdot V$	$\leq 0,8$ fit	
$C_R \cdot V_R > 330 \mu F \cdot V$	$\leq 2,5$ fit	
Service life	> 500 000 h	
Leakage current ( $V_R$ , 5 min, 20 °C)	10 nA/ $\mu$ C	
Detail specification (tinned terminals)	CECC 30801-801/-802	
IEC climatic category	To IEC 60068-1 55/125/56 (–55/+125 °C; 56 days damp heat test)	

For performance types, individual tests are carried out under more extreme conditions, supplementary to the tests specified by CECC.

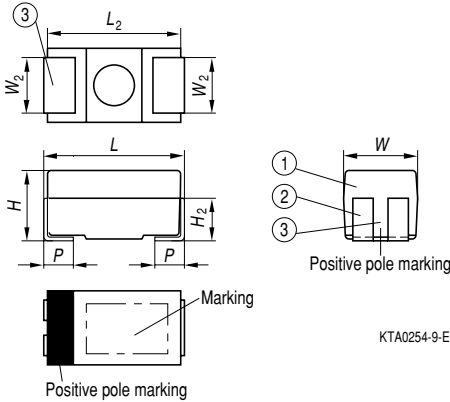
Examples:

Damp heat	85 (+2) °C, 85 ... 90 % relative humidity
Rapid temperature change	100 cycles, – 55 °C/+ 125 °C, 30 min.
Surge voltage	$10^4$ charge cycles
Impulse test	$10^6$ cycles

**Types B45196P can be operated at temperatures up to 150 °C (under development: 175 °C).**

**Maximum working voltage at 150 °C:  $0,5 V_R$**

**Details for this operating condition must be agreed upon between supplier and customer.**

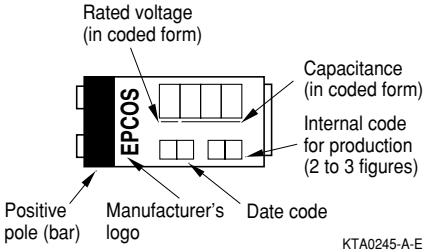
**Dimensional drawing**


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

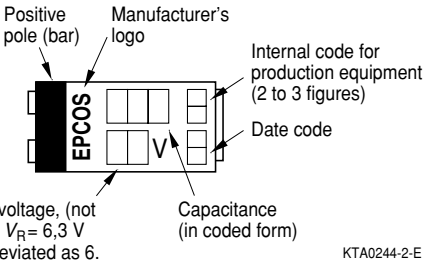
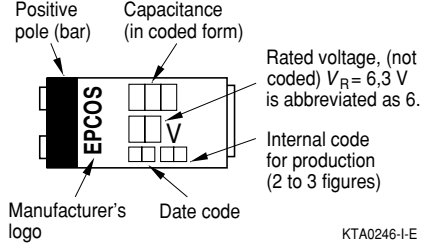
Case size	Dimensions in mm (inches)						
	<i>L</i>	<i>W</i>	<i>H</i>	<i>L</i> <sub>2</sub> typ.	<i>W</i> <sub>2</sub> ± 0,1 ±(,004)	<i>H</i> <sub>2</sub> typ.	<i>p</i> ± 0,3 ±(,012)
A (10)	3,2 ± 0,2 (,126±,008)	1,6 ± 0,2 (,063±,008)	1,6 ± 0,2 (,063±,008)	3,0 (,118)	1,2 (,047)	1,0 (,039)	0,8 (,031)
B (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

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	B45196P, tinned terminals B45198P, gold-plated terminals												
$V_R$ (Vdc) up to 85 °C	4	6,3		10	16	20	25	35	50				
$C_R$ (μF) <sup>1)</sup>													
0,10											A	A	
0,15											A	B	
0,22											A	B	
0,33											A	B	
0,47								A	A	B	C		
0,68						A	A	A	B	C			
1,0				A	A	A	A	B	C	D			
1,5			A	A	A	A	B	B	C	D			
2,2		A	A	A	A	B	B	B	C	D			
3,3	A	A	A	A	A	B	B	C	C	D			
4,7	A	A	A	B	B	B	C	C	C	D	D		
6,8	A	A	B	A	B	B	C	C	C	D	D	E	
10	A	B	A	B	B	C	C	C	C	D	D	E	
15	A	B	B	C	B	C	C	C	D	D	E		
22	B	C	B	C	C	C	D	D	D	D	E		
33	B	C	C	C	D	D	D	D					
47	C	C	D	C	D	D							
68	C	D	C	D	D								
100	D	D	D	D									
150	D	D	E										

Upon request

1) Additional ratings upon request













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