



**Construction**

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



**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
- Low ESR

**Applications**

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

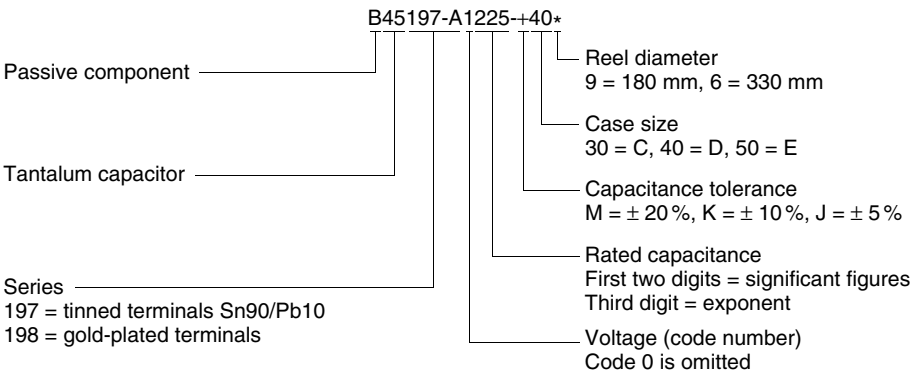
**Soldering**

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**

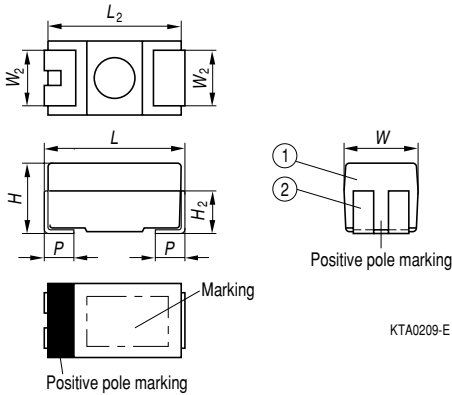



**Specifications and characteristics in brief**

For characteristic curves see page 73.

	SpeedPower (Low ESR)	
Series	B45197-A	B45198-R
Terminals	tinned	gold-plated
Rated voltage $V_R$ (up to 85 °C)	6,3 ... 50 Vdc	
Rated capacitance $C_R$	3,3 ... 680 $\mu$ F	
Capacitance tolerance	$\pm 10\%$ , $\pm 20\%$ $\pm 5\%$ (on request)	
Failure rate	at 40 °C; $\leq V_R$ , $R_S \geq 3 \Omega/V$ (1 fit = $1 \cdot 10^{-9}$ failures/h)	
$C_R \cdot V_R \leq 330 \mu F \cdot V$	$\leq 8$ fit	
$C_R \cdot V_R > 330 \mu F \cdot V$	$\leq 12$ fit/24 fit <sup>1)</sup>	
$C_R \cdot V_R > 330 \mu F \cdot V$	$\leq 24$ fit (refer to series B4519*-H, "HighCap")	
Service life	> 500 000 h	
Leakage current ( $V_R$ , 5 min, 20 °C)	10 nA/ $\mu$ C	
ESR	100 ... 600 m $\Omega$	
Detail specification (tinned terminals)	CECC 30801-805	
IEC climatic category	in accordance with IEC 60068-1 55/125/56 (–55/+125 °C; 56 days damp heat test)	

1) HighCap types

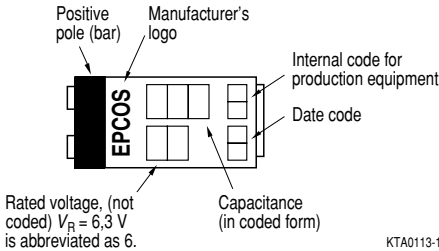
**Dimensional drawing**


- ① Encapsulation: molded epoxy resin
- ② NiFe; surface Sn90/Pb10 or gold-plated

Case size	Dimensions in mm (inches)						
	$L$	$W$	$H$	$L_2$ typ.	$W_2 \pm 0,1$ $\pm(,004)$	$H_2$ typ.	$p \pm 0,3$ $\pm(,012)$
C (30)	$6,0 \pm 0,3$ (,236 $\pm$ ,012)	$3,2 \pm 0,3$ (,126 $\pm$ ,012)	$2,5 \pm 0,3$ (,098 $\pm$ ,012)	5,8 (,228)	2,2 (,087)	1,5 (,059)	1,3 (,051)
D (40)	$7,3 \pm 0,3$ (,287 $\pm$ ,012)	$4,3 \pm 0,3$ (,169 $\pm$ ,012)	$2,8 \pm 0,3$ (,110 $\pm$ ,012)	7,1 (,280)	2,4 (,094)	1,6 (,062)	1,3 (,051)
E (50)	$7,3 \pm 0,3$ (,287 $\pm$ ,012)	$4,3 \pm 0,3$ (,169 $\pm$ ,012)	$4,1 \pm 0,3$ (,157 $\pm$ ,012)	7,1 (,280)	2,4 (,094)	1,6 (,062)	1,3 (,051)

**Marking**

Case sizes C, D, E



**Capacitance coding**

1st and 2nd digit	Capacitance in pF
3rd digit	Multiplier: 4 = $10^4 \text{ pF}$ 5 = $10^5 \text{ pF}$ 6 = $10^6 \text{ pF}$ 7 = $10^7 \text{ pF}$

**Date coding**

Year	Month	
K = 1998	1 = January	7 = July
L = 1999	2 = February	8 = August
M = 2000	3 = March	9 = September
N = 2001	4 = April	O = October
P = 2002	5 = May	N = November
R = 2003	6 = June	D = December

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

**Overview of available types**

Series	B45197-A, tinned terminals (Sn90/Pb10) B45198-R, gold-plated terminals										
$V_R$ (Vdc) up to 85 °C	6,3	10	16	20	25	35	50				
$C_R$ (μF) <sup>1)</sup>											
3,3										C	
4,7						C				D	D
6,8				C						D	E
10		C	C	C						D	E
15		C	C			D				D	E
22	C	C			D	D	E			E	
33	C	C	C	D	D	E	D	E		E	
47		C	D	C	D	D	E	D	E		
68	D	C	D	C	D	E	D	E			
100	C	D	C	D	E	D	E	E			
150	D	E	D	E	D	E					
220	D	E	D	E	E						
330	D	E	D	E							
470	D	E	E								
680	E										

Upon request

1) Additional ratings upon request

**Technical data and ordering codes**

$V_R$ up to 85°C (up to 125°C) Vdc	$C_R$  $\mu\text{F}$	Case size	$\tan \delta_{\max}$ (20°C, 120 Hz)	$I_{lk, \max}$ (20°C, $V_R$ , 5 min) $\mu\text{A}$	$ESR_{\max}^{(2)}$ (20°C, 100 kHz) m $\Omega$	$I_{ac}$ (20°C, 100 kHz) A	Ordering code <sup>1)</sup>  Tinned terminals (Sn90/Pb10)
6,3 (4)	22	C	0,06	1,4	375	0,54	B45197-A1226-+30*
	33	C	0,06	2,1	350	0,56	B45197-A1336-+30*
	68	D	0,06	4,3	175	0,93	B45197-A1686-+40*
	100	C	0,08	6,3	150	0,86	B45197-A1107-+30*
	100	D	0,08	6,3	125	1,10	B45197-A1107-+40*
	150	D	0,08	9,5	100	1,22	B45197-A1157-+40*
	150	E	0,08	9,5	100	1,28	B45197-A1157-+50*
	220	D	0,08	14	100	1,22	B45197-A1227-+40*
	220	E	0,08	14	100	1,28	B45197-A1227-+50*
	330	D	0,12	21	100	1,22	B45197-A1337-+40*
	330	E	0,08	21	100	1,28	B45197-A1337-+50*
	470	D	0,15	30	150	1,0	B45197-A1477-+40*
	470	E	0,12	30	100	1,28	B45197-A1477-+50*
	680	E	0,15	43	100	1,28	B45197-A1687-+50*
10 (6,3)	10	C	0,06	1,0	400	0,52	B45197-A2106-+30*
	15	C	0,06	1,5	400	0,52	B45197-A2156-+30*
	22	C	0,06	2,2	375	0,54	B45197-A2226-+30*
	33	C	0,06	2,3	375	0,54	B45197-A2336-+30*
	47	C	0,06	4,7	300	0,61	B45197-A2476-+30*
	47	D	0,06	4,7	200	0,87	B45197-A2476-+40*
	68	C	0,06	6,8	250	0,66	B45197-A2686-+30*
	68	D	0,06	6,8	150	1,00	B45197-A2686-+40*
	100	C	0,08	10	250	0,66	B45197-A2107-+30*
	100	D	0,08	10	100	1,22	B45197-A2107-+40*
	100	E	0,08	10	100	1,28	B45197-A2107-+50*
	150	D	0,08	15	100	1,22	B45197-A2157-+40*
	150	E	0,08	15	100	1,28	B45197-A2157-+50*
	220	D	0,10	22	100	1,22	B45197-A2227-+40*
	220	E	0,08	22	100	1,28	B45197-A2227-+50*
	330	D	0,12	33	150	1,0	B45197-A2337-+40*
	330	E	0,10	33	100	1,28	B45197-A2337-+50*
	470	E	0,12	47	100	1,28	B45197-A2477-+50*

Upon request

- 1) Replace 197-A by 198-R 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
- 2) Other values upon request

$V_R$ up to 85°C (up to 125°C) Vdc	$C_R$  $\mu\text{F}$	Case size	$\tan \delta_{\text{max}}$ (20°C, 120 Hz)	$I_{\text{lk, max}}$ (20°C, $V_R$ , 5 min) $\mu\text{A}$	$ESR_{\text{max}}^{(2)}$ (20°C, 100 kHz) m $\Omega$	$I_{\text{ac}}$ (20°C, 100 kHz) A	Ordering code <sup>1)</sup>  Tinned terminals (Sn90/Pb10)
16 (10)	10	C	0,06	1,6	450	0,49	B45197-A3106-+30*
	15	C	0,06	2,4	400	0,52	B45197-A3156-+30*
	33	C	0,06	5,3	300	0,61	B45197-A3336-+30*
	33	D	0,06	5,3	200	0,87	B45197-A3336-+40*
	47	C	0,06	7,5	300	0,61	B45197-A3476-+30*
	47	D	0,06	7,5	175	0,93	B45197-A3476-+40*
	68	C	0,06	11	250	0,66	B45197-A3686-+30*
	68	D	0,06	11	150	1,0	B45197-A3686-+40*
	68	E	0,06	11	150	1,05	B45197-A3686-+50*
	100	D	0,08	16	150	1,0	B45197-A3107-+40*
	100	E	0,08	16	100	1,28	B45197-A3107-+50*
	150	D	0,10	24	150	1,0	B45197-A3157-+40*
	150	E	0,08	24	100	1,28	B45197-A3157-+50*
	220	E	0,10	35	100	1,28	B45197-A3227-+50*
	20 (13)	6,8	C	0,06	1,4	475	0,48
10		C	0,06	2,0	450	0,49	B45197-A4106-+30*
22		D	0,06	4,4	200	0,87	B45197-A4226-+40*
33		D	0,06	6,6	200	0,87	B45197-A4336-+40*
33		E	0,06	6,6	200	0,91	B45197-A4336-+50*
47		D	0,06	9,4	250	0,77	B45197-A4476-+40*
47		E	0,06	9,4	150	1,05	B45197-A4476-+50*
68		D	0,06	14	300	0,71	B45197-A4686-+40*
68		E	0,06	14	200	0,91	B45197-A4686-+50*
100		E	0,08	20	150	1,05	B45197-A4107-+50*

Upon request

- 1) Replace 197-A by 198-R 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
- 2) Other values upon request

$V_R$ up to 85°C (up to 125°C) Vdc	$C_R$  $\mu\text{F}$	Case size	$\tan \delta_{\text{max}}$ (20°C, 120 Hz)	$I_{\text{lk, max}}$ (20°C, $V_R$ , 5 min) $\mu\text{A}$	$ESR_{\text{max}}^{(2)}$ (20°C, 100 kHz) m $\Omega$	$I_{\text{ac}}$ (20°C, 100 kHz) A	Ordering code <sup>1)</sup>  Tinned terminals (Sn90/Pb10)
25 (16)	4,7	C	0,06	1,2	525	0,46	B45197-A5475-+30*
	15	D	0,06	3,8	230	0,81	B45197-A5156-+40*
	22	D	0,06	5,5	230	0,81	B45197-A5226-+40*
	22	E	0,06	5,5	230	0,85	B45197-A5226-+50*
	33	D	0,06	8,3	230	0,81	B45197-A5336-+40*
	33	E	0,06	8,3	200	0,91	B45197-A5336-+50*
	47	D	0,06	12	250	0,77	B45197-A5476-+40*
	47	E	0,06	12	200	0,91	B45197-A5476-+50*
35 (23)	3,3	C	0,06	1,2	550	0,45	B45197-A6335-+30*
	4,7	D	0,06	1,6	300	0,71	B45197-A6475-+40*
	6,8	D	0,06	2,4	300	0,71	B45197-A6685-+40*
	6,8	E	0,06	2,4	300	0,74	B45197-A6685-+50*
	10	D	0,06	3,5	260	0,76	B45197-A6106-+40*
	10	E	0,06	3,5	260	0,80	B45197-A6106-+50*
	15	D	0,06	5,3	260	0,76	B45197-A6156-+40*
	15	E	0,06	5,3	260	0,80	B45197-A6156-+50*
	22	E	0,06	7,7	260	0,80	B45197-A6226-+50*
	33	E	0,06	12	260	0,80	B45197-A6336-+50*
50 (33)	4,7	D	0,06	2,4	300	0,71	B45197-A7475-+40*
	6,8	E	0,06	3,4	300	0,74	B45197-A7685-+50*
	10	E	0,06	5,0	300	0,74	B45197-A7106-+50*

Upon request

- 1) Replace 197-A by 198-R 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
- 2) Other values upon request



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