EPCOS

Tantalum Chip Capacitors **B45194**

Low Profile; H_{max} = 2 mm; Standard and Low ESR

SMD

Construction

- Polar tantalum capacitors with solid electrolyte
- Conventional Ta-MnO_2 technology
- Flame-retardant plastic case (UL 94 V-0)
- Tinned terminals
- Maximum height 2,0 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

B45194 E1227 +40*

Passive component — B45194

Tantalum capacitor — E1227

Series
194 = tinned terminals Sn100
E = Standard
R = Low ESR

Voltage (code number)

Rated capacitance
First two digits = significant figures
Third digit = exponent

Capacitance tolerance
M = ±20 %, K = ±10 %, J = ±5 %

Case size
40 = V

Reel diameter
9 = 180 mm, 6 = 330 mm

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Specifications and characteristics in brief

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

	Standard	Low ESR
Series	B45194E	B45194R
Technology	Ta-MnO_2	Ta-MnO_2
Terminals	Tinned	Tinned
Rated voltage V_R (up to 85 °C)	6,3 … 35 Vdc	6,3 … 20 Vdc
Rated capacitance C_R	6,8 … 470 µF	22 … 470 µF
Capacitance tolerance	±10%, ±20% ±5% (on request)	±10%, ±20% ±5% (on request)
Operating temperature	–55 … +125 °C	–55 … +125 °C
Failure rate	At 40 °C; ≤ V_R, R_S ≥ 3 Ω/V (1 fit = 1 · 10^{-9} failures/h)	
$C_R \cdot V_R \leq 330$ µF · V	≤ 8 fit	≤ 8 fit
$C_R \cdot V_R > 330$ µF · 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)	—	150 … 400 mΩ
IEC climatic category	To IEC 60068-1 55/125/56 (–55/+125 °C; 56 days damp heat test)	

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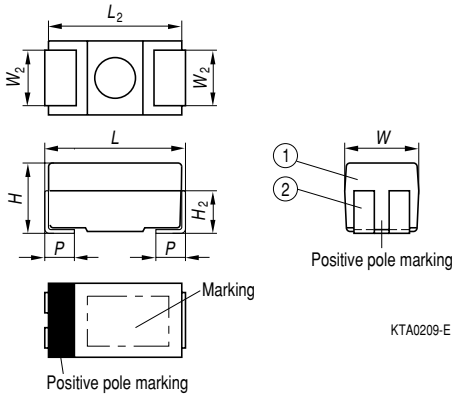
Dimensional drawing

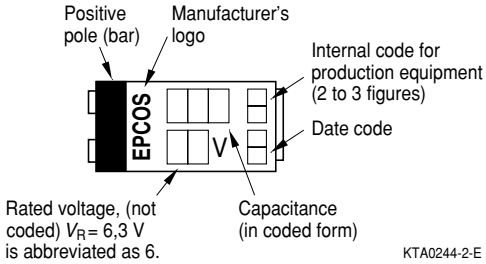


① Encapsulation: molded epoxy resin
② NiFe; tinned surface Sn100

Case size	Dimensions in mm (inches)						
	L	W	H	L_2 typ.	$W_2 \pm 0{,}1$ $\pm(,004)$	H_2 typ.	$p \pm 0{,}3$ $\pm(,012)$
V (40)	7,3 ± 0,3 (,287±,012)	4,3 ± 0,3 (,169±,012)	2,0 max (,079 max)	7,1 (,280)	2,4 (,094)	1,1 (,043)	1,3 (,051)

Marking

Case size V



Capacitance coding

1st and 2nd digit	Capacitance in pF
3rd digit	Multiplier: 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.

Low Profile; H_{max} = 2 mm; Standard and Low ESR

Overview of available types

	Standard						Low ESR			
Series	B45194E						B45194R			
V_R (Vdc) up to 85 °C	6,3	10	16	20	25	35	6,3	10	16	20
C_R (µF)										
6,8						V				
10						V				
15					V					
22				V	V					V
33				V					V	V
47	V	V	V					V	V	
68	V	V	V					V	V	
100	V	V	V				V	V	V	
150	V	V					V	V		
220	V	V					V	V		
330	V	V					V	V		
470	V						V			

Upon request

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Technical data and ordering codes for B45194E

V_R up to 85 °C (up to 125 °C) Vdc	C_R µF	Case size	tan δ_{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]
6,3	47	V	0,06	3,0	0,7	B45194E1476+40*
(4,0)	68	V	0,06	4,3	0,7	B45194E1686+40*
	100	V	0,08	6,3	0,7	B45194E1107+40*
	150	V	0,08	9,5	0,7	B45194E1157+40*
	220	V	0,08	14	0,7	B45194E1227+40*
	330	V	0,08	21	0,7	B45194E1337+40*
	470	V	0,15	30	0,7	B45194E1477+40*
10	47	V	0,06	4,7	0,7	B45194E2476+40*
(6,3)	68	V	0,06	6,8	0,7	B45194E2686+40*
	100	V	0,08	10	0,7	B45194E2107+40*
	150	V	0,08	15	0,7	B45194E2157+40*
	220	V	0,08	22	0,7	B45194E2227+40*
	330	V	0,12	33	0,7	B45194E2337+40*
16	47	V	0,06	7,5	0,7	B45194E3476+40*
(10)	68	V	0,06	11	0,8	B45194E3686+40*
	100	V	0,08	16	0,8	B45194E3107+40*
20	22	V	0,06	4,4	0,8	B45194E4226+40*
(13)	33	V	0,06	6,6	0,8	B45194E4336+40*
25	15	V	0,06	3,8	1,0	B45194E5156+40*
(16)	22	V	0,06	5,5	0,8	B45194E5226+40*
35	6,8	V	0,06	2,4	1,2	B45194E6685+40*
(23)	10	V	0,06	3,5	1,0	B45194E6106+40*

Upon request

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

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Technical data and ordering codes for B45194R

V_R up to 85 °C (up to 125 °C) Vdc	C_R µF	Case size	tan δ_{max} (20 °C, 120 Hz)	$I_{lk,\ max}$ (20 °C, V_R, 5 min) µA	ESR_{max} [1] (20 °C, 100 kHz) mΩ	Iac (20 °C, 100 kHz) A	Ordering code [2]
6,3	100	V	0,08	6,3	150	0,91	B45194R1107+40*
(4,0)	150	V	0,08	9,5	150	0,91	B45194R1157+40*
	220	V	0,08	14	150	0,91	B45194R1227+40*
	330	V	0,08	21	150	0,91	B45194R1337+40*
	470	V	0,15	30	150	0,91	B45194R1477+40*
10	47	V	0,06	4,7	200	0,79	B45194R2476+40*
(6,3)	68	V	0,06	6,8	200	0,79	B45194R2686+40*
	100	V	0,08	10	200	0,79	B45194R2107+40*
	150	V	0,08	15	200	0,79	B45194R2157+40*
	220	V	0,08	22	200	0,79	B45194R2227+40*
	330	V	0,12	33	200	0,79	B45194R2337+40*
16	33	V	0,06	5,3	250	0,71	B45194R3336+40*
(10)	47	V	0,06	7,5	250	0,71	B45194R3476+40*
	68	V	0,06	11	250	0,71	B45194R3686+40*
	100	V	0,08	16	250	0,71	B45194R3107+40*
20	22	V	0,06	4,4	400	0,56	B45194R4226+40*
(13)	33	V	0,06	6,6	400	0,56	B45194R4336+40*

Upon request

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

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Published by EPCOS AG
Corporate Communications, P.O. Box 80 17 09, 81617 Munich, GERMANY
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