



Tantalum Chip Capacitors

B45194

Low Profile; $H_{max} = 2\text{ mm}$; 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 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

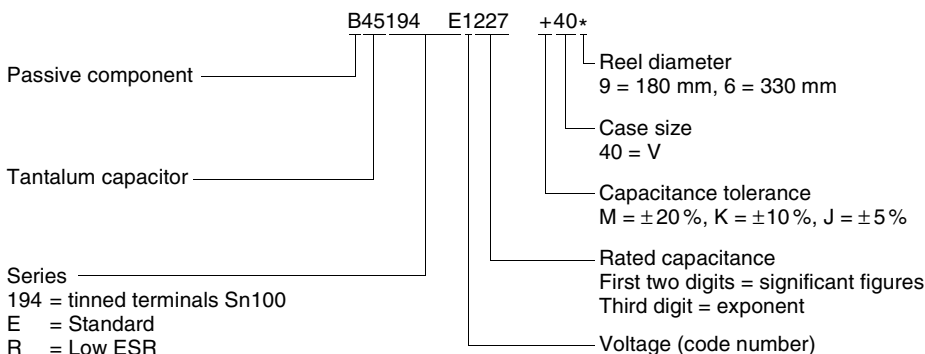
Soldering

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




Tantalum Chip Capacitors
B45194
Low Profile; $H_{\max} = 2 \text{ mm}$; Standard and Low ESR

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	$\pm 10\%$, $\pm 20\%$ $\pm 5\%$ (on request)	$\pm 10\%$, $\pm 20\%$ $\pm 5\%$ (on request)
Operating temperature	-55 ... +125 °C	-55 ... +125 °C
Failure rate	At 40 °C; $\leq V_R$, $R_S \geq 3 \Omega/\text{V}$ (1 fit = $1 \cdot 10^{-9}$ failures/h)	
$C_R \cdot V_R \leq 330 \mu\text{F} \cdot \text{V}$	≤ 8 fit	≤ 8 fit
$C_R \cdot V_R > 330 \mu\text{F} \cdot \text{V}$	≤ 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)	—	150 ... 400 m Ω
IEC climatic category	To IEC 60068-1 55/125/56 (-55/+125 °C; 56 days damp heat test)	



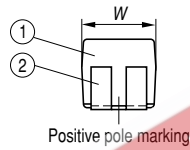
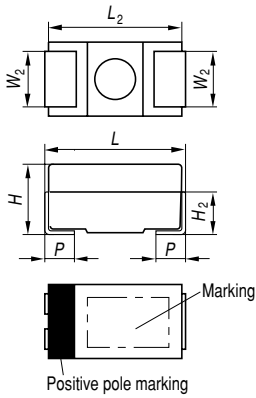
Tantalum Chip Capacitors

B45194

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

SMD

Dimensional drawing



Positive pole marking

KTA0209-E

- 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)	$7,3 \pm 0,3$ (,287 \pm ,012)	$4,3 \pm 0,3$ (,169 \pm ,012)	2,0 max (,079 max)	7,1 (,280)	2,4 (,094)	1,1 (,043)	1,3 (,051)



Tantalum Chip Capacitors

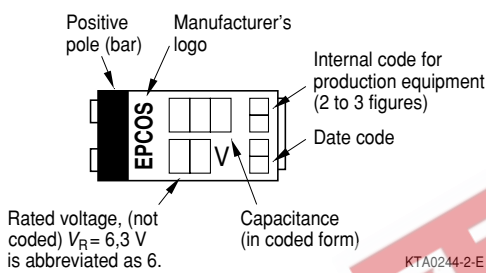
B45194

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



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.



Tantalum Chip Capacitors **B45194**
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



Tantalum Chip Capacitors

B45194

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



Technical data and ordering codes for B45194E

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⁾
6,3 (4,0)	47	V	0,06	3,0	0,7	B45194E1476+40*
	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 (6,3)	47	V	0,06	4,7	0,7	B45194E2476+40*
	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 (10)	47	V	0,06	7,5	0,7	B45194E3476+40*
	68	V	0,06	11	0,8	B45194E3686+40*
	100	V	0,08	16	0,8	B45194E3107+40*
20 (13)	22	V	0,06	4,4	0,8	B45194E4226+40*
	33	V	0,06	6,6	0,8	B45194E4336+40*
25 (16)	15	V	0,06	3,8	1,0	B45194E5156+40*
	22	V	0,06	5,5	0,8	B45194E5226+40*
35 (23)	6,8	V	0,06	2,4	1,2	B45194E6685+40*
	10	V	0,06	3,5	1,0	B45194E6106+40*

Upon request

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

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



Tantalum Chip Capacitors

B45194

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



Technical data and ordering codes for B45194R

V_R up to 85°C (up to 125°C) Vdc	C_R μF	Case size	$\tan \delta_{max}$ (20°C, 120 Hz)	$I_{k, max}$ (20°C, V_R , 5 min) μA	$ESR_{max}^{1)}$ (20°C, 100 kHz) $\text{m}\Omega$	I_{ac} (20°C, 100 kHz) A	Ordering code ²⁾
6,3 (4,0)	100	V	0,08	6,3	150	0,91	B45194R1107+40*
	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 (6,3)	47	V	0,06	4,7	200	0,79	B45194R2476+40*
	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 (10)	33	V	0,06	5,3	250	0,71	B45194R3336+40*
	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 (13)	22	V	0,06	4,4	400	0,56	B45194R4226+40*
	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 = $\pm 20\%$, K = $\pm 10\%$ (J = $\pm 5\%$ upon request)

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

Herausgegeben von EPCOS AG

Unternehmenskommunikation, Postfach 80 17 09, 81617 München, DEUTSCHLAND

☎ ++49 89 636 09, FAX (0 89) 636-2 26 89

© EPCOS AG 2002. Vervielfältigung, Veröffentlichung, Verbreitung und Verwertung dieser Broschüre und ihres Inhalts ohne ausdrückliche Genehmigung der EPCOS AG nicht gestattet.

Bestellungen unterliegen den vom ZVEI empfohlenen Allgemeinen Lieferbedingungen für Erzeugnisse und Leistungen der Elektroindustrie, soweit nichts anderes vereinbart wird.

Diese Broschüre ersetzt die vorige Ausgabe.

Fragen über Technik, Preise und Liefermöglichkeiten richten Sie bitte an den Ihnen nächstgelegenen Vertrieb der EPCOS AG oder an unsere Vertriebsgesellschaften im Ausland. Bauelemente können aufgrund technischer Erfordernisse Gefahrstoffe enthalten. Auskünfte darüber bitten wir unter Angabe des betreffenden Typs ebenfalls über die zuständige Vertriebsgesellschaft einzuholen.

Published by EPCOS AG

Corporate Communications, P.O. Box 80 17 09, 81617 Munich, GERMANY

☎ ++49 89 636 09, FAX (0 89) 636-2 26 89

© EPCOS AG 2002. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.

