



# TANTALUM CHIP CAPACITORS

TR3 Series



## Ultra-Low-ESR Molded Tantalum Chip Capacitors

### KEY BENEFITS

- Ultra-low ESR starting at 35 m $\Omega$
- High efficiency, high ripple current up to 2.0 A RMS
- Proven solid tantalum construction for long life
- Outstanding stability over time and temperature (- 55 °C to + 125 °C)
- Lead (Pb)-free and RoHS-compliant (90/10 Sn/Pb also available)
- Voltage values of 4 V through 50 V
- Case sizes A through E

### APPLICATIONS

- Power conversion filtering
- Microprocessor bulk-energy storage
- Charge pulse

Datasheet is available on our web site at [www.vishay.com](http://www.vishay.com)  
for TR3 - <http://www.vishay.com/doc?40080>

# Solid Tantalum Surface Mount Capacitors TANTAMOUNT® Molded Case, Low ESR

**FEATURES**

- Terminations: 100 % Matte Tin, standard Tin/lead available
- Molded case available in six case codes
- Compatible with "High Volume" automatic pick and place equipment
- High Ripple Current carrying capability
- Low ESR
- Meets EIA 535BAAE and IEC Specification QC300801/US0001
- Compliant Terminations
- 100 % Surge Current Tested (B, C, D & E Case Sizes)


**RoHS\***  
COMPLIANT

**PERFORMANCE/ELECTRICAL CHARACTERISTICS**

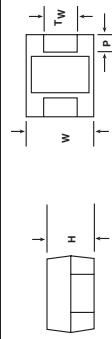
**Operating Temperature:** - 55 °C to + 125 °C  
**Note:** Refer to doc. 40088  
**Capacitance Range:** 0.47  $\mu$ F to 1000  $\mu$ F  
**Capacitance Tolerance:**  $\pm$  10 %  $\pm$  20 %  
**Voltage Rating:** 4 VDC to 50 VDC

**ORDERING INFORMATION**

TR3	D	K	010	C	0100
TYPE	CASE CODE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING at +85 °C	TERMINATION AND PACKAGING	ESR
	See Ratings and Case Codes Table.	K = $\pm$ 10 % M = $\pm$ 20 %	This is expressed in V. To complete the three-digit block, zeros precede the voltage rating. A decimal point is indicated by an "R" (8F3 = 6.3 V).	C = Matte Tin/7" (178 mm) reels D = Matte Tin/13" (330 mm) reels E = Tin/Lead/7" (178 mm) reels F = Tin/Lead/13" (330 mm) reels	Maximum 100 kHz ESR in m $\Omega$ . See note below.

**Note**

We reserve the right to supply higher voltage ratings and lighter capacitance tolerance capacitors in the same case size. Voltage substitutions will be marked with the higher voltage rating. The EIA and CECC standards for low ESR solid tantalum chip capacitors, allow delta ESR of 1.25 times the data sheet limit at t<sub>eff</sub>/rounding.

**DIMENSIONS in inches [millimeters]**


CASE CODE	EIA SIZE	L	W	H	P	T <sub>H</sub> MIN.
A	3216-18	0.126 $\pm$ 0.008 [3.2 $\pm$ 0.20]	0.063 $\pm$ 0.008 [1.6 $\pm$ 0.20]	0.063 $\pm$ 0.008 [1.6 $\pm$ 0.20]	0.047 $\pm$ 0.004 [1.2 $\pm$ 0.10]	0.028 [0.70]
B	3528-21	0.138 $\pm$ 0.008 [3.5 $\pm$ 0.20]	0.110 $\pm$ 0.008 [2.8 $\pm$ 0.20]	0.075 $\pm$ 0.008 [1.9 $\pm$ 0.20]	0.087 $\pm$ 0.004 [2.2 $\pm$ 0.10]	0.028 [0.70]
C	6032-28	0.260 $\pm$ 0.012 [6.6 $\pm$ 0.30]	0.225 $\pm$ 0.012 [5.7 $\pm$ 0.30]	0.085 $\pm$ 0.012 [2.2 $\pm$ 0.10]	0.095 $\pm$ 0.004 [2.4 $\pm$ 0.10]	0.039 [1.0]
D	7343-31	0.287 $\pm$ 0.012 [7.3 $\pm$ 0.30]	0.170 $\pm$ 0.012 [4.3 $\pm$ 0.30]	0.110 $\pm$ 0.012 [2.8 $\pm$ 0.30]	0.095 $\pm$ 0.004 [2.4 $\pm$ 0.10]	0.039 [1.0]
E	7343-43	0.287 $\pm$ 0.012 [7.3 $\pm$ 0.30]	0.170 $\pm$ 0.012 [4.3 $\pm$ 0.30]	0.158 $\pm$ 0.012 [4.0 $\pm$ 0.30]	0.095 $\pm$ 0.004 [2.4 $\pm$ 0.10]	0.039 [1.0]
V	7343-20	0.287 $\pm$ 0.012 [7.3 $\pm$ 0.30]	0.170 $\pm$ 0.012 [4.3 $\pm$ 0.30]	0.079 max. [2.0 max.]	0.095 $\pm$ 0.004 [2.4 $\pm$ 0.10]	0.039 [1.0]

\* Pb containing terminations are not RoHS compliant, exemptions may apply

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For technical questions, contact: [tantalum@vishay.com](mailto:tantalum@vishay.com)

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RATINGS AND CASE CODES										
$\mu$ F	4 V	6.3 V	10 V	16 V	20 V	25 V	35 V	50 V	63 V	
0.47							A			
0.68							A			
1.0				A	A	A	A/B	B/C		
1.5						A	B/C	C		
2.2			A	A	A	A	A/B	B/C	B/C/D	
3.3				A	A	A	A/B	C	C/D	
4.7			A	A/B	A	A/B	A/B/C	B/C	C/D/E	D
6.8				A	A	A	A/B	B/C	D/E	
10			A	A/B	A/B/C	B/C	B/C/D	C/D	D/E	E
15	A	A	A/B	B/C	B/C	B/C/D	B/C/D	D/E		
22	A	A/B	A/B/C	B/C	B/C/D	C/D	D/E			
33	A/B	A/B	B/C	B/C/D	C/D	D/E				
47	A/B	A/B/C	B/C/D	C/D	D/E					
68	B/C	B/C/D	B/C/D/E	D	D/E					
100	A/B/C	B/C/D/V	B/C/D/E/V	D/E	D/E					
150	B/C/D	C/D/E	D/E	D/E						
220	B/C/D	C/D/E	D/E	E						
330	D	D/E	D/E							
470	D/E	D/E	E							
680	E	E								
1000	E									

**Note**

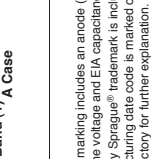
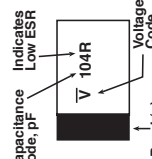
Preliminary values, contact factory for availability.

**MARKING**

"A" CASE VOLTAGE CODE	
VOLTS	CODE
4.0	G
6.3	J
10	A
16	C
20	D
25	E
35	V
50	T

"A" CASE VOLTAGE CODE	
VOLTS	CODE
4.0	G
6.3	J
10	A
16	C
20	D
25	E
35	V
50	T



**Marking**  
 Capacitor marking includes an anode (+) polarity band, capacitance in microfarads and the voltage rating. "A" Case capacitors use a letter code for the voltage and EIA capacitance code.  
 The Vishay Sprague® trademark is included if space permits. Capacitors rated at 6.3 V are marked 6 V.  
 A manufacturing date code is marked on all capacitors.  
 Call the factory for further explanation.