

## Solid Tantalum Surface Mount Chip Capacitors TANTAMOUNT<sup>®</sup>, Molded Case, Built-In-Fuse



### FEATURES

- Low ESR
- 100 % surge current tested
- High ripple current carrying capability
- Terminations: 100 % matte tin, standard, tin/lead available
- Molded case available in three case codes
- Compliant terminations
- Compatible with "High Volume" automatic pick and place equipment
- Meets IEC specification QC300801/US0001 and EIA 535BAAC mechanical and performance requirements
- Moisture sensitivity level 1
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS\***  
COMPLIANT

### Note

\* Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

### PERFORMANCE/ELECTRICAL CHARACTERISTICS

[www.vishay.com/doc?40088](http://www.vishay.com/doc?40088)

**Operating Temperature:** - 55 °C to + 125 °C  
(above 85 °C, voltage derating is required)

**Capacitance Range:** 0.47 µF to 470 µF

**Capacitance Tolerance:** ± 10 %, ± 20 %

**Voltage Rating:** 4 V<sub>DC</sub> to 50 V<sub>DC</sub>

### APPLICATIONS

- Industrial
- Medical
- Computing
- Telecom infrastructure
- General purpose

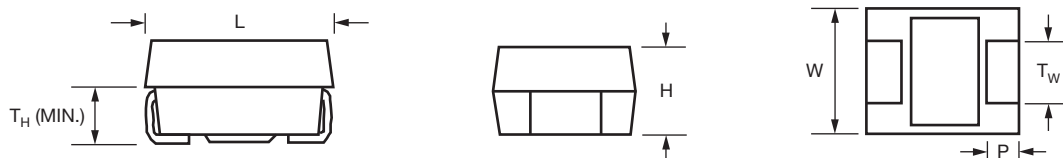
### ORDERING INFORMATION

TF3	E	477	M	004	E	0500
TYPE	CASE CODE	CAPACITANCE	CAPACITANCE TOLERANCE	DC VOLTAGE RATING AT + 85 °C	TERMINATION/PACKAGING	ESR
	See Ratings and Case Codes table	This is expressed in picofarads. The first two digits are the significant figures. The third is the number of zeros to follow	K = ± 10 % M = ± 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" (6R3 = 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)	Maximum 100 kHz ESR in mΩ

### Note

- We reserve the right to supply higher voltage ratings and tighter capacitance tolerance capacitors in the same case size. Voltage substitutions will be marked with the higher voltage rating.

### DIMENSIONS in inches [millimeters]



CASE CODE	EIA SIZE	L	W	H	P	T <sub>w</sub>	T <sub>H</sub> (MIN.)
C	6032-28	0.236 ± 0.012 [6.0 ± 0.30]	0.126 ± 0.012 [3.2 ± 0.30]	0.098 ± 0.012 [2.5 ± 0.30]	0.051 ± 0.012 [1.3 ± 0.30]	0.087 ± 0.004 [2.2 ± 0.10]	0.039 [1.0]
D	7343-31	0.287 ± 0.012 [7.3 ± 0.30]	0.169 ± 0.012 [4.3 ± 0.30]	0.110 ± 0.012 [2.8 ± 0.30]	0.051 ± 0.012 [1.3 ± 0.30]	0.094 ± 0.004 [2.4 ± 0.10]	0.039 [1.0]
E	7343-43	0.287 ± 0.012 [7.3 ± 0.30]	0.169 ± 0.012 [4.3 ± 0.30]	0.157 ± 0.012 [4.0 ± 0.30]	0.051 ± 0.012 [1.3 ± 0.30]	0.094 ± 0.004 [2.4 ± 0.10]	0.039 [1.0]

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

### CONSTRUCTION AND MARKING

**C, D, E, Cases**

**Marking**  
 Capacitor marking includes an anode (+) polarity band, capacitance in microfarads and the voltage rating. 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.



STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>4 V<sub>DC</sub> AT + 85 °C; 2.7 V<sub>DC</sub> AT + 125 °C</b>						
68	C	TF3C686(1)004(2)1600	2.7	6	1.600	0.26
68	C	TF3C686(1)004(2)1400	2.7	6	1.400	0.28
68	C	TF3C686(1)004(2)0400	2.7	6	0.400	0.52
100	C	TF3C107(1)004(2)1200	4.0	8	1.200	0.30
100	C	TF3C107(1)004(2)0800	4.0	8	0.800	0.37
100	C	TF3C107(1)004(2)0400	4.0	8	0.400	0.52
150	C	TF3C157(1)004(2)1200	6.0	8	1.200	0.30
150	C	TF3C157(1)004(2)0800	6.0	8	0.800	0.37
150	C	TF3C157(1)004(2)0400	6.0	8	0.400	0.52
150	D	TF3D157(1)004(2)0800	6.0	8	0.800	0.43
150	D	TF3D157(1)004(2)0600	6.0	8	0.600	0.50
150	D	TF3D157(1)004(2)0300	6.0	8	0.300	0.71
220	D	TF3D227(1)004(2)0700	8.8	8	0.700	0.46
220	D	TF3D227(1)004(2)0600	8.8	8	0.600	0.50
220	D	TF3D227(1)004(2)0400	8.8	8	0.400	0.61
220	D	TF3D227(1)004(2)0300	8.8	8	0.300	0.71
330	D	TF3D337(1)004(2)0700	13.2	15	0.700	0.46
330	D	TF3D337(1)004(2)0600	13.2	15	0.600	0.50
330	D	TF3D337(1)004(2)0400	13.2	15	0.400	0.61
330	D	TF3D337(1)004(2)0300	13.2	15	0.300	0.71
330	E	TF3E337(1)004(2)0700	13.2	8	0.700	0.49
330	E	TF3E337(1)004(2)0500	13.2	8	0.500	0.57
330	E <sup>(1)</sup>	TF3E337(1)004(2)0250	13.2	8	0.250	0.81
470	E	TF3E477(1)004(2)0500	18.8	8	0.500	0.57
470	E	TF3E477(1)004(2)0250	18.8	8	0.250	0.81
<b>6.3 V<sub>DC</sub> AT + 85 °C; 4 V<sub>DC</sub> AT + 125 °C</b>						
15	C	TF3C156(1)6R3(2)2000	0.9	6	2.000	0.23
15	C	TF3C156(1)6R3(2)1800	0.9	6	1.800	0.25
15	C	TF3C156(1)6R3(2)0600	0.9	6	0.600	0.43
22	C	TF3C226(1)6R3(2)2000	1.1	6	2.000	0.23
22	C	TF3C226(1)6R3(2)1800	1.1	6	1.800	0.25
22	C	TF3C226(1)6R3(2)0600	1.1	6	0.600	0.43
33	C	TF3C336(1)6R3(2)2000	1.6	6	2.000	0.23
33	C	TF3C336(1)6R3(2)1400	1.6	6	1.400	0.28
33	C	TF3C336(1)6R3(2)0600	1.6	6	0.600	0.43
47	C	TF3C476(1)6R3(2)1600	2.3	6	1.600	0.26
47	C	TF3C476(1)6R3(2)1300	2.3	6	1.300	0.29
47	C	TF3C476(1)6R3(2)0600	2.3	6	0.600	0.43
47	D	TF3D476(1)6R3(2)1000	2.3	6	1.000	0.39
47	D	TF3D476(1)6R3(2)0900	2.3	6	0.900	0.41
47	D	TF3D476(1)6R3(2)0450	2.3	6	0.450	0.58

**Notes**

- Part number definitions:
  - Capacitance tolerance codes: K, M
  - Terminations and packaging codes: C, D, E, F
- Preliminary values, contact factory for availability



STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>6.3 V<sub>DC</sub> AT + 85 °C; 4 V<sub>DC</sub> AT + 125 °C</b>						
68	C	TF3C686(1)6R3(2)1200	3.3	6	1.200	0.30
68	C	TF3C686(1)6R3(2)0800	3.3	6	0.800	0.37
68	C <sup>(1)</sup>	TF3C686(1)6R3(2)0400	3.3	6	0.400	0.52
68	D	TF3D686(1)6R3(2)1000	3.3	6	1.000	0.39
68	D	TF3D686(1)6R3(2)0700	3.3	6	0.700	0.46
68	D	TF3D686(1)6R3(2)0350	3.3	6	0.350	0.65
100	C	TF3C107(1)6R3(2)0700	6.0	6	0.700	0.40
100	C	TF3C107(1)6R3(2)0400	6.0	6	0.400	0.52
100	C <sup>(1)</sup>	TF3C107(1)6R3(2)0350	6.0	6	0.350	0.56
100	D	TF3D107(1)6R3(2)0800	6.0	8	0.800	0.43
100	D	TF3D107(1)6R3(2)0700	6.0	8	0.700	0.46
100	D	TF3D107(1)6R3(2)0400	6.0	8	0.400	0.61
100	D	TF3D107(1)6R3(2)0350	6.0	8	0.350	0.65
100	E	TF3E107(1)6R3(2)0900	6.0	8	0.900	0.43
100	E	TF3E107(1)6R3(2)0700	6.0	8	0.700	0.49
100	E	TF3E107(1)6R3(2)0300	6.0	8	0.300	0.74
150	D	TF3D157(1)6R3(2)0700	9.0	8	0.700	0.46
150	D	TF3D157(1)6R3(2)0600	9.0	8	0.600	0.50
150	D	TF3D157(1)6R3(2)0300	9.0	8	0.300	0.71
150	E	TF3E157(1)6R3(2)0600	9.0	8	0.600	0.52
150	E	TF3E157(1)6R3(2)0300	9.0	8	0.300	0.74
220	D	TF3D227(1)6R3(2)0700	13.2	8	0.700	0.46
220	D	TF3D227(1)6R3(2)0600	13.2	8	0.600	0.50
220	D	TF3D227(1)6R3(2)0300	13.2	8	0.300	0.71
220	E	TF3E227(1)6R3(2)0700	13.2	8	0.700	0.49
220	E	TF3E227(1)6R3(2)0500	13.2	8	0.500	0.57
220	E	TF3E227(1)6R3(2)0300	13.2	8	0.300	0.74
220	E <sup>(1)</sup>	TF3E227(1)6R3(2)0250	13.2	8	0.250	0.81
330	E	TF3E337(1)6R3(2)0500	19.8	8	0.500	0.57
330	E	TF3E337(1)6R3(2)0300	19.8	8	0.300	0.74
<b>10 V<sub>DC</sub> AT + 85 °C; 7 V<sub>DC</sub> AT + 125 °C</b>						
10	C	TF3C106(1)010(2)2000	1.0	6	2.000	0.23
10	C	TF3C106(1)010(2)1800	1.0	6	1.800	0.25
10	C <sup>(1)</sup>	TF3C106(1)010(2)0600	1.0	6	0.600	0.43
15	C	TF3C156(1)010(2)2000	1.5	6	2.000	0.23
15	C	TF3C156(1)010(2)1800	1.5	6	1.800	0.25
15	C	TF3C156(1)010(2)0600	1.5	6	0.600	0.43
22	C	TF3C226(1)010(2)2000	2.2	6	2.000	0.23
22	C	TF3C226(1)010(2)1400	2.2	6	1.400	0.28
22	C	TF3C226(1)010(2)0500	2.2	6	0.500	0.47
33	C	TF3C336(1)010(2)1600	3.3	6	1.600	0.26

**Notes**

- Part number definitions:
  - Capacitance tolerance codes: K, M
  - Terminations and packaging codes: C, D, E, F
- <sup>(1)</sup> Preliminary values, contact factory for availability



STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>10 V<sub>DC</sub> AT + 85 °C; 7 V<sub>DC</sub> AT + 125 °C</b>						
33	C	TF3C336(1)010(2)1300	3.3	6	1.300	0.29
33	C	TF3C336(1)010(2)0400	3.3	6	0.400	0.52
33	D	TF3D336(1)010(2)1000	3.3	6	1.000	0.39
33	D	TF3D336(1)010(2)0900	3.3	6	0.900	0.41
33	D	TF3D336(1)010(2)0400	3.3	6	0.400	0.61
47	C	TF3C476(1)010(2)1200	4.7	6	1.200	0.30
47	C	TF3C476(1)010(2)1000	4.7	6	1.000	0.33
47	C <sup>(1)</sup>	TF3C476(1)010(2)0400	4.7	6	0.400	0.52
47	D	TF3D476(1)010(2)1000	4.7	6	1.000	0.39
47	D	TF3D476(1)010(2)0700	4.7	6	0.700	0.46
47	D	TF3D476(1)010(2)0400	4.7	6	0.400	0.61
47	D <sup>(1)</sup>	TF3D476(1)010(2)0350	4.7	6	0.350	0.65
68	D	TF3D686(1)010(2)0800	6.8	6	0.800	0.43
68	D	TF3D686(1)010(2)0700	6.8	6	0.700	0.46
68	D	TF3D686(1)010(2)0400	6.8	6	0.400	0.61
68	D	TF3D686(1)010(2)0350	6.8	6	0.350	0.65
68	E	TF3E686(1)010(2)0900	6.8	6	0.900	0.43
68	E	TF3E686(1)010(2)0700	6.8	6	0.700	0.49
68	E	TF3E686(1)010(2)0350	6.8	6	0.350	0.69
100	D	TF3D107(1)010(2)0700	10.0	8	0.700	0.46
100	D	TF3D107(1)010(2)0600	10.0	8	0.600	0.50
100	D	TF3D107(1)010(2)0400	10.0	8	0.400	0.61
100	D	TF3D107(1)010(2)0300	10.0	8	0.300	0.71
100	E	TF3E107(1)010(2)0600	10.0	8	0.600	0.52
100	E	TF3E107(1)010(2)0400	10.0	8	0.400	0.64
100	E	TF3E107(1)010(2)0300	10.0	8	0.300	0.74
150	D	TF3D157(1)010(2)0700	15.0	8	0.700	0.46
150	D	TF3D157(1)010(2)0600	15.0	8	0.600	0.50
150	D	TF3D157(1)010(2)0400	15.0	8	0.400	0.61
150	D	TF3D157(1)010(2)0300	15.0	8	0.300	0.71
150	E	TF3E157(1)010(2)0700	15.0	8	0.700	0.49
150	E	TF3E157(1)010(2)0500	15.0	8	0.500	0.57
150	E	TF3E157(1)010(2)0400	15.0	8	0.400	0.64
150	E	TF3E157(1)010(2)0250	15.0	8	0.250	0.81
220	E	TF3E227(1)010(2)0500	22.0	8	0.500	0.57
220	E	TF3E227(1)010(2)0300	22.0	8	0.300	0.74
220	E <sup>(1)</sup>	TF3E227(1)010(2)0250	22.0	8	0.250	0.81

Notes

- Part number definitions:
  - (1) Capacitance tolerance codes: K, M
  - (2) Terminations and packaging codes: C, D, E, F
- (1) Preliminary values, contact factory for availability



STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>16 V<sub>DC</sub> AT + 85 °C; 10 V<sub>DC</sub> AT + 125 °C</b>						
6.8	C	TF3C685(1)016(2)2000	1.1	6	2.000	0.23
6.8	C	TF3C685(1)016(2)0600	1.1	6	0.600	0.43
10	C	TF3C106(1)016(2)2000	1.6	6	2.000	0.23
10	C	TF3C106(1)016(2)1800	1.6	6	1.800	0.25
10	C	TF3C106(1)016(2)0700	1.6	6	0.700	0.40
10	C	TF3C106(1)016(2)0600	1.6	6	0.600	0.43
15	C	TF3C156(1)016(2)2000	2.4	6	2.000	0.23
15	C	TF3C156(1)016(2)1400	2.4	6	1.400	0.28
15	C <sup>(1)</sup>	TF3C156(1)016(2)0600	2.4	6	0.600	0.43
22	C	TF3C226(1)016(2)1600	3.5	6	1.600	0.26
22	C	TF3C226(1)016(2)1300	3.5	6	1.300	0.29
22	C	TF3C226(1)016(2)1000	3.5	6	1.000	0.33
22	C	TF3C226(1)016(2)0700	3.5	6	0.700	0.40
22	D	TF3D226(1)016(2)1000	3.5	6	1.000	0.39
22	D	TF3D226(1)016(2)0900	3.5	6	0.900	0.41
22	D	TF3D226(1)016(2)0500	3.5	6	0.500	0.55
22	D	TF3D226(1)016(2)0450	3.5	6	0.450	0.58
33	C	TF3C336(1)016(2)1000	5.3	6	1.000	0.33
33	C	TF3C336(1)016(2)0500	5.3	6	0.500	0.47
33	D	TF3D336(1)016(2)1000	5.3	6	1.000	0.39
33	D	TF3D336(1)016(2)0700	5.3	6	0.700	0.46
33	D	TF3D336(1)016(2)0400	5.3	6	0.400	0.61
33	D	TF3D336(1)016(2)0350	5.3	6	0.350	0.65
47	D	TF3D476(1)016(2)0800	7.5	6	0.800	0.43
47	D	TF3D476(1)016(2)0700	7.5	6	0.700	0.46
47	D	TF3D476(1)016(2)0400	7.5	6	0.400	0.61
47	D	TF3D476(1)016(2)0350	7.5	6	0.350	0.65
47	E	TF3E476(1)016(2)0900	7.5	6	0.900	0.43
47	E	TF3E476(1)016(2)0700	7.5	6	0.700	0.49
47	E	TF3E476(1)016(2)0400	7.5	6	0.400	0.64
47	E	TF3E476(1)016(2)0350	7.5	6	0.350	0.69
68	D	TF3D686(1)016(2)0600	10.9	6	0.600	0.50
68	D	TF3D686(1)016(2)0300	10.9	6	0.300	0.71
100	E	TF3E107(1)016(2)0700	16.0	8	0.700	0.49
100	E	TF3E107(1)016(2)0600	16.0	8	0.600	0.52
100	E	TF3E107(1)016(2)0300	16.0	8	0.300	0.74
150	E	TF3E157(1)016(2)0400	16.0	8	0.400	0.64

Notes

- Part number definitions:
  - (1) Capacitance tolerance codes: K, M
  - (2) Terminations and packaging codes: C, D, E, F
- (1) Preliminary values, contact factory for availability



STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>20 V<sub>DC</sub> AT + 85 °C; 13 V<sub>DC</sub> AT + 125 °C</b>						
4.7	C	TF3C475(1)020(2)2000	0.9	6	2.000	0.23
4.7	C	TF3C475(1)020(2)1000	0.9	6	1.000	0.33
6.8	C	TF3C685(1)020(2)2000	1.1	6	2.000	0.23
6.8	C	TF3C685(1)020(2)1900	1.1	6	1.900	0.24
6.8	C	TF3C685(1)020(2)0600	1.1	6	0.600	0.43
10	C	TF3C106(1)020(2)2000	2.0	6	2.000	0.23
10	C	TF3C106(1)020(2)1600	2.0	6	1.600	0.26
10	C	TF3C106(1)020(2)0800	2.0	6	0.800	0.37
15	C	TF3C156(1)020(2)1400	3.0	6	1.400	0.28
15	C <sup>(1)</sup>	TF3C156(1)020(2)0500	3.0	6	0.500	0.47
15	D	TF3D156(1)020(2)1000	3.0	6	1.000	0.39
15	D	TF3D156(1)020(2)0900	3.0	6	0.900	0.41
15	D	TF3D156(1)020(2)0500	3.0	6	0.500	0.55
15	D	TF3D156(1)020(2)0450	3.0	6	0.450	0.58
22	D	TF3D226(1)020(2)1000	4.4	6	1.000	0.39
22	D	TF3D226(1)020(2)0700	4.4	6	0.700	0.46
22	D	TF3D226(1)020(2)0500	4.4	6	0.500	0.55
22	D	TF3D226(1)020(2)0350	4.4	6	0.350	0.65
33	D	TF3D336(1)020(2)0700	6.6	6	0.700	0.46
33	D	TF3D336(1)020(2)0400	6.6	6	0.400	0.61
33	D	TF3D336(1)020(2)0350	6.6	6	0.350	0.65
33	E	TF3E336(1)020(2)0900	6.6	6	0.900	0.43
33	E	TF3E336(1)020(2)0700	6.6	6	0.700	0.49
33	E	TF3E336(1)020(2)0400	6.6	6	0.400	0.64
33	E	TF3E336(1)020(2)0350	6.6	6	0.350	0.69
47	D	TF3D476(1)020(2)0600	9.4	6	0.600	0.50
47	D	TF3D476(1)020(2)0300	9.4	6	0.300	0.71
47	E	TF3E476(1)020(2)0600	9.4	6	0.600	0.52
47	E	TF3E476(1)020(2)0300	9.4	6	0.300	0.74
68	E	TF3E686(1)020(2)0600	13.6	6	0.600	0.52
68	E	TF3E686(1)020(2)0300	13.6	6	0.300	0.74
<b>25 V<sub>DC</sub> AT + 85 °C; 17 V<sub>DC</sub> AT + 125 °C</b>						
2.2	C	TF3C225(1)025(2)3500	0.9	6	3.500	0.18
2.2	C	TF3C225(1)025(2)2800	0.9	6	2.800	0.20
3.3	C	TF3C335(1)025(2)2500	0.9	6	2.500	0.21
3.3	C	TF3C335(1)025(2)2300	0.9	6	2.300	0.22
3.3	C	TF3C335(1)025(2)2100	0.9	6	2.100	0.23
3.3	C <sup>(1)</sup>	TF3C335(1)025(2)1200	0.9	6	1.200	0.30
4.7	C	TF3C475(1)025(2)2500	1.2	6	2.500	0.21
4.7	C	TF3C475(1)025(2)1900	1.2	6	1.900	0.24
4.7	C	TF3C475(1)025(2)1300	1.2	6	1.300	0.29

**Notes**

- Part number definitions:
  - Capacitance tolerance codes: K, M
  - Terminations and packaging codes: C, D, E, F
- <sup>(1)</sup> Preliminary values, contact factory for availability



STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>25 V<sub>DC</sub> AT + 85 °C; 17 V<sub>DC</sub> AT + 125 °C</b>						
4.7	C	TF3C475(1)025(2)1000	1.2	6	1.000	0.33
6.8	C	TF3C685(1)025(2)2000	1.7	6	2.000	0.23
6.8	C	TF3C685(1)025(2)1600	1.7	6	1.600	0.26
6.8	C	TF3C685(1)025(2)0600	1.7	6	0.600	0.43
10	C	TF3C106(1)025(2)1400	2.5	6	1.400	0.28
10	C	TF3C106(1)025(2)0600	2.5	6	0.600	0.43
10	D	TF3D106(1)025(2)1200	2.5	6	1.200	0.35
10	D	TF3D106(1)025(2)1000	2.5	6	1.000	0.39
10	D	TF3D106(1)025(2)0600	2.5	6	0.600	0.50
10	D	TF3D106(1)025(2)0500	2.5	6	0.500	0.55
15	D	TF3D156(1)025(2)1000	3.8	6	1.000	0.39
15	D	TF3D156(1)025(2)0800	3.8	6	0.800	0.43
15	D	TF3D156(1)025(2)0500	3.8	6	0.500	0.55
15	D	TF3D156(1)025(2)0400	3.8	6	0.400	0.61
22	D	TF3D226(1)025(2)0800	5.5	6	0.800	0.43
22	D	TF3D226(1)025(2)0700	5.5	6	0.700	0.46
22	D	TF3D226(1)025(2)0400	5.5	6	0.400	0.61
22	D	TF3D226(1)025(2)0350	5.5	6	0.350	0.65
22	E	TF3E226(1)025(2)0900	5.5	6	0.900	0.43
22	E	TF3E226(1)025(2)0700	5.5	6	0.700	0.49
22	E	TF3E226(1)025(2)0400	5.5	6	0.400	0.64
22	E	TF3E226(1)025(2)0350	5.5	6	0.350	0.69
33	E	TF3E336(1)025(2)0600	8.3	6	0.600	0.52
33	E	TF3E336(1)025(2)0300	8.3	6	0.300	0.74
<b>35 V<sub>DC</sub> AT + 85 °C; 23 V<sub>DC</sub> AT + 125 °C</b>						
1.5	C	TF3C155(1)035(2)4500	0.5	6	4.500	0.16
1.5	C	TF3C155(1)035(2)3800	0.5	6	3.800	0.17
1.5	C	TF3C155(1)035(2)2600	0.5	6	2.600	0.21
1.5	C <sup>(1)</sup>	TF3C155(1)035(2)1900	0.5	6	1.900	0.24
2.2	C	TF3C225(1)035(2)3500	0.8	6	3.500	0.18
2.2	C	TF3C225(1)035(2)2900	0.8	6	2.900	0.19
3.3	C	TF3C335(1)035(2)2500	1.2	6	2.500	0.21
3.3	C	TF3C335(1)035(2)2000	1.2	6	2.000	0.23
3.3	C <sup>(1)</sup>	TF3C335(1)035(2)0900	1.2	6	0.900	0.35
4.7	C	TF3C475(1)035(2)1800	1.6	6	1.800	0.25
4.7	C <sup>(1)</sup>	TF3C475(1)035(2)0900	1.6	6	0.900	0.35
4.7	D	TF3D475(1)035(2)1500	1.6	6	1.500	0.32
4.7	D	TF3D475(1)035(2)1200	1.6	6	1.200	0.35
4.7	D	TF3D475(1)035(2)0700	1.6	6	0.700	0.46
4.7	D	TF3D475(1)035(2)0600	1.6	6	0.600	0.50
6.8	D	TF3D685(1)035(2)1300	2.4	6	1.300	0.34

**Notes**

- Part number definitions:
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  - (2) Terminations and packaging codes: C, D, E, F
- (1) Preliminary values, contact factory for availability





STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>35 V<sub>DC</sub> AT + 85 °C; 23 V<sub>DC</sub> AT + 125 °C</b>						
6.8	D	TF3D685(1)035(2)1000	2.4	6	1.000	0.39
6.8	D	TF3D685(1)035(2)0750	2.4	6	0.750	0.45
6.8	D	TF3D685(1)035(2)0500	2.4	6	0.500	0.55
10	D	TF3D106(1)035(2)0800	3.5	6	0.800	0.43
10	D	TF3D106(1)035(2)0500	3.5	6	0.500	0.55
10	D <sup>(1)</sup>	TF3D106(1)035(2)0400	3.5	6	0.400	0.61
10	E	TF3E106(1)035(2)1000	3.5	6	1.000	0.41
10	E	TF3E106(1)035(2)0800	3.5	6	0.800	0.45
10	E	TF3E106(1)035(2)0500	3.5	6	0.500	0.57
10	E <sup>(1)</sup>	TF3E106(1)035(2)0400	3.5	6	0.400	0.64
15	D	TF3D156(1)035(2)0800	5.3	6	0.800	0.43
15	D	TF3D156(1)035(2)0500	5.3	6	0.500	0.55
15	D <sup>(1)</sup>	TF3D156(1)035(2)0400	5.3	6	0.400	0.61
15	E	TF3E156(1)035(2)0900	5.3	6	0.900	0.43
15	E	TF3E156(1)035(2)0700	5.3	6	0.700	0.49
15	E	TF3E156(1)035(2)0500	5.3	6	0.500	0.57
22	E	TF3E226(1)035(2)0600	7.7	6	0.600	0.52
22	E <sup>(1)</sup>	TF3E226(1)035(2)0300	7.7	6	0.300	0.74
<b>50 V<sub>DC</sub> AT + 85 °C; 33 V<sub>DC</sub> AT + 125 °C</b>						
0.47	C	TF3C474(1)050(2)8000	0.5	4	8.000	0.12
0.47	C	TF3C474(1)050(2)6700	0.5	4	6.700	0.13
0.47	C <sup>(1)</sup>	TF3C474(1)050(2)1900	0.5	4	1.900	0.24
0.68	C	TF3C684(1)050(2)7000	0.5	4	7.000	0.13
0.68	C	TF3C684(1)050(2)5900	0.5	4	5.900	0.14
0.68	C <sup>(1)</sup>	TF3C684(1)050(2)1700	0.5	4	1.700	0.25
1.0	C	TF3C105(1)050(2)5500	0.5	4	5.500	0.14
1.0	C	TF3C105(1)050(2)4400	0.5	4	4.400	0.16
1.0	C	TF3C105(1)050(2)2700	0.5	4	2.700	0.20
1.0	C <sup>(1)</sup>	TF3C105(1)050(2)2200	0.5	4	2.200	0.22
1.5	C	TF3C155(1)050(2)5000	0.8	6	5.000	0.15
1.5	C	TF3C155(1)050(2)3200	0.8	6	3.200	0.19
1.5	C <sup>(1)</sup>	TF3C155(1)050(2)2000	0.8	6	2.000	0.23
1.5	C <sup>(1)</sup>	TF3C155(1)050(2)1600	0.8	6	1.600	0.26
2.2	C	TF3C225(1)050(2)2800	1.1	6	2.800	0.20
2.2	C <sup>(1)</sup>	TF3C225(1)050(2)1400	1.1	6	1.400	0.28
2.2	D	TF3D225(1)050(2)2500	1.1	6	2.500	0.24
2.2	D	TF3D225(1)050(2)2100	1.1	6	2.100	0.27
2.2	D	TF3D225(1)050(2)0900	1.1	6	0.900	0.41
3.3	C	TF3C335(1)050(2)2400	1.7	6	2.400	0.21
3.3	C	TF3C335(1)050(2)1600	1.7	6	1.600	0.26
3.3	C <sup>(1)</sup>	TF3C335(1)050(2)1200	1.7	6	1.200	0.30

**Notes**

- Part number definitions:
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  - Terminations and packaging codes: C, D, E, F
- <sup>(1)</sup> Preliminary values, contact factory for availability

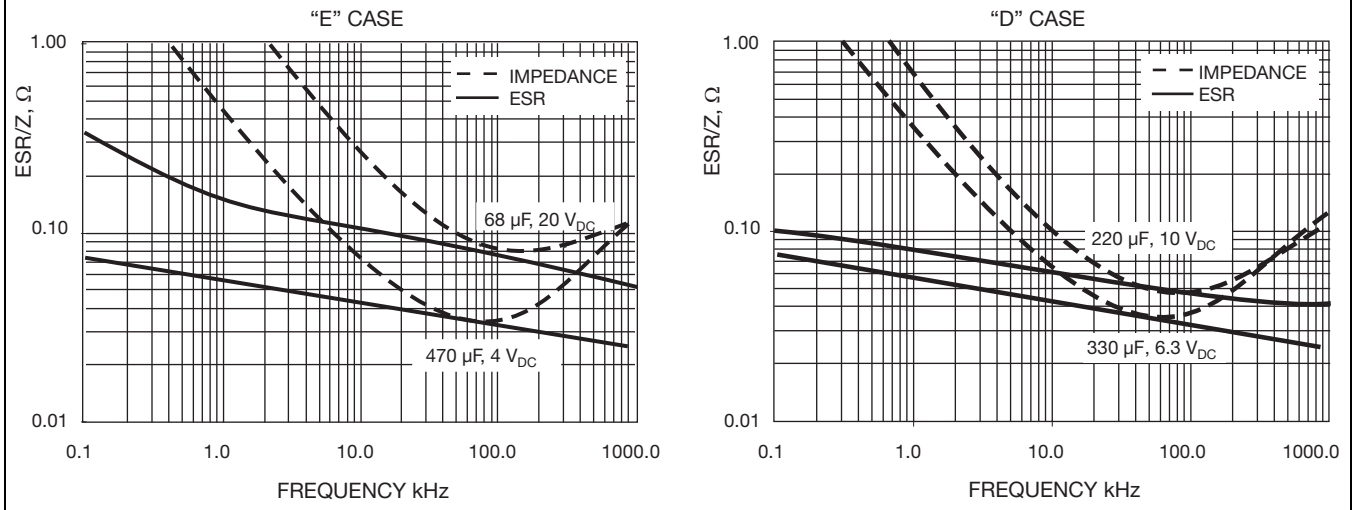


STANDARD RATINGS						
CAPACITANCE ( $\mu$ F)	CASE CODE	PART NUMBER	MAX. DC LEAKAGE AT + 25 °C ( $\mu$ A)	MAX. DF AT + 25 °C 120 Hz (%)	MAX. ESR AT + 25 °C 100 kHz ( $\Omega$ )	MAX. RIPPLE 100 kHz $I_{RMS}$ (A)
<b>50 V<sub>DC</sub> AT + 85 °C, 33 V<sub>DC</sub> AT + 125 °C</b>						
3.3	D	TF3D335(1)050(2)2000	1.7	6	2.000	0.27
3.3	D	TF3D335(1)050(2)1600	1.7	6	1.600	0.31
4.7	D	TF3D475(1)050(2)1100	2.4	6	1.100	0.37
4.7	E	TF3E475(1)050(2)1500	1.9	4	1.500	0.33
4.7	E	TF3E475(1)050(2)1100	1.9	4	1.100	0.39
6.8	D	TF3D685(1)050(2)0900	3.4	6	0.900	0.41
6.8	D <sup>(1)</sup>	TF3D685(1)050(2)0450	3.4	6	0.450	0.58
6.8	E	TF3E685(1)050(2)0900	3.4	6	0.900	0.43
6.8	E <sup>(1)</sup>	TF3E685(1)050(2)0450	3.4	6	0.450	0.61

**Notes**

- Part number definitions:
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RECOMMENDED VOLTAGE DERATING GUIDELINES (for temperatures below + 85 °C)	
STANDARD CONDITIONS. FOR EXAMPLE: OUTPUT FILTERS	
Capacitor Voltage Rating	Operating Voltage
4.0	2.5
6.3	3.6
10	6.0
16	10
20	12
25	15
35	24
50	28
SEVERE CONDITIONS. FOR EXAMPLE: INPUT FILTERS	
Capacitor Voltage Rating	Operating Voltage
4.0	2.5
6.3	3.3
10	5.0
16	8.0
20	10
25	12
35	15
50	24

**TYPICAL CURVES AT + 25 °C, IMPEDANCE AND ESR VS. FREQUENCY**

**POWER DISSIPATION**

CASE CODE	MAXIMUM PERMISSIBLE POWER DISSIPATION AT + 25 °C (W) IN FREE AIR
C	0.110
D	0.150
E	0.165

**STANDARD PACKAGING QUANTITY**

CASE CODE	UNITS PER REEL	
	7" REEL	13" REEL
C	500	3000
D	500	2500
E	400	1500

**PRODUCT INFORMATION**

Guide for Molded Tantalum Capacitors	<a href="http://www.vishay.com/doc?40074">www.vishay.com/doc?40074</a>
Pad Dimensions	
Package Dimensions	
Moisture Sensitivity	<a href="http://www.vishay.com/doc?40135">www.vishay.com/doc?40135</a>
<b>SELECTOR GUIDES</b>	
Solid Tantalum Selector Guide	<a href="http://www.vishay.com/doc?49053">www.vishay.com/doc?49053</a>
Solid Tantalum Chip Capacitors	<a href="http://www.vishay.com/doc?40091">www.vishay.com/doc?40091</a>
<b>FAQ</b>	
Frequently Asked Questions	<a href="http://www.vishay.com/doc?40110">www.vishay.com/doc?40110</a>



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**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**