

TANTALUM CAPACITORS

TMCTX Series

•Tantalum Chip Capacitors with Internal Fuse

The TMCTX Series is a protected-device-incorporated tantalum chip capacitor. This design is achieved by adding a thermal fuse to the TMC type. Combined with High Heat Resistance to withstand infra-red-reflow and solder dip, the TMCTX Series offers high reliability. It also has low ESR of less than 2.0Ω at 1MHz, and low inductance of 5nH at 200MHz.

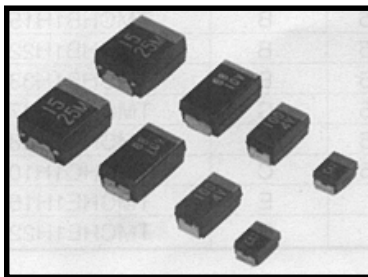
Prevention of fire or smoke due to the function of the internal fuse.

Fusing characteristics:

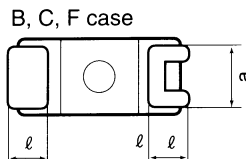
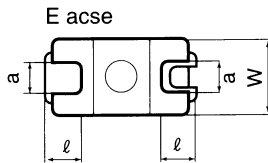
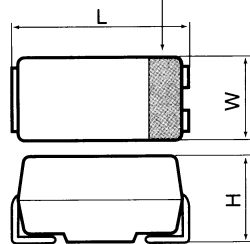
B, C cases: Open in less than 100 sec at 1.5A,
or in less than 5 sec at 5A.

E, F cases Open in less than 5 sec at 5A.

Outline Drawings and Dimensions



Anode Indication belt mark



TMCTX Case Code Table

Case Code	Dimensions				
	L ± 0.2	W ± 0.2	H ± 0.2	$\ell \pm 0.3$	a ± 0.2
B	3.5	2.8	1.9	0.8	2.0
C	5.8	3.2	2.5	1.3	2.2
E	7.3	4.3 ± 0.3	2.8	1.3	2.4
F	7.3	5.8 ± 0.3	3.5	1.3	3.5

For Specifications see Table on Page 153.

TMCTX Product Markings

B Case	C, E, F Case
<p>Simplified code of rated voltage (C: 16V)</p> <p>Anode Indication belt mark</p> <p>Date Code (for manufacturing in January, 2003)</p> <p>Simplified code of nominal capacitance (N6: 3.3μF)</p> <p>Note: The simplified code is subject to JIS C 5143 10.1.2.</p>	<p>Nominal capacitance value (10μF)</p> <p>Anode Indication belt mark</p> <p>Date Code (for manufacturing in January, 2003)</p> <p>Rated voltage (16V)</p>

Tantalum Capacitor Date Code Table

Month \ Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2000	n	p	q	r	s	t	u	v	w	n	n	n
2001	A	B	C	D	E	F	G	H	J	K	L	M
2002	N	P	Q	R	S	T	U	V	W	X	Y	Z
2003	a	b	c	d	e	f	g	h	j	k	l	m

TANTALUM CAPACITORS

TMCTX Series

•Tantalum Chip Capacitors with Internal Fuse

Rated Voltage (WVDC)	Part Number	Capacitance	Capacitance Tolerance	Tangent	Dimensions			Quantity	
					L x W* x H (±0.2) (±0.2) (±0.2)	ℓ (±0.3)	a (±0.2)	180mm Dia. Reel	330mm Dia. Reel
10 Volts DC (Code: 1A)	TMCTXB1A475KTR	4.7	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1A475MTR	4.7	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1A685KTR	6.8	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1A685MTR	6.8	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1A106KTR	10.0	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1A106MTR	10.0	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXC1A156KTR	15.0	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1A156MTR	15.0	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1A226KTR	22.0	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1A226MTR	22.0	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXE1A336KTR	33.0	±10%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1A336MTR	33.0	±20%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1A476KTR	47.0	±10%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1A476MTR	47.0	±20%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1A476KTR	47.0	±10%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXF1A476MTR	47.0	±20%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXE1A686KTR	68.0	±10%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1A686MTR	68.0	±20%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1A686KTR	68.0	±10%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
TMCTXF1A686MTR	68.0	±20%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500	
16 Volts DC (Code: 1C)	TMCTXB1C335KTR	3.3	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1C335MTR	3.3	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1C475KTR	4.7	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1C475MTR	4.7	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1C685KTR	6.8	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1C685MTR	6.8	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXC1C106KTR	10.0	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1C106MTR	10.0	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1C156KTR	15.0	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1C156MTR	15.0	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXE1C226KTR	22.0	±10%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1C226MTR	22.0	±20%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1C336KTR	33.0	±10%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1C336MTR	33.0	±20%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1C336KTR	33.0	±10%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXF1C336MTR	33.0	±20%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXE1C476KTR	47.0	±10%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1C476MTR	47.0	±20%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1C476KTR	47.0	±10%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
TMCTXF1C476MTR	47.0	±20%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500	

*Case Codes E and F: Width (W) = ±0.3

TANTALUM CAPACITORS

TMCTX Series

•Tantalum Chip Capacitors with Internal Fuse

Rated Voltage (WVDC)	Part Number	Capacitance	Capacitance Tolerance	Tangent	Dimensions			Quantity	
					L x W* x H (±0.2) (±0.2) (±0.2)	ℓ (±0.3)	a (±0.2)	180mm Dia. Reel	330mm Dia. Reel
20 Volts DC (Code: 1D)	TMCTXB1D225KTR	2.2	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1D225MTR	2.2	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1D335KTR	3.3	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1D335MTR	3.3	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1D475KTR	4.7	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1D475MTR	4.7	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXC1D685KTR	6.8	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1D685MTR	6.8	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1D106KTR	10.0	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1D106MTR	10.0	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXE1D156KTR	15.0	±10%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1D156MTR	15.0	±20%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1D226KTR	22.0	±10%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1D226MTR	22.0	±20%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1D226KTR	22.0	±10%	0.05	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXF1D226MTR	22.0	±20%	0.05	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXE1D336KTR	33.0	±10%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1D336MTR	33.0	±20%	0.06	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1D336KTR	33.0	±10%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXF1D336MTR	33.0	±20%	0.06	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
25 Volts DC (Code: 1E)	TMCTXB1E335KTR	1.5	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1E335MTR	1.5	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1E225KTR	2.2	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1E225MTR	2.2	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1E335KTR	3.3	±10%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1E335MTR	3.3	±20%	0.05	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXC1E475KTR	4.7	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1E475MTR	4.7	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1E685KTR	6.8	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1E685MTR	6.8	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXE1E106KTR	10.0	±10%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1E106MTR	10.0	±20%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1E156KTR	15.0	±10%	0.05	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXF1E156MTR	15.0	±20%	0.05	7.3 x 5.8* x 3.5	1.3	3.5	500	2500

*Case Codes E and F: Width (W) = ±0.3

TANTALUM CAPACITORS

TMCTX Series

•Tantalum Chip Capacitors with Internal Fuse

Rated Voltage (WVDC)	Part Number	Capacitance	Capacitance Tolerance	Tangent	Dimensions			Quantity	
					L x W* x H (±0.2) (±0.2) (±0.2)	ℓ (±0.3)	a (±0.2)	180mm Dia. Reel	330mm Dia. Reel
35 Volts DC (Code: 1V)	TMCTXB1V105KTR	1.0	±10%	0.04	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXB1V105MTR	1.0	±20%	0.04	3.5 x 2.8 x 1.9	0.8	2.2	2000	8000
	TMCTXC1V155KTR	1.5	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1V155MTR	1.5	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1V225KTR	2.2	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1V225MTR	2.2	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1V335KTR	3.3	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1V335MTR	3.3	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXE1V685KTR	6.8	±10%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1V685MTR	6.8	±20%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1V106KTR	10.0	±10%	0.05	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXF1V106MTR	10.0	±20%	0.05	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
50 Volts DC (Code: 1H)	TMCTXC1H105KTR	1.0	±10%	0.04	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1H105MTR	1.0	±20%	0.04	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1H155KTR	1.5	±10%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXC1H155MTR	1.5	±20%	0.05	5.8 x 3.2 x 2.5	1.3	2.2	500	2500
	TMCTXE1H335KTR	3.3	±10%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXE1H335MTR	3.3	±20%	0.05	7.3 x 4.3* x 2.8	1.3	2.4	500	2500
	TMCTXF1H475KTR	4.7	±10%	0.05	7.3 x 5.8* x 3.5	1.3	3.5	500	2500
	TMCTXF1H475MTR	4.7	±20%	0.05	7.3 x 5.8* x 3.5	1.3	3.5	500	2500

*Case Codes E and F: Width (W) = ±0.3