

ALUMINUM ELECTROLYTIC CAPACITORS



TX Series

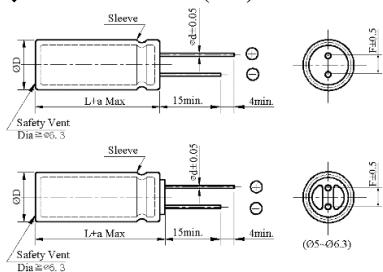
- High temperature 135°C, high reliability
- Load life 1,000~2,000 hours at 135°C
- For automotive electronics and lighting equipment and other high temperature applications



◆ SPECIFICATIONS

Item	Performance Characteristics					
Category Temperature Range	-55 ~ +135°C					
Working Voltage Range	10 ~ 50Vdc					
Capacitance Range	22 ~ 1000 μF					
Capacitance Tolerance	±20% (at 25°C and 120Hz)					
Dissipation Factor (tanδ) (at 25°C, 120Hz)	Rated Voltage (V)	10	16	25	35	50
	tanδ(Max)	0.20	0.16	0.14	0.12	0.10
	When nominal capacitance exceeds 1,000uF, add 0.02 to the value above for each 1,000uF increase.					
Leakage Current	I=0.03CV I : Leakage current (μA) C : Rated capacitance (μF) V : Rated voltage (V) Impress the rated voltage for 2 minutes					
Low Temperature Characteristics Impedance Ratio(MAX)	Rated voltage (V)	10	16	25	35	50
	Z(-55°C)/Z(+20°C)	3	3	3	3	3
	(at 120Hz)					
Endurance	The following specifications shall be satisfied when the capacitors are restored to 25°C after subjected to DC voltage with the rated ripple current is applied for 1,000~2,000 hours at 135°C.					
	Capacitance change	≤ ±25% of the initial value				Size
	Dissipation factor(tanδ)	≤ 200% of the specified value				Life time (hours)
	Leakage current	≤ specified value				Φ10 1,000
						Φ12.5 2,000
Shelf Life	The following requirements shall be satisfied when the capacitor are restored to 25°C after exposing them for 1,000 hours at 135°C without voltage applied.					
	Capacitance change	≤ ±25% of the initial value				
	Dissipation factor(tanδ)	≤ 200% of the specified value				
	Leakage current	≤ 200% of the specified value				
Others	Conforms to JIS-C-5101-4 (1998)					

◆ DIMENSIONS (mm)



ΦD	6.3	8	10	12.5	16
ΦD + 0.5 Max					
Φd	0.5	0.6	0.6	0.6	0.8
F	2.5	3.5	5.0	5.0	7.5
a	L + 1.5 Max			≤ 35 L+1.5Max	L + 1.5 Max
				≥ 40 L+2.0 Max	

◆ PART NUMBER SYSTEM (Example : 16V 470μF)

T X 1 C 4 7 1 M N N 1 0 1 6 [] [] [] []

Special Request

Size code(1016 : 10×16)

Lead length code

Lead forming Type code

Capacitance tolerance code(M: ± 20%)

Capacitance code (470μF)

Voltage code(16V)

Series code(TX)

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◆ STANDARD RATINGS

WV (Vdc)	Cap (μ F)	Case Size (mm) Φ D×L	Rated Ripple current (mA rms/ 135°C, 120Hz)	Part Number
10 (1A)	47	6.3×11	180	TX1A470MNN6311
	100	6.3×11	420	TX1A101MNN6311
	220	8×11.5	500	TX1A221MNN08B5
	330	10×12.5	580	TX1A331MNN10C5
	470	10×12.5	620	TX1A471MNN10C5
	1000	10×20	900	TX1A102MNN1020
16 (1C)	33	6.3×11	155	TX1C330MNN6311
	47	6.3×11	190	TX1C470MNN6311
	100	8×11.5	455	TX1C101MNN08B5
	220	10×12.5	590	TX1C221MNN10C5
	330	10×12.5	600	TX1C331MNN10C5
	470	10×16	755	TX1C471MNN1016
25 (1E)	1000	12.5×20	1010	TX1C102MNN1220
	22	6.3×20	135	TX1E220MNN6320
	33	8×11	175	TX1E330MNN0811
	47	8×11.5	225	TX1E470MNN08B5
	100	8×11.5	480	TX1E101MNN08B5
	220	10×12.5	600	TX1E221MNN10C5
	330	10×16	745	TX1E331MNN1016

WV (Vdc)	Cap (μ F)	Case Size (mm) Φ D×L	Rated Ripple current (mA rms/ 135°C, 120Hz)	Part Number
25 (1E)	25	470	10×20	900
	1000	12.5×25	1290	TX1E102MNN1225
	22	8×11.5	170	TX1V220MNN08B5
	33	8×11.5	185	TX1V330MNN08B5
	47	8×11.5	240	TX1V470MNN08B5
	100	10×12.5	490	TX1V101MNN10C5
35 (1V)	220	10×16	770	TX1V221MNN1016
	330	10×20	880	TX1V331MNN1020
	470	12.5×20	1020	TX1V471MNN1220
	1000	16×25	1450	TX1V102MNN1625
	22	8×11.5	185	TX1H220MNN08B5
	33	8×11.5	210	TX1H330MNN08B5
50 (1H)	47	8×15	280	TX1H470MNN0815
	100	10×12.5	490	TX1H101MNN10C5
	220	10×20	820	TX1H221MNN1020
	330	12.5×20	900	TX1H331MNN1220
	470	12.5×25	1095	TX1H471MNN1225
	1000	16×31.5	1510	TX1H102MNN16N3

◆ RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Vdc	Cap(uF)	Frequency (Hz)			
		120K	1K	10K	100K
10 ~ 50	<100	0.40	0.75	0.90	1.00
	100 ~ 470	0.50	0.85	0.94	1.00
	>470	0.60	0.87	0.95	1.00