

# ALUMINUM ELECTROLYTIC CAPACITORS

## TW series

### FEATURES 特性

- 115°C 2000hrs High ripple current  
115°C 2000 小時 高紋波

### SPECIFICATIONS

Item 項目	Performance Characteristics 特性						
Operating Temperature Range 工作溫度範圍	-40°C ~ +115°C						
Rated Voltage Range 額定電壓範圍	160V ~ 500 W.V.						
Capacitance Range 靜電容量範圍	3.3~560uF						
Capacitance Tolerance 靜電容量誤差	±20% (20°C, 120Hz)						
Leakage Current 洩漏電流	Nominal Capacitance $\leq 10 \mu F$ $I=0.02CV + 25\mu A$ (After 2 minutes) 額定容量 $\leq 10 \mu F$ $I=0.02CV + 25\mu A$ (2 分鐘後) Nominal Capacitance $> 10 \mu F$ $I=0.02CV$ (After 2 minutes) 額定容量 $> 10 \mu F$ $I=0.02CV$ (2 分鐘後)) $I$ =Leakage Current ( $\mu A$ ) , $C$ =Nominal Capacitance ( $\mu F$ ) , $V$ =Rated Voltage (V) $I$ =洩漏電流 ( $\mu A$ ) , $C$ =額定容量 ( $\mu F$ ) , $V$ =額定電壓 (V)						
Dissipation Factor (tan $\delta$ ) 散逸因素 (損失角正切值)	Rated voltage (V) 額定電壓(V)	160~200	250	400	450	500	MAX (20°C, 120Hz)
	Tan $\delta$ 損失角正切值	0.15	0.15	0.20	0.20	0.20	
Low Temperature Stability Impedance Ratio(MAX) 低溫特性阻抗比率	Rated voltage (V) 額定電壓(V)	160~200	250~350	400~500	MAX		(120Hz)
	Z(-25°C)/Z(+20°C)	3	5	8			
	Z(-40°C)/Z(+20°C)	8	8	17			

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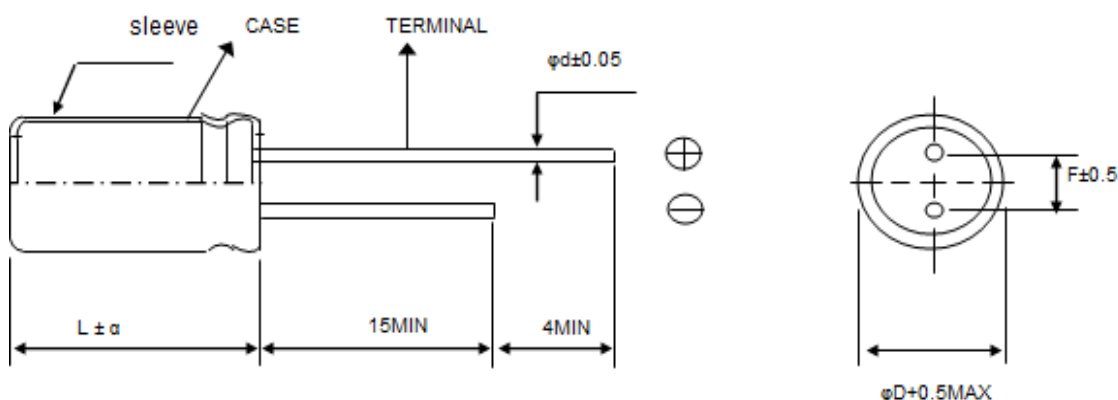
Load Life 負荷壽命	After 2000 hours' application of rated voltage at 115°C, capacitors meet the characteristics requirement listed as following. 在 115°C 下印加額定電壓 2000 小時後, 電容特性需滿足以下要求。	
	Leakage Current 洩漏電流	Not more than the specified value. 不超出規格值。
	Capacitance Change 容量變化率	within ±25% of the initial value 初始值±25%以內。
	Dissipation Factor 散逸因素	Not more than 200% of the specified value 不超出規格值的 2 倍。
Shelf Life 放置壽命	After leaving capacitors under no load at 115°C for 500 hours, the capacitors shall meet the following requirements. 電容放置在 115°C 無印加電壓的情況下儲存 500 小時後, 電容需符合以下要求。	
	Leakage Current 洩漏電流	Not more than the specified value. 不超出規格值。
	Capacitance Change 容量變化率	within ±25% of the initial value 初始值±25%以內。
	Dissipation Factor 散逸因素	Not more than 200% of the specified value 不超出規格值的 2 倍。
Standard 參照標準	According to JIS C-5101 依據 JIS C-5101	

## Frequency coefficient

頻率系數

Frequency(Hz)	60(50)	120	1k	10k	≥ 100k
Coefficient	0.80	1.00	1.45	1.65	1.75

## DIMENSIONS 尺寸(mm)



$\phi D$	6.3	8	10	12/12.5/13	16	18
$\phi d$	0.5	0.6	0.6	0.6	0.8	0.8
F	2.5	3.5	5.0	5.0	7.5	7.5
$\alpha$	$L \leq 19: \alpha = 1.5, \quad L \geq 20: \alpha = 2.0$					

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### STANDARD SIZES AND RIPPLE CURRENT

#### 尺寸及紋波標準

SIZE  $\phi$  DxL(mm)Ripple Current(mA 115°C 120Hz) r.m.s

W.V		160(2C)		200(2D)		250(2E)		400(2G)		420(2H)		450(2W)		500(2Z)	
Cap( $\mu$ F)		Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current
3.3	3R3	5x11	15	6.3x11	22	6.3x11	25	6.3x11 8x11.5 10x12.5	25 35 45			8x11.5 10x12.5 12.5x20	42 60 75	10x16	75
4.7	4R7	6.3x11	22	8x11.5	50	8x11.5 6.3x11	53 30	8x11.5 10x16	60 70			10x12.5	65	10x20	80
6.8	6R8	6.3x11	45	8x11.5	60	8x11.5	65	8x16 10x12.5	70 72			10x16	80	10x23	130
8.2	8R2							10x12.5 8x11.5	78 75						
10	100	6.3x15 8x11.5	52 60	8x11.5 10x12.5	70 57	8x16 10x12.5	75 60	8x11.5 10x16 12.5x12	72 85 90	10x16	100	10x16 12.5x16	125 128	12.5x20	155
12	120							8x14	75						
15	150	8x16	80	10x12.5	110	10x12.5	110	8x16 10x12.5 10x16 12.5x16	90 90 90 120			12.5x16	140	16x20	170
18	180							8x18	105						
22	220	10x12.5	110	10x12.5	125	10x16	165	8x40 10x16 10x25 12.5x16	180 115 130 125	12.5x16 8x40	125 180	8x45 12.5x20 16x20	240 168 180	16x25	200
27	270							8x40 10x18 12.5x20	240 120 175	8x50	240	8x50 12.5x25	310 200		
33	330	10x16	145	10x16 12.5x16	165 181	12.5x16	181	8x45 10x40 12.5x20 16x20	300 360 200 225	8x55 10x40 12.5x25 13x16	310 360 200 170	8x60 10x40 12.5x25 16x20 18x20	320 360 200 230 250	16x31.5	280
39	390	10x16	165	10x23	183	12.5x20	200	8x50 10x40 12.5x20	320 390 240	12.5x30 10x40	230 390	10x40 12.5x25	390 220	18x25	290



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W.V		160(2C)		200(2D)		250(2E)		400(2G)		420(2H)		450(2W)		500(2Z)	
		Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current	Size	Ripple Current
47	470	10x16	175	10x20 12.5x16	185 192	12.5x20	240	13x25 12.5x25 16x20 18x20	210 210 250 250	10x40 12.5x35	410 268	16x20 18x25	220 280	16x30 18x31.5	290 300
56	560	10x23	188	12.5x20	223	12.5x25	250	10x45 12.5x30 16x25 18x20	280 275 282 285	10x50 12.5x40	490 480	12.5x35 16x35.5	335 350	18x30	383
68	680	12.5x20	223	12.5x20 16x20	253 330	16x20	400	12.5x35 16x30 18x20	325 325 325	10x60 12.5x35 18x20	500 470 350	12.5x40 16x25 18x25	560 350 310	18x40	400
82	820	12.5x25	250	12.5x25	290	16x25	330	18x25 16x25	375 353	18x25 16x31.5	330 390	12.5x45 18x30	550 410	18x35.5	400
100	101	16x20	300	12.5x25 16x20	335 340	16x31.5 12.5x30	365 347	12.5x45 16x30 18x25	360 400 430	12.5x55 18x31.5	730 500	12.5x55 18x30	720 480	18x35.5	430
110	111	16x20	320	16x20	360	16x31.5	380	12.5x50 18x31.5	490 470			18x35.5	510		
120	121	16x20	340	16x25 12.5x30	380 380	18x20 16x31.5	408 450	12.5x55 18x30 18x35.5 16x35.5	830 500 520 470	16x35.5 18x31.5	557 610	16x40 18x30	510 500	18x45	610
150	151	16x25	380	16x31.5 12.5x30	460 445	16x25	400	18x31.5 16x40	520 530	18x35.5	680	18x40	770		
180	181	16x31.5	460	18x20 12.5x40 16x31.5	505 505 505	18x31.5 16x30	520 550	18x35.5 18x40	700 700	18x40 20x40	710 730				
220	221			16x31.5 18x25	580 580	16x31.5 18x35.5	625 625	18x45	730						
270	271	16x31.5	533	16x31.5 18x25	580 580	18x35.5	678								
330	331	18x31.5	625	18x31.5	667										
390	391	18x35.5	667	18x35.5	757										
470	471	18x40	753	18x40	865										
560	561	18x45	865	18x45	965										