

# ALUMINUM ELECTROLYTIC CAPACITORS

**TM series**

**LONG LIFE 4000~5000HRS**

**長壽命 4000~5000 小時**

## FEATURES 特性

- Load Life:105°C 4000~5000 hours  
壽命:105°C 4000~5000 小時
- High Ripple Current  
高紋波
- For Smart Meters & Outdoor Monitoring Equipments  
適用於智能儀錶&戶外監控設備

## SPECIFICATIONS

Item 項目	Performance Characteristics 特性									
Operating Temperature Range 工作溫度範圍	-40°C ~ +105°C									
Rated Voltage Range 額定電壓範圍	400V~450W.V.									
Capacitance Range 靜電容量範圍	1~180 $\mu$ F									
Capacitance Tolerance 靜電容量誤差	$\pm$ 20% (20°C, 120Hz)									
Leakage Current 洩漏電流	Nominal Capacitance $\leq$ 10 $\mu$ F I=0.02CV +25uA(After 2 minutes) 額定容量 $\leq$ 10 $\mu$ F I=0.02CV +25uA(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)	<table border="1"> <tr> <td>Rated voltage (V) 額定電壓(V)</td> <td>400</td> <td>420</td> <td>450</td> <td rowspan="2">MAX (20°C, 120Hz)</td> </tr> <tr> <td>Tan <math>\delta</math> 損失角正切值</td> <td>0.20</td> <td>0.20</td> <td>0.20</td> </tr> </table>	Rated voltage (V) 額定電壓(V)	400	420	450	MAX (20°C, 120Hz)	Tan $\delta$ 損失角正切值	0.20	0.20	0.20
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Tan $\delta$ 損失角正切值	0.20	0.20	0.20							
Low Temperature Stability Impedance Ratio(MAX) 低溫特性阻抗比率	<table border="1"> <tr> <td>Rated voltage (V) 額定電壓 (V)</td> <td>400</td> <td>420</td> <td>450</td> <td rowspan="2">MAX (120Hz)</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>8</td> <td>17</td> <td>17</td> </tr> </table>	Rated voltage (V) 額定電壓 (V)	400	420	450	MAX (120Hz)	Z(-40°C)/Z(+20°C)	8	17	17
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Load Life 負荷壽命	After life test at conditions stated in the table below, the capacitors shall meet the following requirement. 依據以下壽命要求印加額定紋波電流後，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.	Case Dia	Life Time(hrs)
	Capacitance Change 容量變化率	within $\pm 20\%$ of the initial value 初始值 $\pm 20\%$ 以內	$\Phi d \leq 10$	4000
	Dissipation Factor 散逸因素	Not more than 200% of the specified value 不超出規格值的 2 倍	$\varphi D \geq 12.5$	5000
Shelf Life 放置壽命	After leaving capacitors under no load at 105°C for 1000 hours , the capacitors shall meet the following requirements. 電容放置在 105°C 無印加電壓的情況下儲存 1000 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 $\pm 20\%$ of the initial value 初始值 $\pm 20\%$ 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-5141 依據 JIS C-5101			

## Frequency coefficient

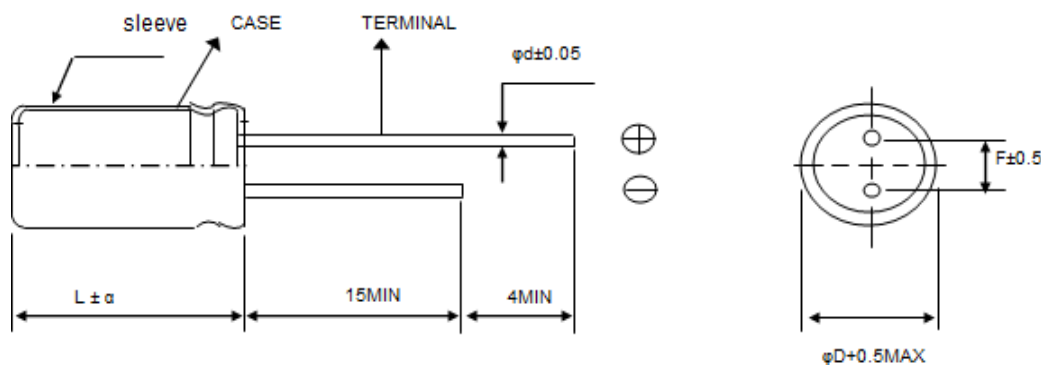
頻率系數

Frequency(Hz)	120	1k	10k	100k $\leq$
Coefficient	0.50	0.80	0.90	1.00

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### DIMENSIONS (mm)



$\varphi D$	10	12	16	18
$\varphi d$	0.6		0.8	
F	5.0		7.5	
$\alpha$	$L \leq 19: \alpha = 1.5, L \geq 20: \alpha = 2.0$			

### STANDARD SIZES AND RIPPLE CURRENT

#### 尺寸及紋波標準

SIZE  $\varphi D \times L$ (mm) Ripple Current(mA 105°C, 100KHz) r.m.s

W.V Cap(μF)		400V (2G)		420V (2H)		450V (2W)	
		Size	Ripple Current	Size	Ripple Current	Size	Ripple Current
1	010	6.3x11	20				
4.7	4R7	10 x 16	85			10x16	100
6.8	6R8	10 x 16	100			10x16	120
8.2	8R2						
10	100	10 x 20	100			12.5x20	150
15	150	8x18	100			8x40	140
18	180	8x18	105				
22	220	8x40	120	8x40	150	8x50	220
		12.5x20	150			10x40	200
		16x20	220			16x25	250
27	270	8x45	140	8x55	160	8x60	180
		10x18	120			10x40	160
33	330	8x45	150	8x60	180	10x40	200
		10x40	160			16x31.5	280
		12.5x25	130				

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39	390	8x55 10x40	180 180	10x40	180	10x45 12.5x40	220 250
47	470	8x60 10x45 16x25 18x20	200 220 270 250	10x45 12.5x40	200 220	10x55 12.5x40 16x35.5	250 280 300
56	560	10x50 12.5x40	250 280	10x55 12.5x40	250 250	10x60 12.5x40	280 300
68	680	10x60 12.5x40 18x31.5	300 300 350	10x60 12.5x40 18x25	280 280 720	12.5x45 18x25	350 720
82	820	12.5x45 18x25	330 350	12.5x50	320	12.5x60	420
100	101	12.5x55	360	12.5x55	360	16x30	950

## TM series

SIZE  $\varnothing$  DxL(mm)Ripple Current(mA 105°C,100KHz) r.m.s

W.V		400V (2G)		420V (2H)		450V (2W)	
		Size	Ripple Current	Size	Ripple Current	Size	Ripple Current
120	121	16x35.5	450	18x40	500		
		18x35	450	18x45	560		
150	151	16x40	520	18x40	600		
		18x35.5	550				
180	181	18x35.5	700				