

# 3000H电解电容 通用规格书

Electrolytic capacitor general specification



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## Application Guidelines For Aluminum Electrolytic Capacitors

### 鋁電解電容器使用需知

#### 1. 電路設計的注意事項

- (1) 在確認使用環境及安裝環境的基礎上，在電容器的產品目錄及規格書上所規定的性能範圍內進行設計。
- (2) 在設計上，應該避免在下述情況下使用：
  - ① 不可超過電容器的最高使用溫度。
  - ② 不可有超過額定紋波電流的電流通過。
  - ③ 不可有超過額定電壓的電壓通過電容器。
    - (a) 要注意紋波電壓(交流部分)重疊到直流電壓上時的峰值不可超過額定電壓。
    - (b) 當兩個電容器串聯時，通過各個電容器的電壓不可超過額定電壓。此時，要在各個電容器上並聯用於防止漏損電流的分壓電阻器。
  - ④ 電容器為極性電容器。要確認有無連接反向電壓或交流電壓。在極性反轉電路中請用雙極性電容器，但是雙極性電容器也不可以用於交流電路。
- (3) 進行電路設計時，請選用與機器壽命相符的電容器。
- (4) 在需要重復進行急速充放電的電路中請選用與條件相符的電容器的。
- (5) 電容器的外殼、輔助引出端子與正、負極以及電路板間必須完全隔離。
- (6) 當電容器套管的絕緣不能保證時，在有絕緣性能特定要求的地方請不要使用。需要外套具有絕緣功能時請諮詢我們。
- (7) 電容器如果在以下環境中使用，可能會發生故障。
  - ① 直接與水、油類、鹽水相接觸的環境或高溫高濕或結露的環境。

#### 1. Caution During Circuit Design

- (1) Please make sure the application and mounting conditions to which the capacitor will be exposed are within the conditions specified in the catalog or alternate product specification (Referred as to specification here after).
- (2) Design Aluminum Electrolytic Capacitors, please pay attention to the points listed below:
  - ① The capacitor shall not be used in an ambient temperature which exceeds the operating temperature specified in the specification.
  - ② Do not apply excessive current which exceeds the allowable ripple current.
  - ③ Make sure that no excess voltage (that is higher than the rated voltage) is applied to the capacitor.
    - (a) Please pay attention so that the peak voltage, which is DC voltage overlapped by ripple current, will not exceed the rated voltage.
    - (b) In the case where more than 2 aluminum electrolytic capacitors are used in series, please make sure that applied voltage will be lower than rated voltage and the voltage be will applied to each capacitor equally using a balancing resistor in parallel with the capacitors.
  - ④ Aluminum electrolytic capacitors are polarized. Make sure that no reverse voltage or AC voltage is applied to the capacitors. Please use Bi-polar capacitors for a circuit that can possibly see reversed polarity. Even Bi-polar capacitors can not be used for ac voltage application.
- (3) Appropriate capacitors which comply with the life requirement of the products should be selected when designing the circuit.
- (4) For a circuit that repeats rapid charging/discharging of electricity, an appropriate capacitor that is capable of enduring such a condition must be used.
- (5) Aluminum case, cathode lead wire, anode lead wire and circuit pattern must be isolated.
- (6) The sleeve of capacitors is not recognized as an insulator, and therefore, the standard capacitor should not be used in a place where insulation function is needed. Please consult with us should you require a higher grade of insulating sleeve.
- (7) Capacitors may fail if they are used under the following conditions:
  - ① Damp conditions such as water, saltwater spray, or oil spray or fumes. High humidity or humidity condensation situations.



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### 鋁電解電容器使用需知

- ② 充滿有毒氣體(硫化物、亞硫酸、亞硝酸、氯氣、氨水等)的環境。
  - ③ 不能置於日照、O<sub>3</sub>、紫外線及有放射性物質環境下使用。
  - ④ 有酸性及鹼性溶劑濺落的環境。
  - ⑤ 振動或衝擊條件超過交貨仕様書規定範圍的惡劣環境。
- (8) 在設計電容器的安裝時，必須確認下述內容:
- ① 線路板的孔距必須與電容器兩端子的間距相吻合。
  - ② 在電容器防爆閥的上方盡量不要安裝配線及其它元件，應在防爆閥的上空保留一定的空間。
  - ③ 請勿在電容器的四周及電路板的背面(電容器下面)配置發熱元件。
- (9) 電容器的電氣特性根據溫度及頻率的變動及變化，請在確認該變化量的基礎上進行電路設計。
- (10) 在雙面印刷板上安裝電容器時，電容器的安裝位置避免多餘的基板孔和過孔。
- (11) 並聯兩個以上的電容器時，要充分考慮電流平衡。
- (12) 串聯兩個以上的電容器時，要充分考慮電壓平衡和插入並聯用分壓阻抗。
- ② In an atmosphere filled with toxic gasses (such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, etc.)
  - ③ Being exposed to direct sunlight, ozone, ultraviolet ray, or radiation.
  - ④ Being exposed to acidic or alkaline solutions.
  - ⑤ Under severe conditions where vibration and/or mechanical shock exceed the applicable ranges of the specification.
- (8) In designing a circuit, the following matters should be ensured in advance to the capacitor assembly on the P.C. board.
- ① Design the appropriate hole spacing to match the lead pitch of capacitors.
  - ② Do not locate any wiring and circuit patterns directly above the capacitor vent. Ensure enough free space above the capacitor vent.
  - ③ Do not design a circuit board so that heat generating components are placed near an aluminum electrolytic capacitor or reverse side of P.C. board (under the capacitor).
- (9) Electrical characteristics may vary depending on changes in temperature and frequency. Please consider this variation when you design circuits.
- (10) When you mount capacitors on the double-sided P.C boards, do not place capacitors on circuit patterns or over on unused holes.
- (11) When you install more than 2 capacitors in parallel, consider the balance of current flowing through the capacitors.
- (12) If more than 2 aluminum electrolytic capacitors are used in series, make sure the applied voltage will be lower than the rated voltage and that voltage will be applied to each capacitor equally using a balancing resistor in parallel with each capacitor.

## TAPING SPECIFICATION FOR AUTOMATIC INSERTION

### ● APPLICATIONS

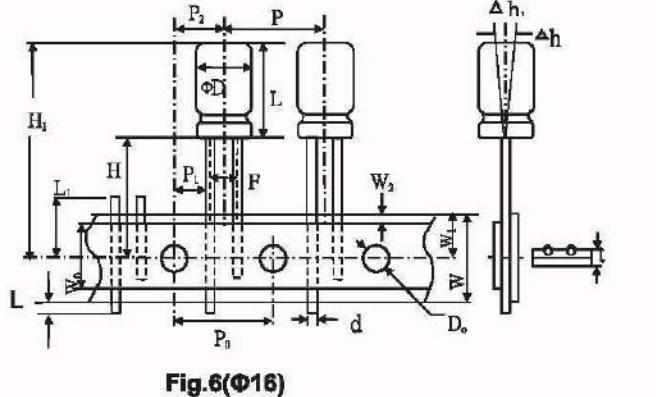
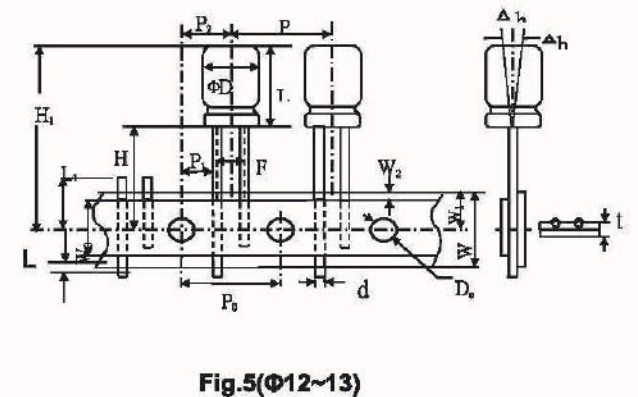
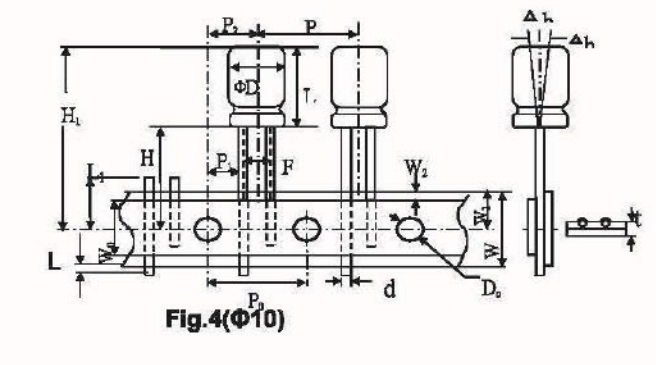
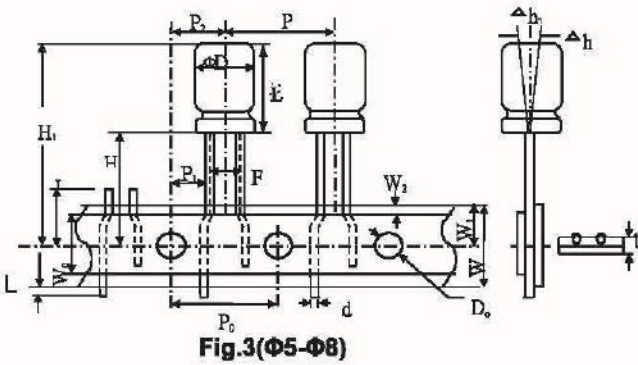
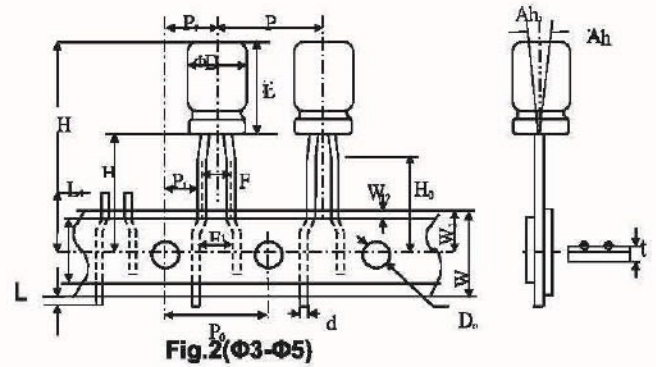
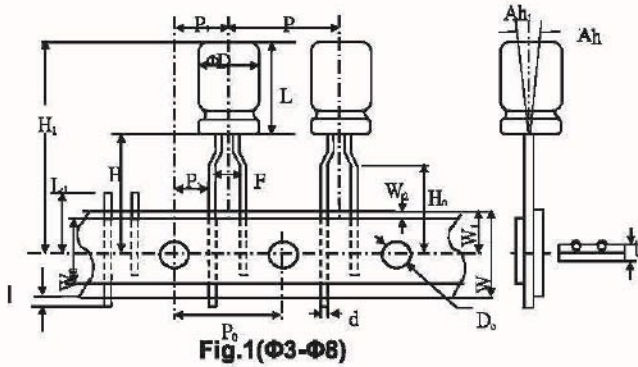
- These specifications include taped single-ended electrolytic capacitors with the body diameters from 4.0 to 16mm.
- Suitable to be used in automatic lead preparation and insertion machines.

### ● DESCRIPTION

- Body tape requirements are shown from Fig.1 to Fig.6
- Polarity of capacitors shall be oriented in one direction.
- Leader tapes shall not be provided before the first and after the last capacitor on tape.
- Up to 3 capacitor consecutively missing on tape is permitted but a designed quantity of capacitors shall be packed in each case.
- Removal faulty capacitors from the tape shall be by pulling out or by cutting off leads. Cut off leads remaining on tape shall not protrude more than 2.0 mm from tape edge.

### ● DIAGRAM OF TAPING DIMENSIONS

(Unit=mm)





## YTF series

- Load life:105°C 3,000~5,000 hours.standard product
- Rohs Compliance.
- 105°C 壽命3,000~5,000小時長壽命品。
- SPECIFICATIONS



Items 項目	Characteristics 特性										
Capacitance Tolerance 靜電容量誤差	±20%(120Hz, 20°C)										
Operating Temperature Range 適用溫度範圍	-40~ +105°C					-25~ +105°C					
Rated Voltage Range 工作電壓範圍	6.3~100V <sub>DC</sub>			160~250V <sub>DC</sub>			350~450V <sub>DC</sub>				
Leakage Current 洩漏電流	I ≤ 0.01 CV or 3 (µA) (After 2 minutes application of DC working voltage, at 20°C)					I ≤ 0.03 CV + 20 (µA) (After 3 minutes application of DC working voltage, at 20°C)					
Dissipation Factor 散逸因素 (tan δ)	Measurement Frequency:120HZ.Temperature :20°C										
	Rated Voltage (V)	6.3	10	16	25	35	50	63	100	160-250	350-450
	tan δ (MAX)	0.24	0.20	0.16	0.15	0.12	0.10	0.09	0.08	0.20	0.25
When nominal capacitance exceeds 1000µF, add 0.02 to the value above for each 1000µF increase. (20°C、120Hz)											
Low Temperature Stability 低溫特性 Impedance Ratio(Max) 阻抗比率 (最大值)	Measurement Frequency:120HZ.										
	Rated Voltage (V <sub>DC</sub> )	6.3	10	16	25	35	50~100	160~250	350~400	450	
	Z(-25°C)/Z(+20°C)	5	4	3	2	2	2	3	6	15	
Z(-40°C)/Z(+20°C)	10	8	6	4	3	3	4	-	-		
Load Life 耐久性	After application of the rated voltage at 105°C 3,000~5,000 hours ,the capacitors shall meet the requirement below										
	Capacitance Change	≤ ± 20% of the Initial Value					ΦD	≤ 100	160~250	350~500	
	tan δ	≤ 200% of the Initial Specified Value					Φ=5,6,3	3000	4000	4000	
	Leakage Current	≤ The Initial Specified Value					Φ=8,10	4000	5000	5000	
							Φ ≥ 13	5000	5000	5000	
Shelf Life 放置壽命	1000hours, no voltage applied, at 105°C。 After Test: U <sub>R</sub> to be applied for 30 minutes, 24 to 48 hours before measurement.										
	Capacitance Change	≤ ±20% of the Initial Value									
	tan δ	≤ 200% of the Initial Specified Value									
	Leakage Current	≤ 200% The Initial Specified Value									
● Frequency Coefficient for Permissible Ripple Current											
Rated Voltage (V)	Capacitance (µF)	Frequency (Hz)									
		50	120	1K	≤ 20K						
≤ 100	< 100	0.75	1.00	1.57	2.00						
	100~470	0.80	1.00	1.34	1.50						
	> 470	0.85	1.00	1.10	1.15						
≥ 160	0.47~1000	0.85	1.00	1.40	1.50						







## ●標準額定値 STANDARD RATINGS

WV (vdc)	Cap ( $\mu$ F)	Case size $\phi$ D X L(mm)	$\tan\delta$	Ripple current (mAmps/105°C · 120HZ)
6.3V (0J)	100	5×11	0.24	94
	220	5×11	0.24	140
	330	5×11	0.24	190
	470	6.3×12	0.24	230
	680	6.3×12	0.24	320
	1000	8×12	0.24	380
	2200	10×17	0.26	710
	3300	10×20	0.28	840
	4700	13×21	0.30	1090
	6800	13×25	0.34	1350
10V (1A)	47	5×11	0.20	68
	100	5×11	0.20	100
	220	6.3×12	0.20	170
	330	6.3×12	0.20	200
	470	6.3×12	0.20	250
	680	8×12	0.20	360
	1000	8×12	0.20	460
	2200	10×20	0.22	760
	3300	13×21	0.24	1000
	4700	13×25	0.26	1260
	6800	16×25	0.30	1570
	10000	16×35	0.38	1890
16V (1C)	10	5×11	0.18	34
	47	5×11	0.18	75
	100	5×11	0.18	110
	220	6.3×12	0.18	180
	330	6.3×12	0.18	260
	470	8×12	0.18	310
	680	10×13	0.18	420
	1000	10×17	0.18	560
	1500	10×20	0.18	720
	2200	13×21	0.20	920
	3300	13×25	0.22	1170
	4700	16×25	0.24	1480
6800	16×30	0.28	1780	
25V (1E)	10	5×11	0.14	36
	22	5×11	0.14	54
	33	5×11	0.14	67
	47	5×11	0.14	80
	100	6.3×12	0.14	130
	220	8×12	0.14	230

WV (vdc)	Cap ( $\mu$ F)	Case size $\phi$ D X L(mm)	$\tan\delta$	Ripple current (mAmps/105°C · 120HZ)
25V (1E)	330	8×12	0.14	310
	470	10×13	0.14	380
	680	10×17	0.14	520
	1000	10×20	0.14	680
	2200	13×21	0.16	1090
	3300	16×25	0.18	1400
	4700	16×30	0.20	1710
	6800	18×35	0.24	2040
	35V (1V)	10	5×11	0.12
22		5×11	0.12	61
33		5×11	0.12	75
47		6.3×12	0.12	90
100		8×12	0.12	150
220		10×13	0.12	270
330		10×13	0.12	350
470		10×17	0.12	460
680		10×20	0.12	635
1000		13×21	0.12	810
2200		13×25	0.14	1260
3300		16×30	0.16	1610
4700		16×35	0.18	1910
50V (1H)		0.10	5×11	0.10
	0.22	5×11	0.10	2.9
	0.33	5×11	0.10	4.3
	0.47	5×11	0.10	6.2
	1.0	5×11	0.10	13
	2.2	5×11	0.10	20
	3.3	5×11	0.10	25
	4.7	5×11	0.10	30
	10	5×11	0.10	40
	22	5×11	0.10	65
	33	6.3×12	0.10	90
	47	6.3×12	0.10	110
	100	8×12	0.10	180
	220	10×12	0.10	330
	330	10×17	0.10	410
	470	10×20	0.10	530
	1000	13×25	0.10	950
	2200	16×35	0.12	1470
	3300	18×35	0.14	1770
	4700	22×50	0.16	2100



# Aluminum Electrolytic Capacitors



## ●標準額定値 STANDARD RATINGS

WV (Vdc)	Cap ( $\mu$ F)	Case size $\phi$ D X L(mm)	$\tan\delta$	Ripple current (mA <sub>rms</sub> /105°C · 120HZ)
63V (1J)	10	5×11	0.10	46
	22	6.3×12	0.10	71
	33	6.3×12	0.10	100
	47	8×12	0.10	120
	100	10×13	0.10	215
	220	10×17	0.10	335
	330	10×20	0.10	510
	470	13×21	0.10	640
	1000	16×25	0.10	930
	2200	18×35	0.12	1250
100V (1K)	0.10	5×11	0.10	1.5
	0.22	5×11	0.10	3.4
	0.33	5×11	0.10	5.0
	0.47	5×11	0.10	7.1
	1.0	5×11	0.10	15
	2.2	5×11	0.10	21
	3.3	5×11	0.10	29
	4.7	5×11	0.10	62
	10	6.3×12	0.10	54
	22	8×12	0.10	93
	33	8×12	0.10	130
	47	10×13	0.10	165
	100	10×20	0.10	265
	220	13×25	0.10	440
	330	16×25	0.10	540
470	16×30	0.10	715	
1000	18×40	0.10	985	
160V (2C)	2.2	6.3×12	0.14	26
	3.3	6.3×12	0.14	32
	4.7	6.3×12	0.14	38
	10	8×12	0.14	65
	22	10×17	0.14	108
	33	10×20	0.14	165
	47	13×21	0.14	205
	68	13×25	0.14	265
	100	13×25	0.14	318
	220	16×30	0.14	568
	330	18×35	0.14	710
250V (2E)	1.0	6.3×12	0.14	16
	2.2	6.3×12	0.14	22

WV (Vdc)	Cap ( $\mu$ F)	Case size $\phi$ D X L(mm)	$\tan\delta$	Ripple current (mA <sub>rms</sub> /105°C · 120HZ)
250V (2E)	3.3	8×12	0.14	34
	4.7	8×12	0.14	48
	10	10×17	0.14	84
	22	10×20	0.14	128
	33	13×21	0.14	185
	47	13×25	0.14	245
	100	16×30	0.14	400
	220	18×35	0.14	660
	330	18×40	0.14	730
	400V (2G)	1.0	8×12	0.15
2.2		8×12	0.15	30
3.3		8×12	0.15	35
4.7		8×14	0.15	52
5.6		10×14	0.15	70
6.8		10×14	0.15	82
10		10×17	0.15	98
15		13×18	0.15	150
22		13×21	0.15	192
33		16×20	0.15	258
47		16×25	0.15	305
68		16×30	0.15	465
82		18×25	0.15	474
100		18×30	0.15	532
120		18×35	0.15	588
150	18×40	0.15	668	
450V (2W)	1.0	8×12	0.17	18
	2.2	8×12	0.17	25
	3.3	8×14	0.17	36
	4.7	10×14	0.17	55
	5.6	10×17	0.17	70
	6.8	10×20	0.17	80
	10	10×20	0.17	90
	15	13×21	0.17	125
	22	13×25	0.17	168
	33	16×25	0.17	215
	47	16×30	0.17	344
	68	18×30	0.17	455
	82	18×30	0.17	472
	100	18×35	0.17	530
	120	18×40	0.17	582
150	22×40	0.17	700	