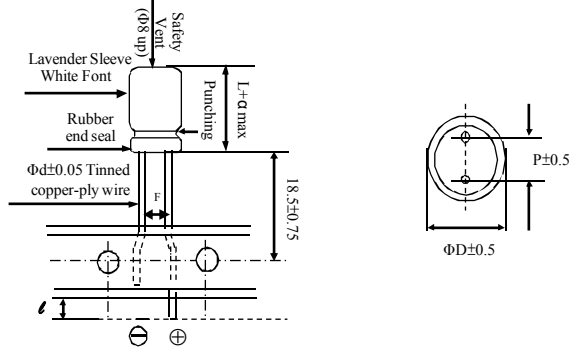


DONG GUAN KUAN KUN ELECTRONIC CO., LTD
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 DONG GUAN CITY, GUAN DONG CHINA(P.R.O.C) FAX: +86-769- 87318008

FOR APPROVAL

DIMENSIONS(mm)

ΦD	6.3
P	2.5
F ^{+0.8} / _{-0.2}	2.5
ℓ	1.0
Φd	0.5



α	(L < 16) 1.0
	(L ≥ 16) 2.0

Customer:	Electrolytic Capacitors SDN Series	Su'scon Code
------------------	---	-------------------------

Electric Characteristics:												
P/N	Su'scon P/N	Cap. (uF)	Cap. Tol. (%)	Rate Volt. (V-DC)	Surge Volt. (V-DC)	Oper. Temp. (°C)	Nominal Case Size D*L(mm)	Leakage Current Max (uA)	D.F. MAX (%)	R.C 120 Hz (mA rms)	IMP 100KHz at 20°C (Ω)	Load Life (Hours)
	SDN016M221E11P484P25R	220	±20	16	20	105	6.3*11	35	16	287	0.750	2000

REMARKS:

- 1. Leakage Current Test:** 6.3V~100V at 20°C for 2 minutes ;160V~400V at 20°C for 5 minutes ;
- 2. Operating temperature:** 6.3V~100V -55°C ~ +105°C ;160V~400V -40°C ~ +105°C ;
- 3. Dissipation Factor Test:** at 20°C , 120 Hz.
- 4. Capacitance Test:** at 20°C , 120 Hz.
- 5. Ripple Current Test:** at 105°C , 120 Hz ;
- 6. Load Life:** 2000 hours, with application of rated voltage at 105°C .
- Capacitance Change:** Within±20% of initial value;
- tanδ:** 200% or less of initial specified value;
- Leakage Current:** Initial specified value or less.
- 7. Shelf Life:** The following specifications shall be satisfied when the capacitors are restored to 20 °C after exposing them for 1000 hours 105°C without voltage applide. Before the measurement, the capacitor shall be preconditioned by applying voltage according to them 4.1 of JIS C5101-4.
- Capacitance Change :** Within±20% of initial value;
- tanδ:** 200% or less of initial specified value;
- Leakage Current :** Initial specified value or less.

● SPECIFICATION

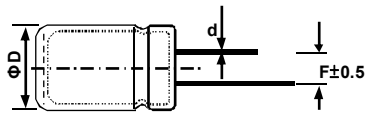
Voltage Range 工作電壓範圍	6.3V~100V					160V~400V						
Leakage Current 洩漏電流	WV ≤ 100V I ≤ 0.01CV (After 2 minutes application of DC working voltage, at 20°C) WV > 100V I ≤ 0.03CV+20 (After 5 minutes application of DC working voltage, at 20°C)											
Dissipation Factor 散逸因素 (損失角) (tan δ)	Measurement Frequency:120Hz. Temperature:20°C											
	Rate Voltage(V)	6.3	10	16	25	35	50	63	100	160~250	400	
	tanδ (MAX)	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.07	0.20	0.24	
	Add 0.02 per 1000uF for more than 1000uF											
Standards 參照標準	JIS C-5101-4(IEC 60384)											

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5 °C rise.
 When long life performance is required in actual use, the rms ripple current has to be reduced.

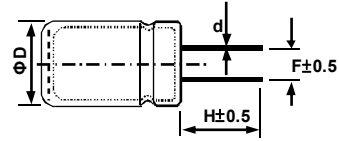
● LEAD CUTTING AND FORMING

With Terminals or Forms as below, Easier Inserting the Units into P.C.Board and Contributing to Higher Mounting Efficiency.

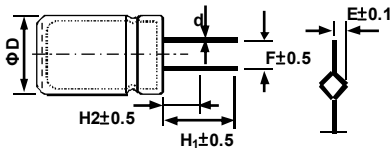
SHAPE(S)



SHAPE(C)

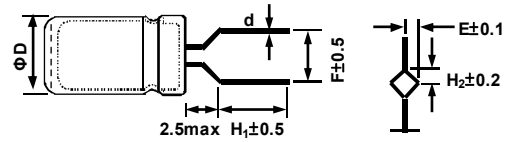


SHAPE(D)

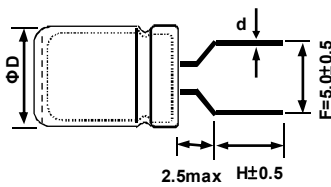


D (mm)	E (mm)
5Φ - 6.3Φ	1.12
8Φ~18Φ	1.32
20Φ~25Φ	1.50

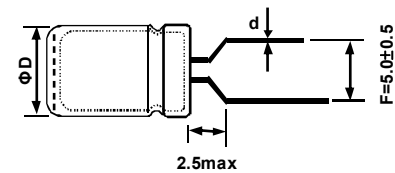
SHAPE(H)



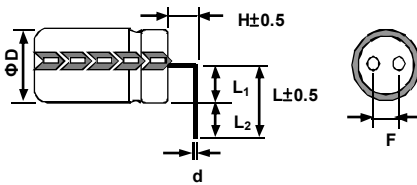
SHAPE(F)



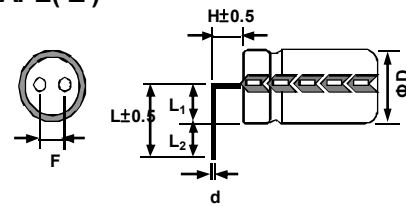
SHAPE(B)



SHAPE(L)



SHAPE(Z)



● SPECIFICATION INFORMATION

Shape NO.	Cutting & Forming Methods	DΦ	4Φ	5Φ	6.3Φ	8Φ	10Φ	12.5Φ	13Φ	16Φ	18Φ	22Φ
S	Long Lead	F	1.5	2.0	2.5	3.5	5	5	5	7.5	7.5	10
		d	0.45	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
C	Lead Cut Only	F	1.5	2.0	2.5	3.5	5.0	5.0	5.0	7.5	7.5	10.0
		H	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
		d	0.45	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
D	Lead Cut and Crimp	F	-	-	-	-	5.0	5.0	5.0	7.5	7.5	10
		H ₁	-	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0
		H ₂	-	-	-	-	1.8	1.8	1.8	1.8	1.8	1.8
		d	-	-	-	-	0.6	0.6	0.6	0.8	0.8	0.8
F	Lead Cut and Form (Lead spacing in 5.0 mm)	F	5.0	5.0	5.0	5.0	-	-	-	-	-	-
		H	4.0	5.0	5.0	5.0	-	-	-	-	-	-
		d	0.45	0.5	0.5	0.5	-	-	-	-	-	-
H	Lead Cut, Crimp and Form	F	5.0	5.0	5.0	5.0	-	-	-	-	-	-
		H ₁	4.0	5.0	5.0	5.0	-	-	-	-	-	-
		H ₂	1.8	1.8	1.8	1.8	-	-	-	-	-	-
		d	0.45	0.5	0.5	0.5	-	-	-	-	-	-
B	Forming Only	d	0.45	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
L/Z	Lead Cut and Bending	F	1.5	2.0	2.5	3.5	5	5	5	7.5	7.5	10
		L ₁	2.2	2.7	3.6	4.5	5.3	6.8	6.8	8.4	9.4	11.4
		L ₂	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
		d	0.45	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8

TAPING SPECIFICATION FOR AUTOMATIC INSERTION

● APPLICATIONS

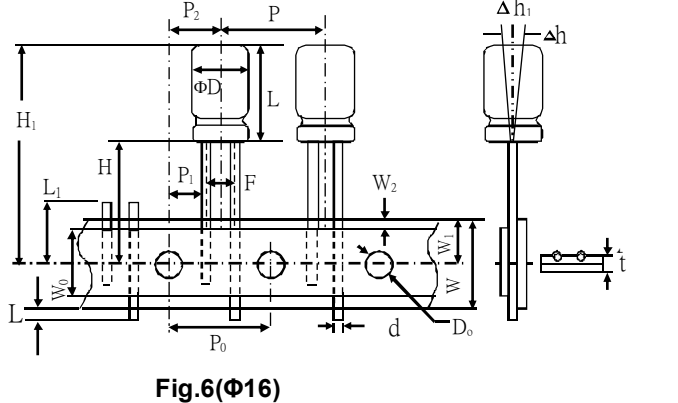
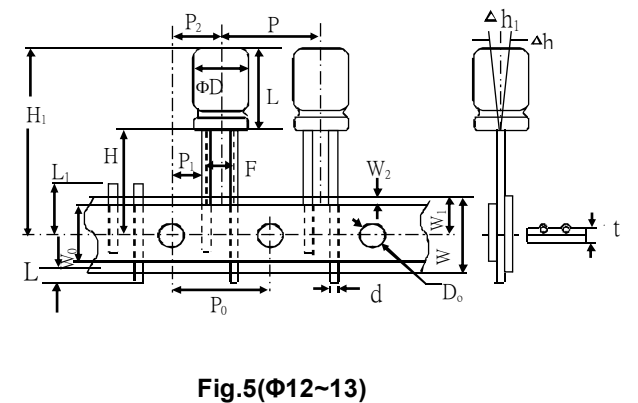
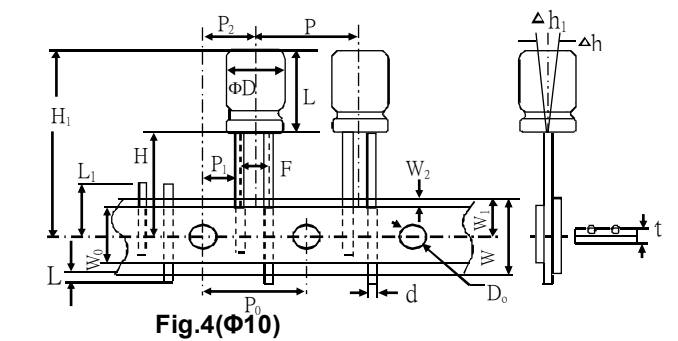
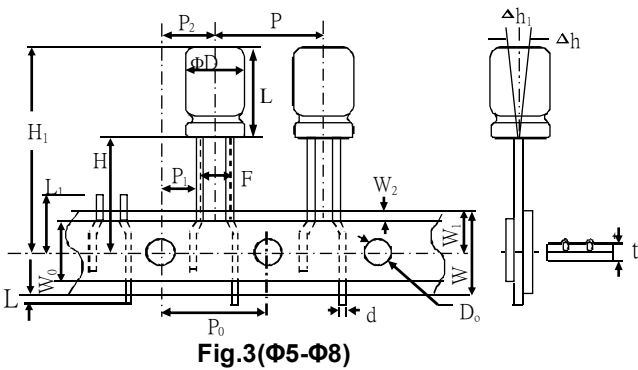
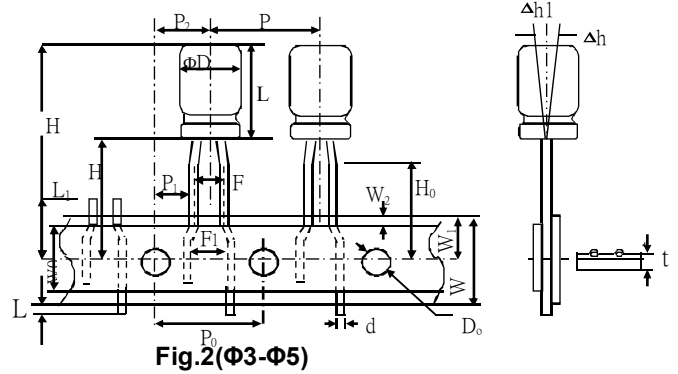
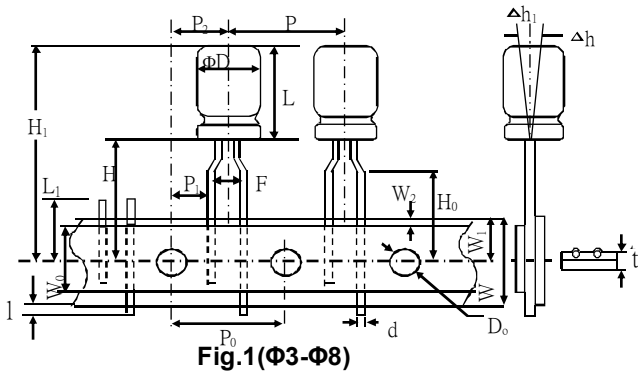
- These specifications include taped single-ended electrolytic capacitors with the body diameters from 4.0 to 16mm.
- Suitable to be used in automatic lead preparation and insertion machines.

● 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)



Aluminum Electrolytic Capacitors															
● TAPING DIMENSIONS (mm)															
Items	Symbol	Case Size									Tolerance	Remark			
		4×5	5×5		4×7	5×7		5×11	6.3×11	8×12			10×13	10×16	10×20
			6.3×5	8×5		6.3×7	8×7								
Lead Wire Diameter	d	0.45	0.45	0.45	0.5	0.5			0.6			±0.05			
Body Height	L	6		8		12		13	14	18	22	max			
Intervals of Bodies	P	12.7									±1.0				
Intervals of Punched Holes	P ₀	12.7									±0.2				
Distance between Holes and Lead Wire	P ₁	3.85									±0.7	Fig 1.Fig 4. Fig 2 Fig 3			
		5.35	5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.10					
			5.35		5.10	5.10									
Distance between Holes and Body Center	P ₂	6.35									±1.0				
Distance between Lead and Lead	F	5.00									+0.8 -0.2	Fig 1.Fig 4. Fig2 Fig3.			
		2.5	2.5	2.5	2.5	2.5	2.5	3.5							
		2.0	2.5	2.0	2.5	2.0									
		3.5		3.5											
Distance between Lead and Lead	F ₁	5.0										Fig2, Fig3			
Base Tape Width	W	18.0									±0.5				
Adhesive Tape Width	W ₀	11.0	11.0	11.0	11.0	11.0			12.0			min			
			12.0		12.0										
Deviation between Holes and Base Tape	W ₁	9.0									±0.5				
Deviation between Adhesive and Base Tape	W ₂	1.5									max				
Deviation between Body Bottom and Tape Center	H	17.5				18.5				±0.75	Fig 1.Fig 4. Fig 2.Fig 3.				
		17.5	18.5	17.5	18.5	18.5									
Lead Wire Clinched Height	H ₀	15.0				16.0				±0.5					
		15.0	16.0	15.0	16.0										
Distance between Body Top and Tape Center	H ₁	27.5			32.5			33.0	36.0	41.0	max				
Punched Hole Diameter	D ₀	4.0									±0.3				
Lead Wire Protrusion	ℓ	1.0									max				
Length of not Good Lead Slit	L ₁	11.0									max				
Base and Adhesive Tape Thickness	t	0.7									±0.2				
Deviation of Body Alignment	△h	0									±2.0				
Deviation of Body Alignment	△h ₁	0									±1.0				

● TAPING DIMENSIONS

Item	Symbol	Case Size							Tolerance	Remark
		12.5×21	13×21	13×25	13×30	16×26	16×32	16×36		
Lead Wire Diameter	d	0.6				0.8			±0.05	
Body Height	L	23.0	23.0	27.0	32.0	28.0	34.0	38.0	max	
Intervals of Bodies	P	15.0				30.0			±1.0	Fig5.Fig6.
Intervals of Bunched Holes	P ₀	15.0							±0.2	
Distance between Holes and Lead Wire	P ₁	5.0				3.75			±0.7	
Distance between Holes and Bodies	P ₂	7.5							±1.0	
Distance between lead and lead	F	5.0				7.5			+0.8 -0.2	
Base Tape Width	W	18.0							±0.5	
Adhesive Tape Width	W ₀	12.0				15.0			min	
Deviation between Holes and Base Tape	W ₁	9.0							±0.5	
Deviation between Adhesive and Base Tape	W ₂	1.5							max	
Deviation between Body Bottom and Tape Center	H	18.5							±0.75	Fig5.Fig6.
Distance Between Body Top and Tape Center	H ₁	40.5	40.5	45.5	50.5	46.5	53.5	56.5	max	
Punched Hole Diameter	D ₀	4.0							±0.3	
Lead Wire Protrusion	ℓ	1.0							max	
Length of not Good Idea Slit	L ₁	11.0							max	
Base and Adhesive Tape Thickness	t	0.7							±0.2	
Deviation of Body Alignment	△h	0							±2.0	
Deviation of Body Alignment	△h ₁	0							±1.0	

NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格
2.6	Surge test 突波試驗	Rated surge voltage shall be applied (switch on) for 30 ± 5 seconds and then shall be applied (switch off) with discharge for 5 ± 0.5 min at room temperature . This cycle shall be repeated for 1000 cycles . Duration of one cycle is 6 ± 0.5 minutes . 在常溫下施加 (合上開關) 額定涌浪電壓 30 ± 5 秒, 然後停止施加 (斷開開關) 涌浪電壓並且放電 5 ± 0.5 分鐘. 這個循環要重復 1000 次 . 以 6 ± 0.5 分鐘為一個循環周期 .	Capacitance change : within $\pm 20\%$ of the initial specified value. 靜電容量變化 : 最初規定值的 $\pm 20\%$ 以內. Dissipation factor : less than 200% of the initial specified value. 損失角 : 低於最初規定值的 200%. Leakage current : within initial specified value. 洩漏電流 : 在最初規定值以內.
2.7	Ripple Current Life Test 紋波電流壽命試驗	The capacitors shall apply with rated DC voltage and maximum ripple current at 85°C or 105°C or 125°C or $130^\circ\text{C} \pm 2^\circ\text{C}$ for load life time. (The sum of the DC voltage plus the AC ripple voltage must not exceed the rated DC voltage) 在 85°C or 105°C or 125°C or $130^\circ\text{C} \pm 2^\circ\text{C}$ 高溫壽命時間下. 電容器施加額定 DC 電壓與最大紋波電流. (DC 電壓疊加 AC 紋波電壓, 不得超過 DC 額定電壓)	

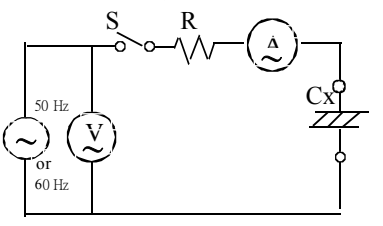
3. Mechanical characteristics 機械特性 :

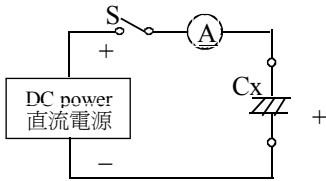
NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格																				
3.1	Lead strength 端子強度	<p>(A) Tensile strength 拉伸強度 :</p> <p>wire lead terminal 導針型 :</p> <table border="1"> <tr> <td>d (mm)</td> <td>$0.35 < d \leq 0.5$</td> <td>$0.5 < d \leq 0.8$</td> <td>$0.8 < d \leq 1.25$</td> </tr> <tr> <td>load (Kg)</td> <td>0.51</td> <td>1.0</td> <td>2.0</td> </tr> </table> <p>snap-in terminal 尖腳型 :</p> <table border="1"> <tr> <td>d (mm)</td> <td>snap-in terminal 尖腳端子</td> </tr> <tr> <td>load (Kg)</td> <td>2.0</td> </tr> </table> <p>The capacitor shall withstand the constant tensile force specified between the body and each lead for 10 seconds without damage either mechanical or electrical. 電容器各端子要承受規定的荷重 10 秒, 不能有電氣或機械特性上的損傷.</p> <p>(B) Bending strength 彎曲強度 :</p> <p>wire lead terminal 導針型 :</p> <table border="1"> <tr> <td>d (mm)</td> <td>$0.35 < d \leq 0.5$</td> <td>$0.5 < d \leq 0.8$</td> <td>$0.8 < d \leq 1.25$</td> </tr> <tr> <td>load (Kg)</td> <td>0.25</td> <td>0.51</td> <td>1.0</td> </tr> </table> <p>With the capacitor in a vertical position apply the load specified axially to each lead . The capacitor shall be rotated slowly from the vertical to the horizontal position , back to the vertical position . Then 180° in the opposite direction and back the original position . Performance of capacitor shall not have changed and leads shall be undamaged . 給在豎直位置的電容器的每一端子以軸方向施加規定荷重, 慢慢將電容器由豎直位置轉至水平位置. 然後向相反方向彎曲 180°, 再回到原來位置. 電容器性能不能有變化及端子不能有損傷.</p>	d (mm)	$0.35 < d \leq 0.5$	$0.5 < d \leq 0.8$	$0.8 < d \leq 1.25$	load (Kg)	0.51	1.0	2.0	d (mm)	snap-in terminal 尖腳端子	load (Kg)	2.0	d (mm)	$0.35 < d \leq 0.5$	$0.5 < d \leq 0.8$	$0.8 < d \leq 1.25$	load (Kg)	0.25	0.51	1.0	<p>When the capacitance is measured, there shall be no intermittent contacts or open- or short- circuiting. 測定靜電容量時, 不能有接觸不良, 開路或短路.</p> <p>There shall be no such mechanical damage as terminal damage etc 不能有如端子受損之類的機械特性上的損傷.</p>
d (mm)	$0.35 < d \leq 0.5$	$0.5 < d \leq 0.8$	$0.8 < d \leq 1.25$																				
load (Kg)	0.51	1.0	2.0																				
d (mm)	snap-in terminal 尖腳端子																						
load (Kg)	2.0																						
d (mm)	$0.35 < d \leq 0.5$	$0.5 < d \leq 0.8$	$0.8 < d \leq 1.25$																				
load (Kg)	0.25	0.51	1.0																				

NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格
3.2	Vibration resistance 耐振性	<p>The frequency of the vibration shall vary uniformly within the range 10 to 55 Hz with the amplitude of 1.5 mm , completing the cycle in the internal of one minute .</p> <p>The capacitor shall be securely mounted by its leads with hold the body of capacitor .</p> <p>The capacitor shall be vibrated in three mutually perpendicular directions for a period of 2 hours in each direction .</p> <p>振動頻率要均勻, 範圍為 10 Hz, 到 55 Hz, 振幅為 1.5 mm, 在 1 分鐘內完成該循環 .</p> <p>電容器將由端子牢固地固定 .</p> <p>電容器會被向三個互相垂直的方向每個方向振動 2 小時 .</p>	<p>Capacitance : no unsteady . 靜電容量 : 穩定 .</p> <p>Appearance : no abnormal . 外觀 : 無異常 .</p> <p>Capacitance change : within $\pm 5\%$ of initial measured value . 容量變化 : 最初測得值的 $\pm 5\%$ 之內 .</p>
3.3	Solderability 焊錫性	<p>Solder:Sn96.5Ag3Cu0.5</p> <p>The leads are dipped in the solder bath of Sn at $245 \pm 5^\circ\text{C}$ for 3 ± 0.5 seconds . The dipping depth should be set at 1.5 ~ 2.0 mm .</p> <p>焊錫種類 : Sn96.5Ag3Cu0.5</p> <p>端子浸沒在 $245 \pm 5^\circ\text{C}$ 的錫焊液中 3 ± 0.5 秒 . 浸沒深度設定為 1.5 ~ 2.0 mm .</p>	<p>The solder alloy shall cover the 95% or more of the dipped lead's area .</p> <p>錫液要覆蓋導針浸入表面積的 95% 以上 .</p>

4. Reliability 信賴度 .

NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格
4.1	Soldering heat resistance 焊錫耐熱性	<p>Solder:Sn96.5Ag3Cu0.5</p> <p>The leads immerse in the solder bath of Sn at $260 \pm 5^\circ\text{C}$ for 10 ± 1 seconds until a distance of 1.5 ~ 2mm from the case .</p> <p>焊錫種類 : Sn96.5Ag3Cu0.5</p> <p>導針在 $260 \pm 5^\circ\text{C}$ 的錫焊液中浸沒至離本體 1.5 ~ 2 mm 的地方 10 ± 1 秒鐘 .</p>	<p>No damage or leakage of electrolyte . 無損傷或電解液漏出 .</p> <p>Capacitance change : within $\pm 10\%$ of the initial measured value . 容量變化 : 最初測定值的 $\pm 10\%$ 以內 .</p> <p>Tan δ : less than specified value . 損失角 : 低于規定值 .</p> <p>Leakage current : less than specified value . 泄漏電流 : 低于規定值 .</p>
4.2	Damp heat (steady state) 耐濕性 (穩定狀態)	<p>Subject the capacitors to $40 \pm 2^\circ\text{C}$ and 90% to 95% relative humidity for 500 ± 8 hours .</p> <p>電容器在 $40 \pm 2^\circ\text{C}$ 及相對濕度 90% 到 95% 的條件下經歷 500 ± 8 小時 .</p>	<p>Capacitance change : within $\pm 10\%$ of the initial measured value . 容量變化 : 最初測定值的 $\pm 10\%$ 以內 .</p> <p>Tan δ : less than specified value . 損失角 : 低于規定值 .</p> <p>Leakage current : less than specified value . 泄漏電流 : 低于規定值 .</p>

NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格														
4.3	Load life 高溫負荷	<p>After X hours continuous application of DC rated working voltage at 85 °C or 105 °C or 125°C or 130 °C ± 2 °C , the measurements shall meet the following limits . Measurements shall be performed after 6 hours exposed at room temperature .</p> <p>在 85 °C or 105 °C or 125°C or 130 °C ± 2 °C 環境當中連續施加直流定格電壓 X 小時後, 按以下條件測試 . 測試在室溫露置 6 小時後進行 . (X: see specification of this series. 見該系列規格說明 .)</p>	<p>Standard of judgement is according to requirement of this series . 判定標準依該系列要求 .</p>														
4.4	Shelf life 高溫無負荷	<p>After storage for 1000 hours at 85 °C or 105 °C or 125°C or 130 °C ± 2 °C without voltage application , the measurements shall meet the following limits . Measurements shall be performed after exposed for 6 hrs at room temperature after application of DC rated voltage to the capacitor for Z minutes .</p> <p>在 85 °C or 105 °C or 125°C or 130 °C ± 2 °C 環境當中不施加直流定格電壓放置 1000 小時後, 按以下條件測試 . 測試在室溫露置 6 小時, 施加直流定格電壓 Z 分鐘後進行 . (Z : see specification of this series. 見該系列規格說明 .)</p>															
4.5	Storage at low temperature 低溫貯存	<p>The capacitor shall be stored at temperature of -40 ± 3 °C for 16(-0/+2) hours , during which time no voltage shall be applied . And then the capacitor shall be subjected to standard atmospheric conditions for 16 hours or more , after which measurements shall be made .</p> <p>電容器在 -40 ± 3 °C 環境當中貯存 16(-0/+2) 小時, 其間不施加電壓 . 之後, 在標準大氣壓中露置 16 小時以上, 然後進行測試 .</p>	<p>Capacitance change : within ± 10% of the initial value . 容量變化 : 最初值的 ± 10% 以內 .</p> <p>Tan δ : less than specified value . 損失角 : 低于規定值 .</p> <p>Leakage current : less than specified value . 洩漏電流 : 低于規定值 .</p> <p>Appearance : no abnormal . 外觀 : 無異常 .</p>														
4.6	Pressure relief 防爆試驗	<p>AC test 交流試驗 : Applied voltage : AC voltage not exceeding 0.7 times of the rated direct voltage or 250 V AC whichever is the lower . 施加電壓 : 不超過定格電壓 0.7 倍的交流電壓或低于交流電壓 250 V 的任意電壓 .</p> <p>Frequency 頻率 : 50 Hz or 60 Hz . Series resistor : refer to the table below . 串聯阻抗 : 參照下表 .</p> <table border="1" data-bbox="395 1691 1029 1960"> <thead> <tr> <th>Capacitance (C) 容 量</th> <th>Series resistor 串聯阻抗</th> </tr> </thead> <tbody> <tr> <td>$C < 1 \mu F$</td> <td>1000 Ω</td> </tr> <tr> <td>$1 \mu F < C \leq 10 \mu F$</td> <td>100 Ω</td> </tr> <tr> <td>$10 \mu F < C \leq 100 \mu F$</td> <td>10 Ω</td> </tr> <tr> <td>$100 \mu F < C \leq 1000 \mu F$</td> <td>1 Ω</td> </tr> <tr> <td>$1000 \mu F < C \leq 10000 \mu F$</td> <td>0.1 Ω</td> </tr> <tr> <td>$10000 \mu F < C$</td> <td>*</td> </tr> </tbody> </table> <p>* Resistance is equivalent to a half impedance by test frequency . 相當于試驗頻率的一半阻抗值 .</p>	Capacitance (C) 容 量	Series resistor 串聯阻抗	$C < 1 \mu F$	1000 Ω	$1 \mu F < C \leq 10 \mu F$	100 Ω	$10 \mu F < C \leq 100 \mu F$	10 Ω	$100 \mu F < C \leq 1000 \mu F$	1 Ω	$1000 \mu F < C \leq 10000 \mu F$	0.1 Ω	$10000 \mu F < C$	*	<p>AC test circuit 交流試驗回路</p>  <p> ~ : AC power 交流電源 S : Switch 開關 V : AC voltage meter 交流電壓計 A : AC current meter 交流電流計 R : protection resistor 保護電阻 Cx : testing capacitor 供試電容器 </p>
Capacitance (C) 容 量	Series resistor 串聯阻抗																
$C < 1 \mu F$	1000 Ω																
$1 \mu F < C \leq 10 \mu F$	100 Ω																
$10 \mu F < C \leq 100 \mu F$	10 Ω																
$100 \mu F < C \leq 1000 \mu F$	1 Ω																
$1000 \mu F < C \leq 10000 \mu F$	0.1 Ω																
$10000 \mu F < C$	*																

NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格
4.6	Pressure relief 防爆試驗	<p>DC test 直流測試： Send the following electricities while applying the inverse voltage . 施加反向電壓時通入下記電流 . where case size 外殼尺寸 (D 直徑)：</p> <p style="text-align: center;">D ≤ 22.4 mm : 1 A d.c. max D > 22.4 mm : 10 A d.c. max</p> <p>Note : 1. This requirement applies to capacitors with a diameter of 8 mm or more . 2. When the pressure relief divice does not open even 30 minutes after commencement of test , the test may be ended . 注 : 1. 此要求對於直徑 8 mm 或以上之電容器適用 2. 試驗開始 , 經 30 分鍾後防爆裝置仍不動作 , 試驗終止 .</p>	<p>DC test circuit 直流試驗回路</p>  <p>S : Swich 開關 Ⓐ : DC current meter 直流電流計 Cx : testing capacitor 供試電容器</p> <p>The pressure relief divice shall open in such a way as to avoid any dange of fire or explosion of capacitor elements (terminal and metal foil etc) or cover . 防爆裝置必須動作 , 以防止發生火災、爆炸或金屬片飛濺 .</p>

5. Marking 標識：

Marking on capacitors include :

電容器上的標識包括

■ Su'scon trade-mark
Su'scon 商標

■ Working voltage
工作電壓

■ Norminal capacitance
標準靜電容量

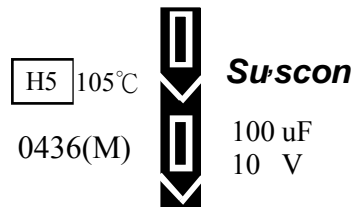
■ Tolerance
靜電容量許容差

■ Polarity
極性

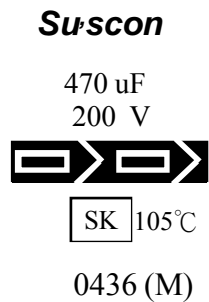
■ Maximum operating temperature
最高使用溫度

■ Date code
周 期

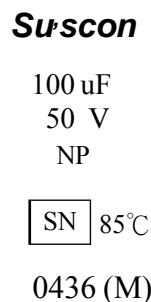
Lead Wire



Lead Wire



Lead Wire



鋁電解電容器存放環境與控制

Storage Conditions and Control for Aluminum Electrolytic Capacitor

1. 環境溫度：5°C ~ 35°C, 環境相對濕度：75%以下。

Store the capacitor at a temperature of 5°C to 35°C and at a relative humidity of less than 75% .

2. 存放環境不應有陽光直射, 不宜高溫。

Store the capacitor in low temperature places free from direct sun shine .

3. 存放環境不能有鹽分、油含量高的霧氣。

Store the capacitor in places free from oil vapor, salt water vapor.

4. 存放在遠離氯氣、氨氣、硫化氫、亞硫酸、硝酸等有害氣體含量高的地方。

Store the capacitor in places far from toxic gases (chlorine、 ammonium、 hydrogen sulfide、 sulphurous acid、 nitric acid , etc) .

5. 儲存環境不能有臭氧、紫外線或輻射。

Store the capacitor in place free from Ozone、 ultraviolet ray or radiation .

Detergent needing attention:

使用清潔劑之注意事項:

Hydrogen carbide liquid and halogen liquid can cause Aluminium Electrolytic Capacitor to corrode. Some of Safe and Unsafe detergent are as follows;

鋁質電解電容器會受含有碳化氫鹵素容劑之侵蝕,下列為各種安全與不安全之清潔劑,為避免不必要的損失,您所使用有關印刷基板之清潔劑名請事先告知本公司。

Safe 安全	Unsafe 不安全
Methanol 甲醇	1.1.2- trichloroethane 1.1.2- 三氯乙烷
Ethanol 乙醇	Tetrachloroethylene 四氯化碳
Propanol 丙醇	Chloroform(colorless volatilizable liquid) 哥羅仿(無色揮發性液體)
Butanol 丁醇	Dichloromethane 二氯甲烷
Detergent 去垢劑	Trichlorelethylene 三氯甲烯
	Dimethybenzene 二甲苯

Caution for Proper use of PET Sleeve in Electrolytic Capacitors

Caution: Avoid PET sleeve to contact water , Because the PET material will be dissolved by water at high temperature

1. PET sleeve water dissolved conditions

(1) When PET sleeve contact water it will not action.

During production process, The PET sleeve have water or water in case of Capacitor and capacitor in high temperature, The PET sleeve will dissolved.

(2) Avoid use list solvents to clean the PET sleeve capacitors.

1、 Aromatic Hydrocarbon(s)

Example Solvent	Status
Benzene	To dissolve
Toluene	To dissolve
Xylene	To dissolve

2、 Low molecular Ketones & Esters

Example:

Methyl Ethyl Ketone(MEK)
Dimethyl Ketone(Acetone)
Methyl Isobutyl Ketone(MIBK)
Cyclohexanone
Ethyl Acetate(EA)

3、 Halogenated Hydrocarbon

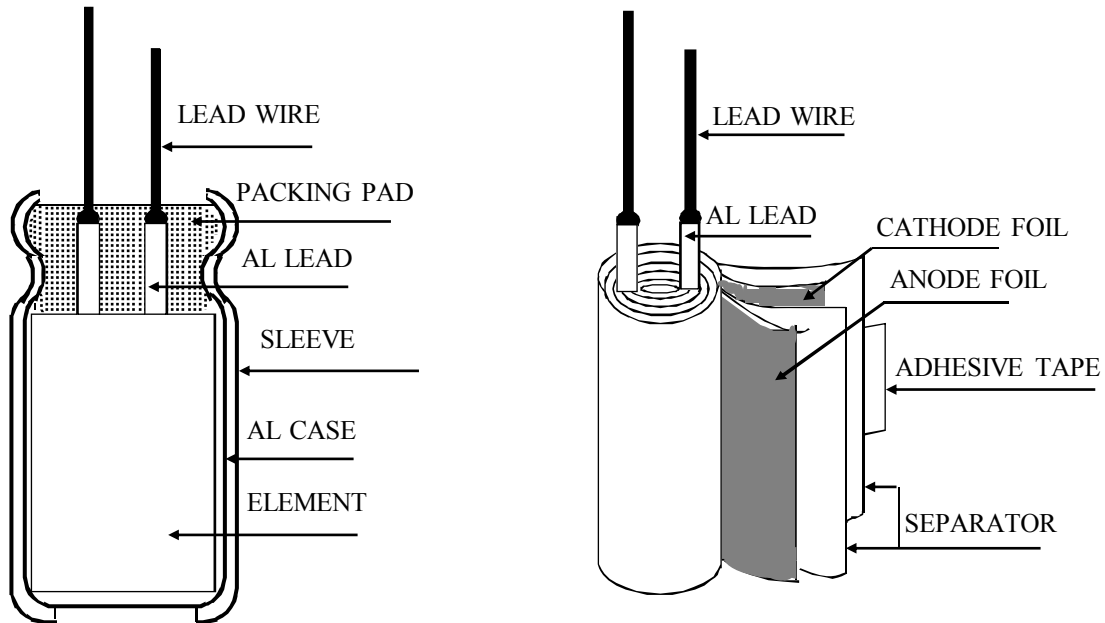
Example:

Methylene Chloride (MC)
Trichloroethyle (TCE)

2. When PET sleeve or case of capacitor dirty with oil that will not dissolved, During production process when their temperature rise up to 80°C, The sleeve will shrink unsmooth.

ELECTROLYTIC ALUMINUM CAPACITORS

STRUCTURE and MATERIALS



*MINIATURE SIZED TYPE CAPACITORS COMPONENT

PART NAME	MATERIALS
LEAD WIRE	TINNED COPPER-PLY WIRE
AL LEAD	ALUMINUM 99.92% OVER
PACKING PAD	SYNTHETIC RUBBER OR BAKE PAD
SLEEVE	INK
	P.E.T (Polyethylene Terephthalate Resin)
AL CASE	ALUMINUM 99.5% OVER
ANODE FOIL	FORMED ALUMINUM 99.9% OVER
CATHODE FOIL	FORMED ALUMINUM 98.4% OVER
SEPARATOR	INSULATION PAPER
ADHESIVE TAPE	POLY PROPYLENE FILM

公司名稱: 東莞冠坤電子有限公司

負責人姓名: 歐廷雄



發表日期: 2013年 06月06日

有關產品中所含物質的保證書

本公司特此保證:提供給貴公司,貴公司之子公司或協力廠商(此後統稱"貴公司")的所有產品或部件中,決不包含以下所列之管理物質,符合標準,如在以後交易的產品或部件中出現含有以下所列之管理物質而產生的有形或無形的所有損失由我司承擔。

物質名稱	
重金屬 Heavy metals	鎘以及鎘化合物 Cadmium and cadmium compounds
	鉛以及鉛化合物 Lead and lead compounds
	汞以及汞化合物 Mercury and mercury compounds
	六價鉻化合物 Hexavalent chromium compounds
	鎳以及鎳化合物 Nickel(Ni)and nickel compounds
有機氯化物 Chlorinated organic compounds	多氯聯苯(PCB) Polychlorinated biphenyls(PCB)
	多氯化萘(PCN) Polychlorinated naphthalenes(PCN)
	多氯三聯苯(PCT) Polychlorinated terphenyls(PCT)
	氯化烷烴(氯化石蠟)(CP)(Chlorinated paraffins)
	聚氯乙烯(PVC)以及聚氯乙烯混合物 Polyvinyl chloride(PVC) and PVC blends
有機溴化合物 Brominated organic compounds	其它有機氯化物 Other chlorinated organic compounds
	多溴聯苯(PBB) Polybrominated biphenyls(PBB)
	包含十溴聯苯醚(DecaBDE)的多溴聯苯醚(PBDE)Polybrominated diphenylethers(PEDE)(including decabromodiphenyl ether (DecaBDE)
	四溴丙二酚(TBBP-A)(Tetrabromobisphenol-A)
	六溴環十二烷(HBCDD) Hexabromocyclododecane
其它有機溴化合物 Other brominated organic compounds	
磷酸三硬脂精(2-氯二乙硫醚)(TCEP)(Tris(2-chloroethyl)phosphate)	
三丁基錫化合物(TBT) Tributyltin compounds	
三苯基錫化合物(TPT) Triphenyltin compounds(TPT)	
二丁基錫化合物(DBT) Dibutyltin(DBT)compounds	
二辛基錫化合物(DOT) Dioctyltin(DOT)compounds	
石棉 Asbestos	
特定偶氮化合物 Specific azo compounds	
甲醛 Formaldehyde	
发泡聚苯乙烯(EPS)(Expanded Polystyrene)	
放射性物质(Radioactive substances)	
卤化二苯基甲烷(Halogenated diphenyl methanes)	
氧化铍 Beryllium oxide	
铍青铜 Beryllium copper	
邻苯二甲酸二异壬酯(DINP)、邻苯二甲酸二异癸酯(DIDP)、邻苯二甲酸二正辛酯(DNOP)、邻苯二甲酸二己酯(DNHP)、邻苯二甲酸二(6-8支链)烷基酯、富C7(DIHP)、邻苯二甲酸二(7-11支链与直链)烷基酯(DHNUP)、邻苯二甲酸二甲氧乙酯(DMEP)	
4-(1,1,3,3-四甲基丁基)苯酚(4-(1,1,3,3-tetramethylbutyl)phenol)	
肟代双(2-甲氧基乙基)醚(Bis(2-methoxyethyl)ether)	
N,N-二甲基乙酰胺(DMAC)(N,N-dimethylacetamide(DMAC))	
单甲基二溴二苯基甲烷(DBBT)(Ugilec 121,141,DBBT)	
氢氟碳化合物(HFC)、全氟化碳(PFC) Hydrofluorocarbon(HFC),Perfluorocarbon(PFC)	
全氟辛酸磺酸盐(及其盐PFOS) Perfluorooctane sulfonates(PFOS)	
全氟辛烷酸(PFOA)及其盐与酯类(Perfluorooctyl acid and individual salts and esters of PFOA)	
多环芳香烃化合物(PAHS)(Polycyclic Aromatic Hydrocarbons)	
特定邻苯二甲酸盐(DEHP、DBP、BBP、DINP、DIDP、DNOP、DNHP、DIBP)	
双酚A(Bisphenol-A)	
气味物质(二甲苯麝香及酮麝香)(Fragrance substance(Musk xylene and Musk ketone)	
界面活性剂(DTDMAC、DODMAC/DSDMAC and DHTDMAC)(Surfactants)	
五氯酚(PCP)(Pentachlorophenol)	
三氯沙(Triclosan)	
砷以及砷化合物(Arsenic(AS)and arsenic compounds)	
锑以及锑化合物(Antimony(Sb)and its compounds)	
铍以及铍化合物(Beryllium(Be)and its compounds)	
铋以及铋化合物(Bismuth(Bi)and its compounds)	
硒以及硒化合物(Selenium(Se)and its compounds)	
富马酸二甲酯(DMF)(Dimethylfumarate)	
三氧化二砷、五氧化二砷Diarsenic trioxide,Diarsenic pentaoxide	
特定苯并三氮唑 Specific benzotriazole	
二氯化钴 Cobalt chloride	
臭氧层破坏物质(ODS) Radioactive substances	
氟(Fluorine)	
氯(Chlorine)	
溴(Bromine)	
碘(Iodine)	
聚素(氯原子3个以上)	
双三丁基锡氧化物(TBTO)	
二乙醚二甲醚Bis(2-methoxyethyl)phenol	
乙二醇二甲醚(EGDME) Ethylene glycol dimethyl ether	
高氯酸盐 perchlorates	
黄磷、红磷 Phosphorus and red phosphorus	
镓元素 Gallium elemental only	
持续性有机污染物 Persistent Organic Pollutants(POPs)	
某些矿物金属(血汗金属) Some mineral metal	
氢氟碳化合物(HFC)、全氟化碳(PFC)	
挪威《消费性产品中禁用特定有害物质》POHS Prohibition on certain Hazardous substances in consumer products	
REACH法规中指定的SVCH Substances of very high Concern(SVCH)Specified byEU REACH regulation	

6. PRECAUTIONS AND GUIDELINES TO USERS

When using aluminum electrolytic capacitors, pay strict attention to the following:

1. Electrolytic capacitors for DC application require polarization.

Confirm the polarity. If used in reversed polarity, the circuit life may be shortened or the capacitor may be damaged. For use on circuits whose polarity is occasionally reversed, or whose polarity is unknown, use bi-polarized capacitors (BP-series). Also, note that the electrolytic capacitor cannot be used for AC application.

2. Do not apply a voltage exceeding the capacitor's voltage rating.

If a voltage exceeding the capacitor's voltage rating is applied, the capacitor may be damaged as leakage current increases. When using the capacitor with AC voltage superimposed on DC voltage, care must be exercised that the peak value of AC voltage does not exceed the rated voltage.

3. Do not allow excessive ripple current to pass.

Use the electrolytic capacitor at current values within the permissible ripple range. If the ripple current exceeds the specified value, request capacitors for high ripple current applications.

4. Ascertain the operating temperature range.

Use the electrolytic capacitors according to the specified operating temperature range. Usage at room temperature will ensure longer life.

5. The electrolytic capacitor is not suitable for circuits in which charge and discharge are frequently repeated.

If used in circuits in which charge and discharge are frequently repeated, the capacitance value may drop, or the capacitor may be damaged. Please consult our engineering department for assistance in these applications.

If the electrolytic capacitor is allowed to stand for a long time, its withstand voltage is liable to drop, resulting in increased leakage current. If the rated voltage is applied to such a product, a large leakage current occurs and this generates internal heat, which damaged the capacitor. If the electrolytic capacitor is allowed to stand for a long time, therefore, use it after giving voltage treatment (Note1). (However, no voltage treatment is required if the electrolytic capacitor is allowed to stand for less than 2 or 3 years at normal temperature.)

7. Be careful of temperature and time when soldering.

When soldering a printed circuit board with various components, care must be taken that the soldering temperature is not too high and that the dipping time is not too long. Other wise, there will be adverse effects on the electrical characteristics and insulation sleeve of electrolytic capacitors in the case of small-sized electrolytic capacitors, nothing abnormal will occur if dipping is performed at less than 260 °C for less than 10 seconds.

8. Do not place a soldering iron body of the capacitor.

The electrolytic capacitor is covered with a vinyl sleeve. If the soldering iron comes in contact with the electrolytic capacitor body during wiring, damage to the vinyl sleeve and/or case may result in defective insulation, or improper protection

9. Cleaning circuit boards after soldering.

Some solvents have adverse effects on capacitors.

Please refer to the next page.

10. Do not apply excessive force to the lead wires or terminals.

If excessive force is applied to the lead wires and terminals, they may be broken or their connections with the internal elements may be affected. (For strength of terminals, refer to JIS C5101-1, JIS C5101-4)

11. Care should be used in selecting a storage area.

If electrolytic capacitors are exposed to high temperatures caused by such things as direct sunlight, the life of the capacitor may be adversely affected. Storage in a high humidity atmosphere may affect the solderability of lead wires and terminals.

12. Surge voltage

The surge voltage rating is the maximum DC over-voltage to which the capacitor may be subjected for short periods not exceeding approximately 30 seconds at infrequent intervals of not more than six minutes. According to KS C6421, the test operating temperature for the capacitors of characteristics B and C of KS C6421 with voltage applied through a series resistance of 1000 ohms without discharge. The electrical characteristics of the capacitor after the test are specified in KS C6421.

Unless otherwise specified, the rated surge voltages are as follows:

Rated Voltage(WV)	4	6.3	8	10	16	25	35	50	63	80	100	160	200	250	350	400	420	450	500
Surge Voltage(SV)	5	8	10	13	20	32	44	63	79	100	125	200	250	300	400	450	470	500	550

Note 1 Voltage treatment ... Voltage treatment shall be performed by increasing voltage up to the capacitor's voltage rating gradually while lowering the leakage current. In this case, the impressed voltage shall be in the range where the leakage current of the electrolytic capacitor is less than specified value. Meanwhile, the voltage treatment time may be effectively shortened if the ambient temperature is increased (within the operating temperature range).

Note 2 For methods of testing, refer to JIS C 5101-1, JIS C 5101-4.

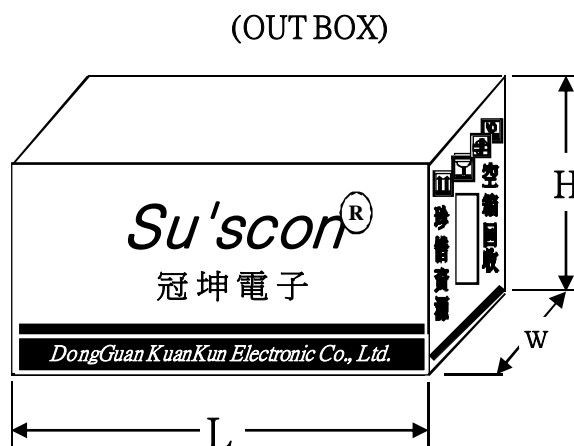
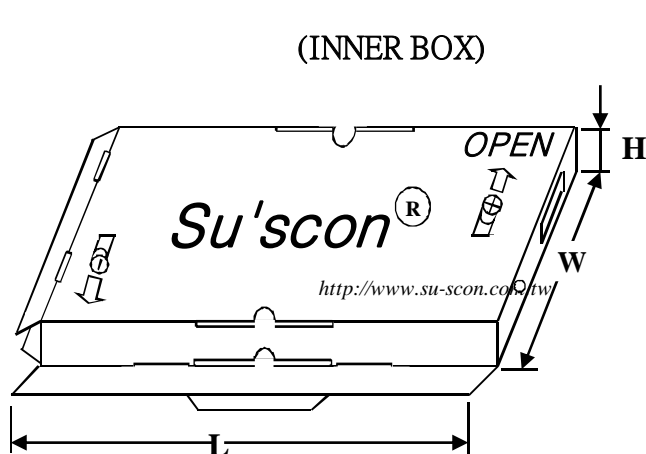
※ The above mentioned material according to EIAJRCR-2367B (issued in March, 2022), titled "Guideline of notabilia for aluminum electrolytic capacitors for use in electronic equipment". Please refer to the book for details.

ALUMINUM ELECTROLYTIC CAPACITORS

(貼品包裝圖)

1) BOX

單位:mm



內盒尺寸：(L)320×(W)235×(H)54

外箱尺寸：(L)490×(W)330×(H)293

2)明細表

尺寸 (Φ×L)	重量 (Kg/盒)	數量 (PCS/盒)	每箱擺放標準	外箱總數量 (KPCS/箱)
6.3×11	1.12	1500	一層2盒×5	15

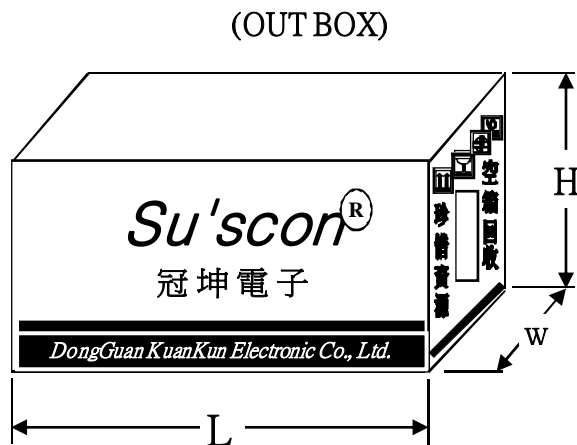
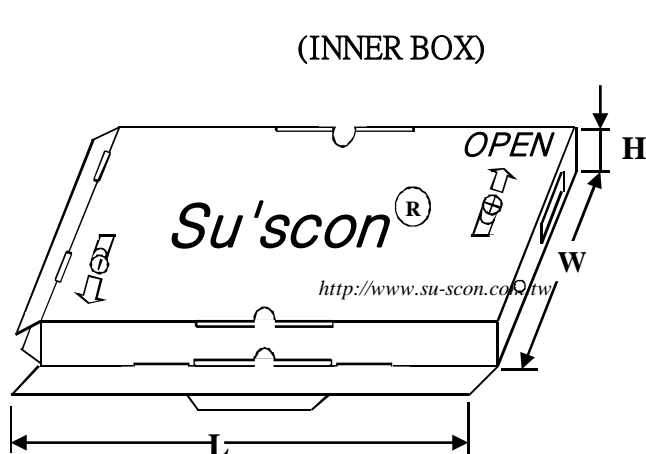
KUAN KUN ELECTRONIC ENTERPRISE CO.,LTD.

ALUMINUM ELECTROLYTIC CAPACITORS

(貼品包裝圖)

1) BOX

單位:mm



內盒尺寸：(L)315×(W)240×(H)65

外箱尺寸：(L)500×(W)325×(H)215

2)明細表

尺寸 (Φ×L)	重量 (Kg/盒)	數量 (PCS/盒)	每箱擺放標準	外箱總數量 (KPCS/箱)
12.5×12	1.28	400	一層2盒×3	2.4

KUAN KUN ELECTRONIC ENTERPRISE CO.,LTD.