APPROVAL SHEET

Customer:

Customer Part NO.

Part NO. HE450M121J45TC97S00T

Item: Series For Approval

Catalog Series: HE Series

Date of Issue: OCT.08.2026

Approved NO. : SD20261000073

BUYER'S STAMP	Approved by			

Su'scon	Submitted by			
	Approval	Check	Affirm	Design
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Halogen Free RoHS COMPLIANT Environmental-Benefit Products

RECORD OF REVISION

NO.	VERSION	REASON	DATE	CHECKED	REMARKS
1	A00	First Release	2026.10.08	劉冬冬	
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HE Series For Approval

NO.	Customer Part No.	Specification	Part No.
1		EC,120uF/450V	HE450M121J45TC97S00T
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Explanation of Parts Numbers (ERP System)

Explanation of Parts Numbers

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
H	E	4	5	0	M	1	2	1	J	4	5	T	C	9	7	S	0	0	L/T
[Series]		[Voltage]			[Capacitance Tolerance]	[Capacitance Code]			[Diameter]	[Length]		[Special Remark]	[Customer Code]			[Type Code description]			L=Laser printing/RoHS/Free Halogen

[Voltage]		[Capacitance Tolerance]	[Capacitance Code]	[Diameter]
	004=4V	J= ±5 %	0R1=0.1uF	C=4Φ
	006=6.3V	K= ±10%	1R0=1uF	D=5Φ
	010=10V	M= ±20 %	100=10 uF	5=5.5Φ
	016=16V	A= 0 %~+20 %	101=100 uF	E=6.3Φ
	025=25V	S= 0 %~+40 %	102=1000 uF	V=6.5Φ
	035=35V	R= 0 %~+50 %	103=10000 uF	F=8Φ
	050=50V	D= -5 %~+20 %	223=22000 uF	G=10Φ
	063=63V	V= -10 %~+20 %	G52=1650 uF	H=12Φ
	080=80V	Q= -10 %~+30 %		X=12.5Φ
	100=100V	T= -10 %~+50 %		I=13Φ
	160=160V	E= -15 %~+20 %	P=35Φ	Y=14.5Φ
350=350V	180=180V	I= -30 %~+20 %	Q=40Φ	J=16Φ
400=400V	200=200V	B= +10 %~+30 %	W=42Φ	K=18Φ
420=420V	250=250V	N= +10 %~+25 %	8=45Φ	L=20Φ
450=450V	315=315V	**C**= -5 %~+15 %	R=51Φ	M=22Φ
500=500V	330=330V	**Z**= -0 %~+30 %	S=64Φ	N=25Φ
			T=76Φ	Z=25.4Φ
			U=90Φ	O=30Φ

2.ERP P/N System compare with NCC's Description

[Length]
1) Length < 100mm Integer,Input it direct.
2) Length < 100mm Decimal,Please refer the code as below: Ex:11.5 isBB; 5.4 is 5A;
3. Length ≧ 100mm,First digit input No.0~9，2nd 、3rd refer as below Code11 Ex:115,Input B5.

Code 11、18	Meaning		
A	10		
B	11		
C	12		
D	13		
E	14		
F	15		
G	16		
H	17		
I	18		
J	19	M	22
K	20	N	31
Q	21	L	35

Code 12、19	Meaning
A	0.4
B	0.5
C	0.6
D	0.7
E	0.8
F	0.9
G	0.1
H	0.2
I	0.3

[Type Code description]		
RADIAL	B=Forming Only C=Lead Cut D=Lead Cut and Crimp N=Lead spacing expand to 2.0 mm then Cut E=Lead spacing expand to 2.5 mm then Cut F=Lead Forming spacing 5.0 mm thenCut H=Lead Forming Cut and Crimp S=Long Lead L=Facing cathode:Lead Cut and Bending (turn right) Z=Facing cathode:Lead Cut and Bending (turn left) P=Taping (Ammo pack) R=Tape and Reel V=V-chip Type (SMD)	<1>Code No.17 is"P","R"Code No.18、19 is stand for Lead pitch. <2>Code No.17 is C,N,E,F,D,H,W,K,L,Z, Code No.18、19 is stand for Lead length. <3>Code No.17 is S,Code No.18、19 be filled in "00" is stand for General Long Lead
Lug	G= LG Type Terminal PCS= PC board pin-out Straight Terminal PCY= PC board pin-out LUG Terminal PCU= PC board pin-out U-Insert Terminal PCB= PC board pin-out Bend Terminal ST= Straight Type Terminal U= 5 Pin Straight Terminal W= Screw Terminal YL= Snap	<4>Code No.17 is "B",Code No.18、19 be filled in "00" is stand for Forming Long Lead <5>Code No.17 is "V",Code No.18、19 be filled in "00" is Fill code number, does not mean other significance

Code 13	Meaning
T	Convex Rubber seal {Standard：Lead Type 12.5Φ≦D≦18Φ(Breathe freely}
P	Flat Rubber seal {Standard：Lead Type 4Φ≦D≦12Φ：20Φ、22Φ、25Φ}
0	Snap-in,U-LUG Type

[Customer Code]	
C97	Customer No.

(1) "Finished Products" ----20 Codes，

(2) Snap in Type---- "Semi-finished products P/N" has not demand，It's also 20 Codes

(3) Lead Type---- 16 codes for "Semi-finished products" ，It's 16 codes (If Specially enquire and 16 codes can not be reached, It will be 20 code for that)

(4) Codes No.13：Specially Code，It's difference between clients enquire and same Spec multiple enquired.

(5) Codes No.14~16 which is for clients Code.

(6) Length of Lead Cut and Forming bigger than10.0mm or appendix digit，Letters Description。

DONG GUAN KUAN KUN ELECTRONIC CO., LTD

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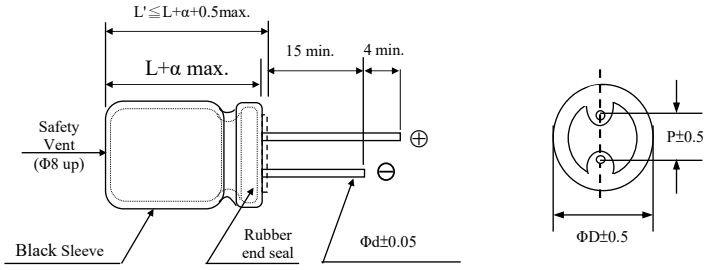
DONG GUAN CITY, GUANG DONG CHINA (P.R.O.C) FAX: +86-769- 83086886

FOR APPROVAL

DIMENSIONS(mm)

ΦD	16	18
L	45	45
α	2.0	2.0
P	7.5	7.5
Φd	0.8	0.8



Customer:	**Aluminum Electrolytic Capacitors HE Series**	**Code**

Electric Characteristics:

P/N	P/N	Cap. (uF)	Cap. Tol. (%)	Rate Volt. (V-DC)	Surge Volt. (V-DC)	Oper. Temp. (℃)	Nominal Case Size D*L(mm)	Leakage Current Max (uA)	D.F. MAX (%)	R.C 120Hz (mA rms)	R.C 100KHz (mA rms)	Load Life (hours)
	HE450M121J45TC97S00T	120	±20	450	500	105	16*45	2260	20	900	2025	10000

REMARKS:

1. Leakage Current Test: **160V ~450V at 20℃ for 1 minutes ;**

2. Operating temperature: **160V~400V -40℃~ +105℃ ; 450V-25℃~ +105℃ ;**

3. Dissipation Factor Test: **at 20℃, 120 Hz.**

4. Capacitance Test: **at 20℃, 120 Hz.**

5. Ripple Current Test : **at 105℃, 120 Hz & 100K Hz;**

6. Load Life: **10,000 hours, subjected to DC voltage with the rated ripple current is applied at 105℃.**
(ΦD≦10:8,000 hours)

Capacitance Change: **Within±20% of initial value;**

tanδ: **200% or less of initial specified value;**

According to the specified value which stated in the catalogue to do the life testing;

Leakage Current: **Initial specified value or less;**

7. Shelf Life: **The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1000 hours 105℃ without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to item 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.**

8. when have characteristic requested: **Load life & shelf life test and etc. , judgment standard reference to our catalogue.**

●SPECIFICATION

Leakage Current 洩漏電流	I≦0.04CV +100(uA),After 1 minutes application of DC working voltage,at 20℃							
Dissipation Factor 散逸因素（損失角） (tan δ)	Measurement Frequency:120Hz. Temperature:20℃							
	Rate Voltage(V)	160	200	250	350	400	450	500
	tanδ（MAX)	0.15	0.15	0.15	0.20	0.20	0.20	0.20
Standards 參照標準	IEC 60384-4(JIS C5101-4)							

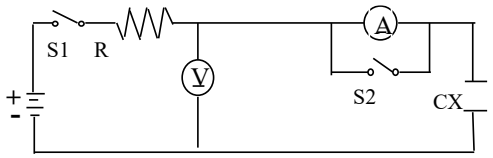
●RIPPLE CURRENT COEFFICIENTS

Frequency coefficient of allowable ripple current

Capacitance(uF)	Frequency(Hz)				
	50	120	1k	10k	100k
1~5.6	0.65	1.00	1.25	1.50	2.00
6.8~82	0.70	1.00	1.75	2.25	2.50
100~330	0.75	1.00	1.67	2.05	2.25

1. Scope 適用范圍 :
This specification applies to aluminium electrolytic capacitor , used in electronic equipment .
本說明對于用電子儀器設備進行檢測之鋁電解電容器 適用.

2. Electrical charateristics 電氣特性 :

<table>
<tr><th>NO.</th><th>ITEM 項目</th><th>TEST METHOD 測試方法</th><th>SPECIFICATION 規格</th></tr>
<tr><td>2.1</td><td>Rated voltage
額定電壓</td><td></td><td rowspan="2">Voltage range、capacitance range
Dissipation factor, see specification of this series.
電壓、容量范圍、損失角請看該系列之規格說明.</td></tr>
<tr><td>2.2</td><td>Capacitance
靜電容量</td><td rowspan="2">1. Measuring frequency : 120 ± 12Hz
測 定 頻 率
2. Measuring voltage : ≦0.5Vrms + 0.5 ~ 2.0VDC
測 定 電 壓
3. Measurement circuit : 〔 ○—∿—⊣ ⊢—○ 〕
測 定 電 路</td></tr>
<tr><td>2.3</td><td>Dissipation factor
散逸因素
(損失角)</td></tr>
<tr><td>2.4</td><td>Leakage current
泄 漏 電 流</td><td>DC leakage current shall be measured after 1 minutes application of the DC rated working voltage through the 1000 Ω resistor at 20℃.
在20 ℃通過1000Ω的電阻施加直流工作電壓 1分鍾後測定直流泄漏電流.


R : 1000 ± 100Ω
A : DC current meter
直流電流計
V : DC voltage meter
直流電壓計
S1 : Switch 開關
S2 : Switch for protect of current meter
直流電流計的保護開關
CX : Testing capacitor
測試電容</td><td>leakage current, see specification of this series.
泄漏電流請看該系列之規格說明.</td></tr>
<tr><td>2.5</td><td>Temperature characteristics
溫度特性</td><td>
<table>
<tr><th>STEP
步驟</th><th>TEMPERATURE
溫 度</th><th>STORAGE TIME
放置時間</th></tr>
<tr><td>1</td><td>20 ± 2 ℃</td><td>30 minutes</td></tr>
<tr><td>2</td><td>Minimum specification temperature最低規格溫度
-55 ℃or -40℃ or -25 ℃ ± 3 ℃</td><td>2 hours</td></tr>
<tr><td>3</td><td>20 ± 2 ℃</td><td>30minutes</td></tr>
<tr><td>4</td><td>Maximum specification temperature 最高規格溫度
85 ℃ or 105 ℃ or 115℃or 125℃ or 130 ℃ ± 2 ℃</td><td>2 hours</td></tr>
<tr><td>5</td><td>20 ± 2 ℃</td><td>30 minutes</td></tr>
</table>
Step 1. Measure the capacitance and impedance.
測定靜電容量及阻抗 (Z_{r0}) .
(｜Z｜, 20℃, 120Hz ± 10%)
Step 2. Measure the impedance at thermal balance after 2 hours.
達到熱平衡2小時後測定阻抗 (Zr) .
(｜Z｜, Minimum specification temperature最低規格溫度, 120Hz ± 10%)
Step 4. After the highest specification temperature reaches thermal equilibrium for 2 hours, the electrostatic capacity and leakage current loss are measured.
最高規格溫度達到熱平衡2小時後測定靜電容量及漏電流損失角 .

備註： 以具體規格工作範圍為準.
Remarks: Subject to the working range of specific specifications.</td><td>Step 2.
Impedance ratio (Zr / Z_{r0})
less than specified value.
阻抗比 : 低于規定值 .
Step 4
1.Capacitance change :
within ± 20% of the initial measured value.
靜電容量變化 : 最初測定值的 ± 20%以內.
2.Leakage current :
Under 125 ℃ for 10 times specification values, 105 ℃ for 8 times the specification values, 85 ℃ for 5 times the specification values
125℃為規格值10倍以下，105℃為為規格值8倍以下，85℃為規格值5倍以下
Tan δ :
less than specified value .
損失角 : 低于規定值 .

No damage or leakage of electrolyte .
無損傷或電解液漏出 .</td></tr>
</table>

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 330± 5 seconds 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 330 ± 5秒. 這個循環要重复 1000 次 . 以 6 ± 0.5 分鍾為一個循環周期 .	Capacitance change : within ± 15% of the initial specified value. 靜電容量變化 : 最初規定值的 ± 15%以內. Tan δ : less than specified value . 損失角 : 低于規定值 . Leakage current : less than specified value . 泄漏電流 : 低于規定值 .

3. Mechanical characteristics 機械特性 :

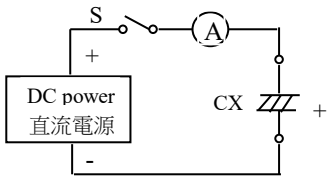
NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格
3.1	Lead strength 端 子 強 度	(A) Tensile strength 拉伸強度 : wire lead terminal 導針型 : d (mm) | 0.35＜d≦0.5 | 0.5＜d≦0.8 | 0.8 < d≦1.25 load (Kg) | 0.51 | 1.0 | 2.0 snap-in terminal 尖腳型 : d (mm) | snap-in terminal 尖腳端子 load (Kg) | 2.0 The capacitor shall withstand 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.	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. Capacitance change : within ± 5% of the initial specified value. 靜電容量變化 : 最初規定值的 ± 5%以內. Tan δ : less than specified value . 損失角 : 低于規定值 . Leakage current : less than specified value . 泄漏電流 : 低于規定值 .
		(B) Bending strength 彎曲強度 : wire lead terminal 導針型 : d (mm) | 0.35＜d≦0.5 | 0.5＜d≦0.8 | 0.8 < d≦1.25 load (Kg) | 0.25 | 0.51 | 1.0 With the capacitor in a vertical position appliy 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 . The 180° in the opposite direction and back the original position .About five seconds off Perfor- mance of capacitor shall not have changed and leads shall be unda- aged . 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(約5秒)取下. 電容器性能不能有變化及端子不能有損傷.	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.

NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格
3.2	Vibration resistance 耐 振 性	The frequancy of the vibration shall vary uniformly within the range 10 to 55 Hz with the amplitude of 1.5 mm . The capacitor shall be securely mounted by its leads with hold the body of capacitor . The capacitor shall be vibrated in three mutually perpendicular directions for a period of 2 hours in each direction . 振動頻率要均勻 , 范圍為 10 Hz, 到 55 Hz , 振幅為 1.5 mm . 電容器將由端子牢固地固定 . 電容器會被向三個互相垂直的方向X.Y.Z每個方向振動 2 小時 .	No damage or leakage of electrolyte . 無損傷或電解液漏出 . Capacitance change : within ± 5% of the initial measured value . 容量變化 : 最初測定值的 ± 5%以內 . Tan δ : less than specified value . 損失角 : 低于規定值 . Leakage current : less than specified value . 泄漏電流 : 低于規定值 .
3.3	Solderability 焊 錫 性	Solder:Sn96.5Ag3Cu0.5 1.Capacitor needle part into the flux concentration 25% 5 ~ 10 seconds. 2.The leads are dipped in the solder bath of Sn at 245 ± 5 ℃ for 3 ± 0.5 seconds . The dipping depth should be set at 1.5 ~ 2.0 mm . 焊錫種類：Sn96.5Ag3Cu0.5 1.將電容器導針部分浸入濃度為25%的助焊劑中5~10秒 2. 端子浸沒在 245 ± 5 ℃ 的錫焊液中 3 ± 0.5 秒 . 浸沒深度設定為 1.5 ~ 2.0 mm .	The solder alloy shall cover the 95% or more of the dipped lead's area . 錫液要覆蓋導針浸入表面積的 95% 以上 .

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	1.Solder:Sn96.5Ag3Cu0.5 2.The leads immerse in the solder bath of Sn at 260 ± 5 ℃ for 10 ± 1 seconds until a distance of 1.5 ~ 2mm from the case . 3.Keep the take out the samples at room temperature is s often wet in the more than 2 HRS. temperature is often wet in the more than 2 HRS. 1.焊錫種類：Sn96.5Ag3Cu0.5 2. 導針引線在 260 ± 5 ℃ 的錫 焊液中浸沒至離本體 1.5 ~ 2 mm 的地方 10 ± 1 秒鍾 . 3.將取出的樣品在常溫常濕中保留2Hrs以上.	No damage or leakage of electrolyte . 無損傷或電解液漏出 . Capacitance change : within ± 5% of the initial measured value . 容量變化 : 最初測定值的 ± 5%以內 . Tan δ : less than specified value . 損失角 : 低于規定值 . Leakage current : less than specified value . 泄漏電流 : 低于規定值 .

NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格
4.2	Damp heat (steady state) 耐 濕 性 (穩定狀態	1. The experiment of measuring early characteristics will have samples in the wet thermal control box. 2.Subject the capacitors to 40 ± 2 ℃ and 95% In corresponding to the temperature and humidity conditions placed 500 ±8 hours. 3.Keep the take out the samples at room temperature is often wet in the more than 2 HRS. 1.將已測初期特性的實驗樣品放入調溫調濕箱中 2. 電容器在 40 ± 2 ℃ 及相對濕度 95% . 在相對應溫濕度條件下放置500 ±8小時 . 3.將取出的樣品在常溫常濕中保留2Hrs以上.	Capacitance change : within ± 10% of the initial measured value . 容量變化 : 最初測定值的 ± 10%以內 . Tan δ : lessthan 120% of the initial specified value. 損失角 : 低于規定值的120% . Leakage current : less than specified value . 泄漏電流 : 低于規定值 .
4.3	Load life 高溫負荷	10000 hours,subjected to DC voltage with the rated ripple current is applied at 105℃. the measurements shall meet the following limits . Measurements shall be performed after 6 hours exposed at room temperature . 在105 ℃環境下，連續加載額定直流電壓并疊加紋波電流10000小時后按以下條件測試 : 測試在室溫露置 6 小時後進行 .	Capacitance change : within ± 20% of the initial measured value . 容量變化 : 最初測定值的 ±20%以內 . Tan δ : lessthan200% of the initial specified value. 損失角 : 低于規定值的200% . Leakage current : less than specified value . 泄漏電流 : 低于規定值 . Appearance : no abnormal . 外 觀 : 無異常 .
4.4	Shelf life 高溫無負荷	After storage for1000 hours at 85 ℃ or 105 ℃ or 125℃ or 130 ℃ ± 2 ℃ 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 . 在 85 ℃ or 105 ℃ or 125℃ or 130 ℃ ± 2 ℃ 環境當中不施加直流定格電壓放置Z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 進行 (Z : see shelf life of this series. 見該系列放置壽命說明 .)	Capacitance change Tan δ .Rate of change: please have a look at this eries of shelf life standard. 容量.損失角,的變化標準： 請見該系列的放置壽命說明標準 less than specified value . 泄漏電流 : 低于初期規定值 . Appearance : no abnormal . 外 觀 : 無異常 .
4.5	Storage at low temperature 低 溫 貯 存	1.The capacitor shall be stored at temperature of -40 ± 3 ℃ for 16(-0/+2) hours , during which time no voltage shall be applied . And then the capacitor shall be subjected to standard atmosph-eric conditions for 16 hours or more , after which measurements shall be made . 電容器在 -40 ± 3 ℃ 環境當中貯存 16(-0/+2) 小時 , 其間不施加電壓,之後 , 在標準大气壓中露置 16 小時以上 , , 然後進行測試 .	Capacitance change : within ± 10% of the initial value . 容量變化 : 最初值的 ± 10% 以內 . Tan δ : less than specified value . 損失角 : 低于規定值 . Leakage current : less than specified value . 泄漏電流 : 低于規定值 . Appearance : no abnormal . 外 觀 : 無異常 .

NO.	ITEM 項目	TEST METHOD 測試方法	SPECIFICATION 規格
4.6	Pressure relief 防 爆 試 驗	DC test 直流測試 : Send the following electricitios 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) : D ≦ 22.4 mm : 1 A d.c. max D ＞ 22.4 mm : 10 A d.c. max 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. 此要求對于直徑 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 .	DC test circuit 直流試驗回路  S : Switch 開關 Ⓐ : DC current meter 直 流 電 流 計 Cx : testing capacitor 供 試 電 容 器 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 . 防爆裝置必須動作打開為合格 . 以防止發生火災 、爆炸或金屬片飛濺 .

5. Radial Type marking 引線型標識 :

Marking on capacitors include :
電容器上的標識包括

① Su'scon trade-mark
Su'scon 商 標

② Norminal capacitance
標 準 靜 電 容 量

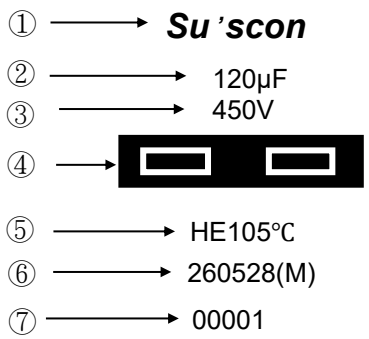
③ Working voltage
工 作 電 壓

④ Polarity
極 性

⑤ Series ,Maximum operating temperature
系列, 最 高 使 用 溫 度

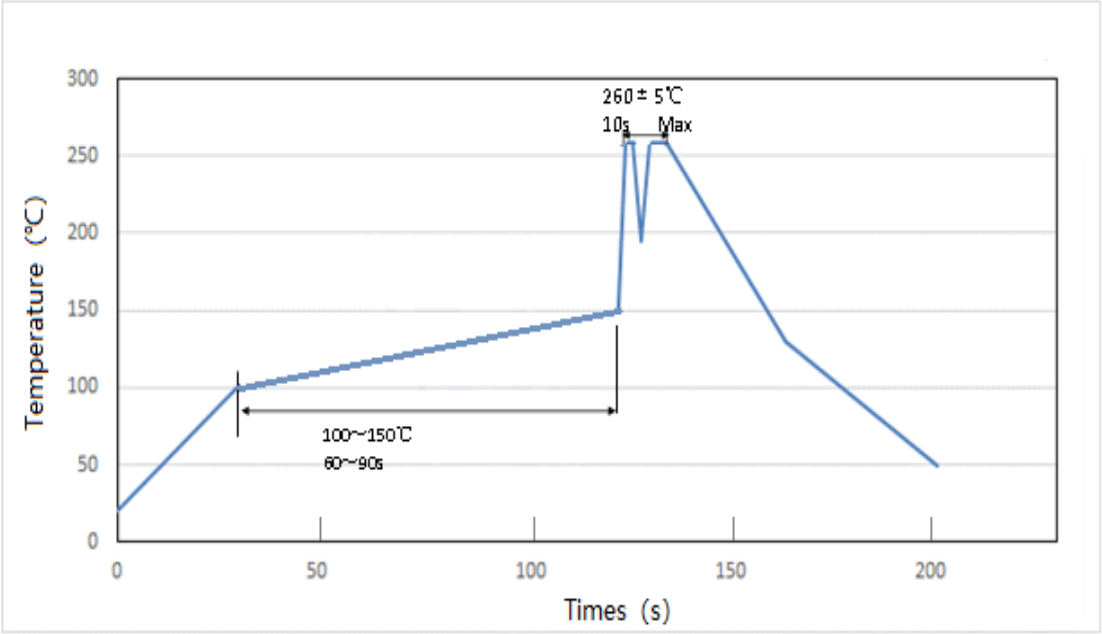
⑥ Y/Month/Day,Tolerance
年月日(6位码),靜電容量許容差

⑦ Production Lot
生產批號（5位碼）



Explanation: ((product diameter Φ＜10mm, non-laser production lot in sleeve)
說明： (產品直徑Φ＜10mm,套管無生產批號)

④polarity is marked with white ink, other is marked by laser printing
④極性為白色油墨,其它均為鐳射刻印



項目 Items	溫度 Temperature	時間 Time	備註 Remark
預熱溫度 Preheat temp. range	100℃~150℃	60~90sec max	升溫速率：1~2℃ /sec Ramp-up rate
錫波溫度 Tin wave temperature	255~265℃	錫焊時間:5~10sec Soldering time	/
整個波峰焊接工藝總時間 Total time of the wave about soldering	/	3min以內 within 3 mins	/

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℃ ~ 35℃, 環境相對濕度 : 75%以下 .

   Store the capacitor at a temperature of 5℃ to 35℃ 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、油含量高的霧气 .

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

4. 存放在遠離氯气、氨气、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、紫外線或幅射.

   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
	Dimethybenxene 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 dissolved
Toluene	To dissolved
Xylene	To dissolved

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:

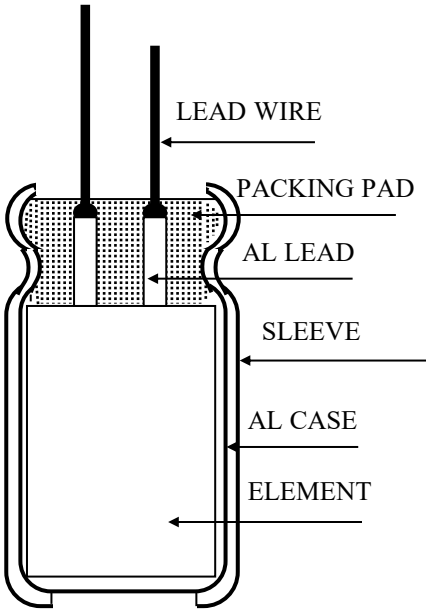
Methylene Chloride（MC）

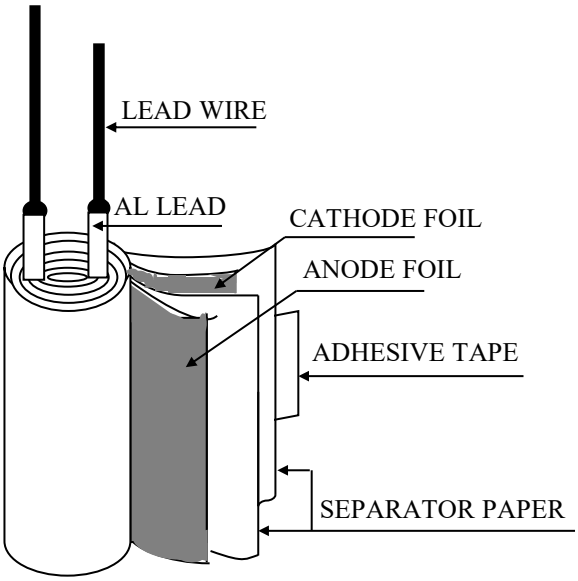
Trichloroethyle（TCE）

2. When PET sleeve or case of capacitor dirty with oil that will not dissloved, 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	TIN COATED COPPER COVERED STEEL WIRE
AL LEAD	ALUMINUM 99.90% 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 98.1% OVER
SEPARATOR PAPER	INSULATION PAPER
ADHESIVE TAPE	POLY PROPYLENE FILM

6. PRECAUTIONS AND GUIDELINES TO USERS

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

1. Electrolytic capacitors for DC application require polarization.

Confirm the polarity. If uesd 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.(However,the electrolytic capacitors can be guarantee for 2 years if keep in the normal temperature.)

6. 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 ℃ for less than 10 seconds.

7. 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

8. Cleaning circuit boards after soldering.

Some solvents have adverse effects on capacitors.

Please refer to the next page.

9. 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)

10. 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.

11. Surge voltage:

Rated surge voltage shall be applied for 30 seconds and then shall be applied with discharge,for 330 seconds at room temperature .This cycle shall be repeated for 1000 cycles;Duration of one cycle is 6 minutes ;then to judge capacitor’s characteristics and appearance.

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

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

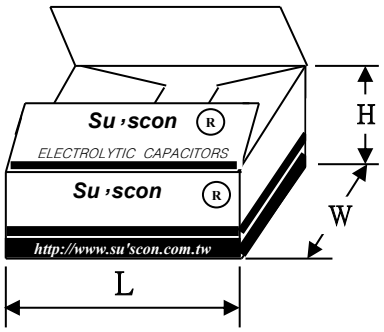
※ The above mentioned material according to EIAJRCR-2367B (issued in March, 2002), titled "Guideline of notabilia for aluminum electrolytic capacitors for use in electronic equipment". Prease refer to the book for details.

ALUMINUM ELECTROLYTIC CAPACITORS

（長腳品包裝圖）

1）BOX 單位:mm

(INNER BOX)



內箱尺寸：
L254 ×W 254×H 180 mm

2)明細表

尺寸 （ΦxL)	每內箱數量 (PCS)	內箱疊放標準 (兩個白盒為一個內箱) (PCS)
16×45	390	每白盒:195(15PCS×13排)
18×45	286	每白盒:143(13PCS×11排)