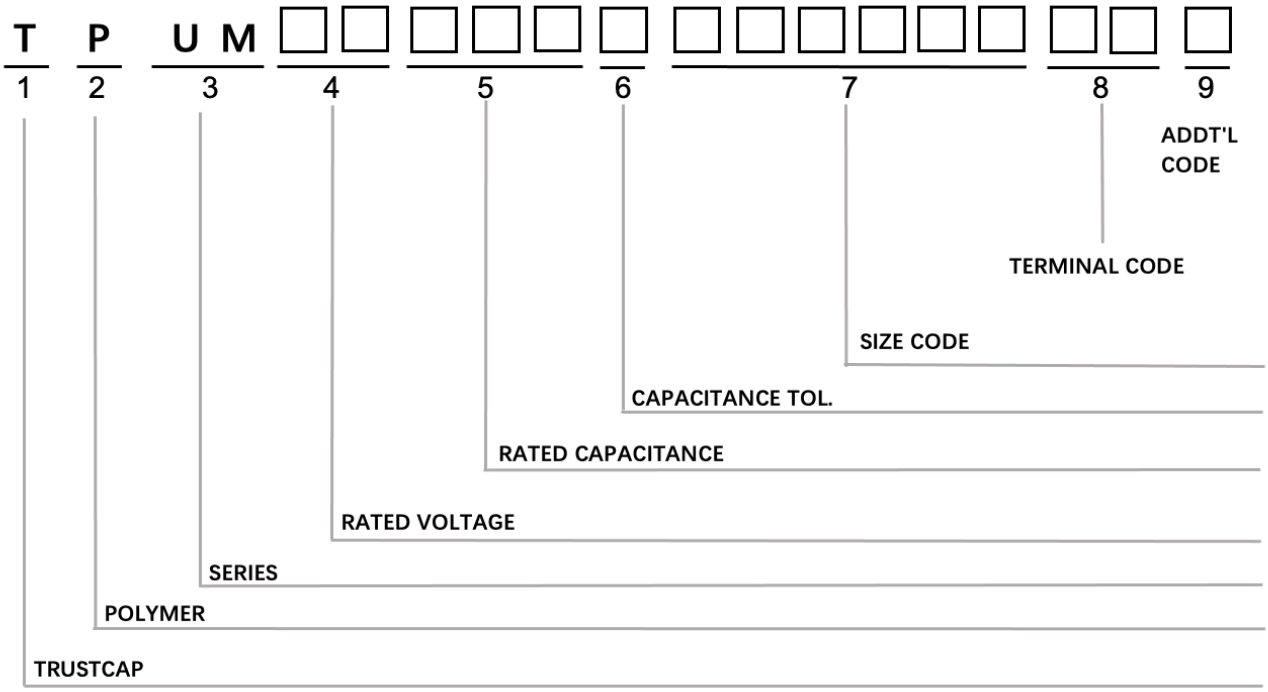
文件內容歷史紀錄 REVISION HISTORY				
版本 REV.NO.	內容 CONTENTS	日期 DATE	審核 CHECKED	備註 REMARKS
1	新建 New Release	2022.03.07		
2	修訂尺寸公差	2024.09.30		
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

產品系列編碼表 Part Numbering System



1	Company	TRUSTCAP
	Code	T

2	Type	Conductive Polymer Aluminum
	Code	P

3	
Series	Code
UMPC	UM

4	
Voltage (W.V.)	Code
6.3	0J
10	1A
16	1C
25	1E
30	1F
35	1V
50	1H
63	1J
80	1B
100	1K

5	
Cap. (μf)	Code
1.5	1R5
4.7	4R7
10	100
22	220
33	330
47	470
56	560
68	680
100	101
150	151
180	181
220	221
330	331

6	
Cap. Tol. (%)	Code
±10	K
±20	M
-10~+30	O
-10~+50	T
Special	A

7	
Size Code (mm) L x W x H	Code
6.5 x 6.5 x 4.0	656540
6.5 x 6.5 x 3.0	656530
5.2 x 5.2 x 3.0	525230

8	
Terminal	Code
Tape & Reel	TR

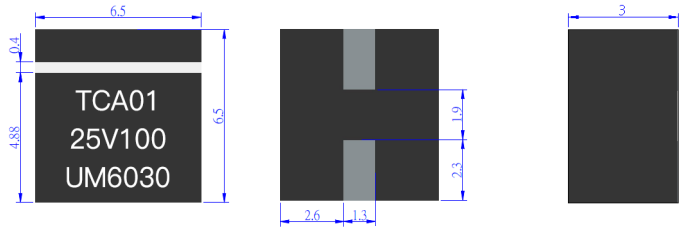
規格表 Table								
客户料號 Customer Part Number	信容料號 TRUSTCAP Part Number	額定電壓 Rated voltage (V)	容量 Capacitance (μF)	尺寸 Case Size LxWxH (mm)	損耗正切值tan δ	漏電流 Leakage Current (μA)	ESR +20℃ 100kHz (mΩ)	紋波電流 Rated RC 105℃ 100kHz (mArms)
-	TPUM1C181M656540TR	16V	180uF	6.5L x 6.5W x 4.0H	0.12	576	32	1900
-	TPUM1E101M656540TR	25V	100uF	6.5L x 6.5W x 4.0H	0.12	500	40	1900
-	TPUM1V560M656540TR	35V	56uF	6.5L x 6.5W x 4.0H	0.12	392	50	1400
-	TPUM1J220M656540TR	63V	22uF	6.5L x 6.5W x 4.0H	0.12	277	55	1100
-	TPUM1C121M656530TR	16V	120uF	6.5L x 6.5W x 3.0H	0.12	384	35	1400
-	TPUM1E101M656530TR	25V	100uF	6.5L x 6.5W x 3.0H	0.12	500	50	1400
-	TPUM1V470M656530TR	35V	47uF	6.5L x 6.5W x 3.0H	0.12	329	55	1100
-	TPUM1J180M656530TR	63V	18uF	6.5L x 6.5W x 3.0H	0.12	227	60	1000

一. 概述 SCOPE

本產品規格書適用於信容科技股份有限公司固態鋁電解電容產品。

The specification is adapted to Conductive Polymer Aluminum Solid Capacitors of TRUSTCAP TECHNOLOGY Co.,Ltd.

二. 外形圖及尺寸表 Case size table

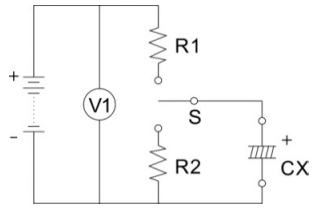


L	6.3+0.2Max.
W	6.3+0.2Max.
H	3.0+0.2Max.

三. 技術性能 Specifications

1	系列 SERIES	UM					
2	額定電壓 Rated voltage	25/35V					
3	工作溫度範圍 Operating temperature range	工作溫度範圍是指電容器在額定電壓下能持續工作所允許外部環境的溫度範圍 The operating temperature range is the ambient temperature range at which the capacitor can be operated continuously at rated voltage. SPEC:-55~+105℃					
4	電容容量 Capacitance	測量等效電路圖					
		測量溫度20℃	measuring temperature 20°C				
		測量頻率120Hz	measuring frequency 100kHz				
		測量電壓 0.5Vrms	measuring voltage 0.5Vrms				
		標稱電容量允許偏差:±20% Max.	Nominal Capacitance Tolerance:±20% Max.				
5	損耗角正切值的測量應要和測量電容容量相同的條件下進行 Measurement should be made under the same conditions as those given for the measurement of capacitance						
	損耗正切值 （tan δ）	$U_R(V)$	25V	35V	50V	63V	
		tanδ	0.12	0.12	0.12	0.12	
6	漏電流 leakage current	將額定電壓加在電容和1000± 100Ω的保護電阻上。在充電2分鐘後，按下列等式計算漏電流。施加額定電壓2分鐘後，應滿足下列要求：i ≤0.2CV or 200μA（取較大者） The rated voltage shall be applied to the capacitor and its protective resistor which is 1000±100Ω. The leakage current shall be measured after an electrification period of 2min. The following specifications shall be satisfied: i ≤0.2CV or 200μA and take the greater value.					
7	等效串聯阻抗 Equivalent Series Resistance (ESR)	測量等效電路圖 measuring circuit equivalent series circuit					
		測量溫度20℃	measuring temperature 20°C				
		測量頻率100kHz	measuring frequency 100kHz				
		測量電壓0.5Vrms	measuring voltage 0.5Vrms				
8	最大紋波電流 Maximum permissible ripple current	在規定的某一頻率下的最大交流電流，在該電流下電容器連續工作。在測過耐久性後，此要求仍要滿足。在此，DC電壓加上最大紋波電壓小於等於額定電壓。 The maximum sinusoidal alternating current at the specified frequency, the capacitor can be operated continuously. This requirement shall be satisfied after the electrical endurance test. DC voltage +peak ripple voltage≤rated voltage.					

四. 測試方法及要求 Tests and requirements

<table>
<tr><td rowspan="7">1</td><td rowspan="7">浪湧測試
Surge test</td><td colspan="3">循環測試1000次，每次充電30±5秒，再放電大約5分30秒，在15~35°C環境下。
在標準溫度條件下存放使其穩定，然後進行測量。測試電路圖如下。
1000 cycles of charging for 30±5s then discharging for 5.5min at 15~35°C. Keep it stable at standard temperature, and measure it. The test circuit diagram is as follows.</td></tr>
<tr><td rowspan="3">
</td><td>VZ：浪涌電壓
Surge voltage</td><td>V1：直流電壓
DC voltage</td></tr>
<tr><td>R1：保護電阻
（1KΩ）
Protective resistor</td><td>R2：放電電阻
Discharge resistor</td></tr>
<tr><td>CX:測試電容
Test capacitor</td><td>S:開關
Switch</td></tr>
<tr><td colspan="3">1)電容量變化: ±20%實測值以內
Change in capacitance: Within±20% of the initial measured value</td></tr>
<tr><td colspan="3">2)損耗正切值:小於等於150%規格值
Tangent of the loss angle: ≦150% of the initial specified value</td></tr>
<tr><td colspan="3">3)等效串聯電阻ESR 小於等於150%規格值
ESR（equivalent series resistance）≦150% of the initial specified value</td></tr>
<tr><td colspan="3">4)漏電流小於等於規格值
Leakage current≦The initial specified value</td></tr>
<tr><td colspan="3">5)外觀：產品外觀無異常
Appearance: No notable change to be found</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">可焊性
Solderability</td><td colspan="3">焊料 : H60A 或 H63A, (符合JIS Z 3282規定)
焊錫溫度：230±5°C
浸漬時間：2±0.5s
助焊劑：松香乙醇溶液中松香濃度約為25%
乙醇（JIS K 8101）、松香（JIS K 5902）
Solder : H60A or H63A, Specified in JIS Z 3282
Temperature of solder: 230±5°C
Dipped time: 2±0.5s
Flux: Ethanol solution of rosin concentration of rosin is about 25%
Ethanol (JIS K 8101), Resin (JIS K 5902)</td></tr>
<tr><td colspan="3">端頭浸漬部分圓周面至少 3/4 應覆蓋有新焊料。
At least 3/4 of circumferential surface of the dipped portion of termination shall be covered with new solder.</td></tr>
</table>

3	耐焊接熱 Resistance to soldering heat	電容器的端子側應放置在 250°C 的加熱板上30秒。 然後在標準大氣條件下放置 1 到 2 小時，再進行測量。 The terminal side of the capacitor shall be placed on the heat panel at 250°C for a period of 30 seconds. And then it shall be subjected to standard atmospheric condition for 1 to 2 hours before measurement.
		1)電容量變化: ±20%實測值以內 Change in capacitance: Within±20% of the initial measured value
		2)損耗正切值:小於等於規格值 Tangent of the loss angle: ≦ the initial specified value
		3)等效串聯電阻ESR 小於等於規格值 ESR（equivalent series resistance）≦ the initial specified value
		4)漏電流小於等於規格值 Leakage current≦The initial specified value
		5)外觀：產品外觀無異常 Appearance: No notable change to be found
4	高溫高濕 Dampheat, steady state	電容器在溫度60±2℃，相對濕度90%到95%條件下存放500hrs，無施加電壓。然後在標準條件下放1到2小時後進行測量。 the capacitor shall be stored at a temperature of 60±2℃ and relative humidity of 90 to 95% for 500 hours without voltage applied. And then the capacitor shall be subjected to standard atmospheric conditions for 1 to 2hours, after which measurements shall be made.
		1)電容量變化: -20 到+40%實測值以內 Change in capacitance: Whthin -20 to +40% of the initial measured value
		2)損耗正切值:小於等於150%規格值 Tangent of the loss angle: ≦150% of the initial specified value
		3)等效串聯電阻ESR 小於等於150%規格值 ESR（equivalent series resistance）≦150% of the initial specified value
		4)漏電流小於等於規格值 Leakage current≦The initial specified value
		5)外觀：產品外觀無異常 Appearance: No notable change to be found
5	高溫儲存 High Temp. storage	在+105溫度下不外加電壓儲存，電容器存放1000小時。然後在標準條件下放1到2小時進行測量 The capacitor shall be stored at +105℃ temperature for 1000 hours. During which time no voltage shall be applied. And then the capacitor shall be subjected to standard atmospheric conditions for 1 to 2hours, after which measurements shall be made.
		1)電容量變化: ±20%實測值以內 Change in capacitance: Within±20% of the initial measured value
		2)損耗正切值:小於等於150%規格值 Tangent of the loss angle: ≦150% of the initial specified value
		3)等效串聯電阻ESR 小於等於150%規格值 ESR（equivalent series resistance）≦150% of the initial specified value
		4)漏電流小於等於規格值 Leakage current≦The initial specified value
		5)外觀：產品外觀無異常 Appearance: No notable change to be found

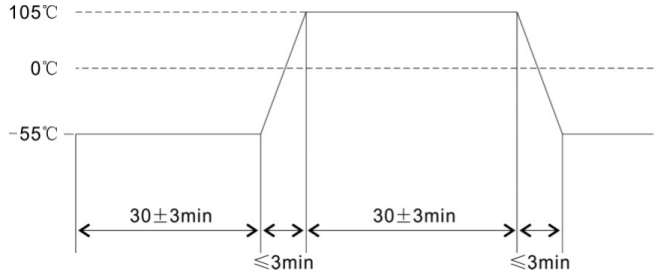
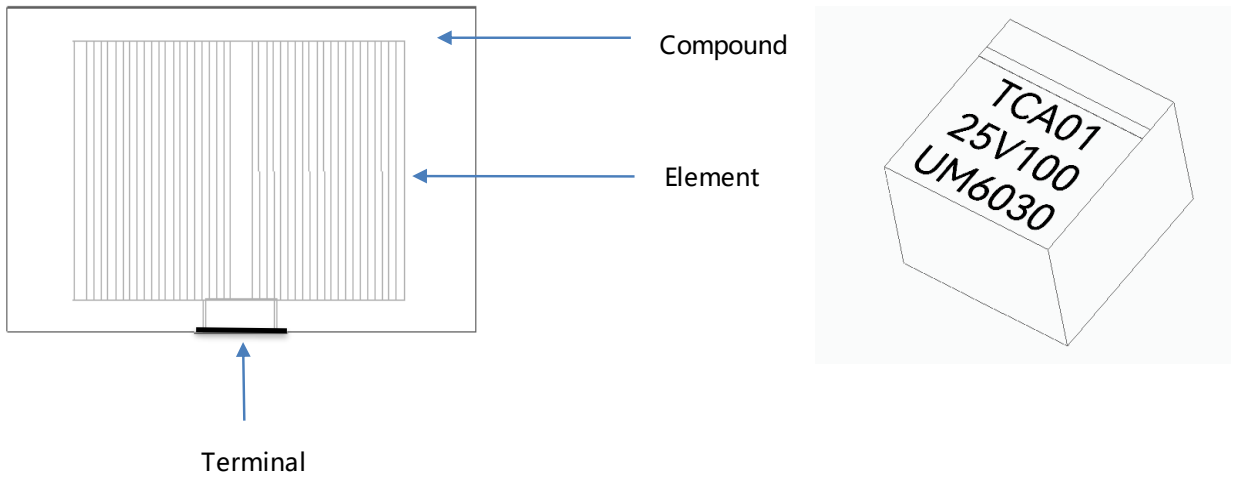
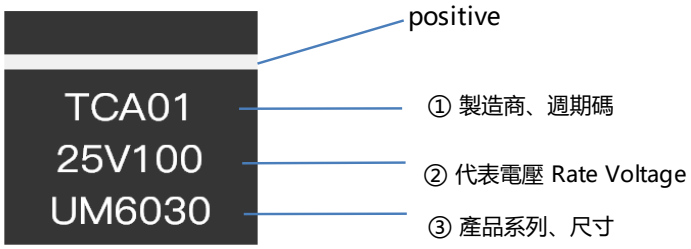
<table>
<tr><td rowspan="5">6</td><td rowspan="5">耐久性
Endurance</td><td colspan="3">電容在105±2°C,加載直流電2000小時後，需在標準室溫條件下放置 1~2小時後，再進行測量。
Applying DC rated voltage for 2000hours at 105 ± 2°C,
capacitor shall be subjected to standard atmospheric conditions for 1~2hours, after which measurement shall be made.</td></tr>
<tr><td colspan="3">1)電容量變化: ±20%實測值以內
Change in capacitance: Within±20% of the initial measured value</td></tr>
<tr><td colspan="3">2)損耗正切值:小於等於150%規格值
Tangent of the loss angle: ≦150% of the initial specified value</td></tr>
<tr><td colspan="3">3)等效串聯電阻ESR 小於等於150%規格值
ESR（equivalent series resistance）≦150% of the initial specified value</td></tr>
<tr><td colspan="3">4)漏電流小於等於規格值
Leakage current≦The initial specified value</td></tr>
<tr><td rowspan="5">7</td><td rowspan="5">快速變溫
Rapid change of temperature</td><td colspan="3">在圖1的溫度循環要求下，進行5個循環，然後在標準室溫條件下放1-2個小時後進行測量。
The capacitor shall be subjected to the temperature cycle requirements as Figure 1 for 5 cycles, and then measured after 1-2 hours under standard atmospheric conditions.</td></tr>
<tr><td colspan="3">

Figure.1</td></tr>
<tr><td colspan="3">1)電容量變化: ±10%實測值以內
Change in capacitance: Within±10% of the initial measured value</td></tr>
<tr><td colspan="3">2)損耗正切值:小於等於規格值
Tangent of the loss angle: ≦ the initial specified value</td></tr>
<tr><td colspan="3">3)漏電流小於等於規格值
Leakage current≦The initial specified value</td></tr>
<tr><td rowspan="6">8</td><td rowspan="6">迴焊條件
Recommend IR Re-fdlow condition</td><td>峰值溫度
Peak Temperature</td><td>250℃</td><td>260℃</td><td rowspan="6">迴焊後沒有外觀變化,
漏電流小於等於規格值
電容量變化:小於 ±10%實測值以內
損耗正切值:小於等於130%規格值
等效串聯電阻:小於等於130%規格值
No visible damage,
Leakage current ≤ initial specified value
Capacitance change:
within ±10% of initial value
tan δ ≤ 130% of initial specified value
ESR ≤ 130% of initial specified value</td></tr>
<tr><td>預熱時間
Preheat</td><td colspan="2">150℃~180℃ 90±3 seconds</td></tr>
<tr><td>200℃ over time(Max.)</td><td>60 seconds</td><td>60 seconds</td></tr>
<tr><td>220℃ over time(Max.)</td><td>50 seconds</td><td>50 seconds</td></tr>
<tr><td>230℃ over time(Max.)</td><td>40 seconds</td><td>40 seconds</td></tr>
<tr><td>迴焊次數
Reflow times</td><td>Twice or les</td><td>One time only</td></tr>
</table>

五. 結構圖



六. 標示 Marking



七. 包裝 Packing

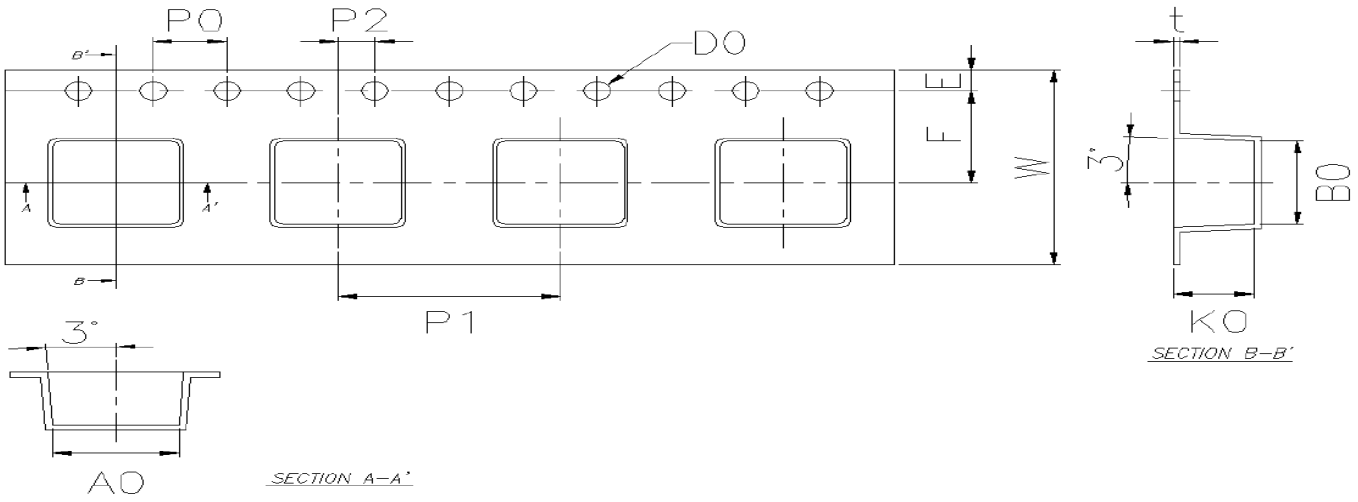
包裝標籤標示 Packing Label Marked
(下面項目應該體現在標籤上 The following items shall be marked on the label)
(盤/內盒/外箱 Reel/inside box/outer carton)

系列、額定容值、額定電壓	Series、Rate Capacitance、Rate Voltage
尺寸	Size
數量	Quantity
物料編碼	P/N
批號	LOT Number

示例Example:



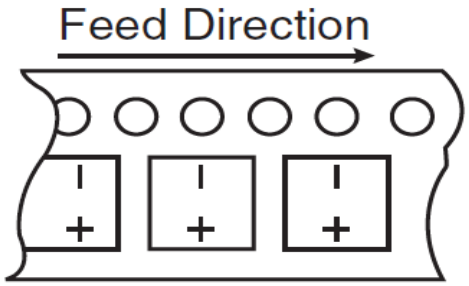
■Carrier Tape Dimensions 下載帶尺寸



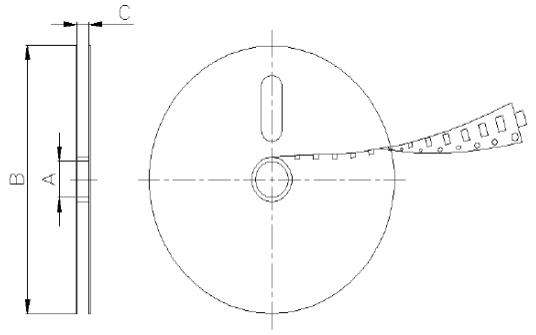
Item	Specification	Tol. (+/-)
W	**16.00**	± 0.30
E	**1.75**	± 0.10
F	**7.50**	± 0.10
D0	**1.50**	+0.10,-0
D1	**NIL**	NIL
P0	**4.00**	± 0.10
P1	**12.00**	± 0.10
P2	**2.00**	± 0.10
P0 x 10	**40.00**	± 0.20

t	**0.40**	± 0.05
A0	**6.85**	± 0.10
B0	**6.85**	± 0.10
K0	**4.35**	± 0.10

■POLARITY 極性



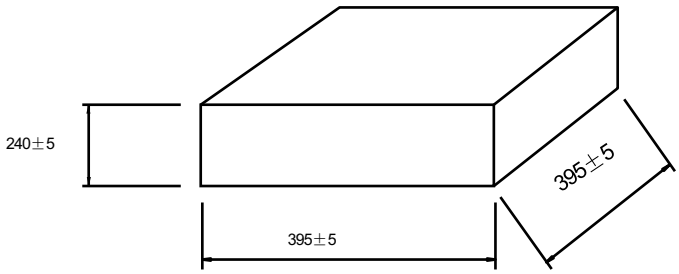
■Reel Dimensions 卷盘尺寸



產品規格	內徑A	77	mm
5x5	外徑B	560	mm
	寬度C	13.5	mm
產品規格	內徑A	77	mm
6x6	外徑B	560	mm
	寬度C	18.5	mm

☑ Cardboard reel ☐ Plastic reel

■Packaging Box 包裝箱



Size ΦD x L(mm) 尺寸	Quantity/Reel(pcs) 數量/卷（個）	Reels/Box 卷盤/箱	Quantity/Carton(pcs) 數量/外箱（個）
6.5x6.5~3	1400		
6.5x6.5~4	1100		

*For a small package

■ Please order by minimum package quantity.

■ 請以最小包裝數量訂購。

TRUSTCAP UMPC P.N	Reel (pcs)	Reels/Box	Carton (pcs)
TPUM1E101M656530TR	1400		
TPUM1E101M656540TR	1100		

八. 鋁電解電容使用注意事項 Guidelines For Using Aluminum Electrolytic Capacitor.

為了使你獲得電解電容的最佳性能和延長電解電容的使用壽命，在使用電解電容前，請務必閱讀本注意事項。
Upon using Aluminum Electrolytic Capacitors，please proper handing and observing to following important points will insure optimum capacitor performance and long life.

1	直流電解電容是有極性的。DC electrolytic capacitors are polarized. 確定極性，極性標誌在電容器的基體上。以免因極性反可能引起電路短路或電容器損壞，當極性不固定或不確定的，使用無極性電容器。注意直流電容器不能使用於交流。Make sure of the polarity. The polarity is marked to on the body of the capacitor .Application of the reversed voltage cause a short circuit or damage the capacitor. Use bipolar capacitors when the polarity is not determined or unknown. Note that DC electrolytic capacitors can not be used for AC application.
2	使用電壓不要大於額定電壓。Do not apply voltage higher than rated voltage. 使用電壓大於額定電壓，漏電流會增大，可能損壞電容器。建議工作電壓為額定電壓的70%-80%，電容器在建議工作電壓下使用可以延長電容器的壽命。If a voltage exceeding the rated voltage is applied, the leakage current will increase, which damage the capacitor. Recommended working voltage is 70 to 80 percent of tatted voltage. Using capacitors at recommended working voltage prolongs capacitor life.
3	不要使用過量紋波電流通過電容器。Do not allow excessive ripple current through the capacitor. 流過電容器的紋波電流超過許可值，將會引起電容器發熱，電容量減少，損耗電容器。通過電容器的紋波電流不要大於允許值。The flow of ripple current over permissible ripple current will cause heat of the capacitor, which may decrease the capacitance and damage the capacitor. Ripple current on the capacitor must be at or bellow allowable level.
4	快速充放電路中，使用專門設計的電容器。Use specially designed capacitors for the circuits where charge and discharge are frequency repeated. 在經受快速的週期性充放電電路中，電容器可能受到損害，它的壽命因容量下降、溫升等原因而縮短，在這種電路中，一定要使用專門設計的電容器。In the circuit subjected to rapid charge cycles, capacitors may be damaged, its life may be shortened by capacitance decrease, heat rise, ect. Be sure and use special capacitors in these applications.
5	工作溫度範圍。Operating temperature range. 電容器的特性隨工作溫度變化而變化，在溫度較高的情況下，容量，漏電流增大，損耗減少；在低溫情況下，容量和漏電流下降，損耗增大。電容器在較低溫度下使用會確保延長壽命。The characteristics of capacitors change with the operating temperature. The capacitance and leakage current increase and tgδ decrease at higher temperatures. The capacitance and leakage current decrease and tgδ at increase lower temperature. Usage at lower temperature will ensure longer life.
6	核對工作頻率。Check operating frequency. 電解電容器的容量通常是在100HZ或者120HZ下測得的。然而要記住容量隨頻率的升高而下降，tanδ隨頻率的升高而增大，並使周圍溫度升高。The capacitance of electrolytic capacitors is usually measured at 100Hz or 120Hz. However, remember that capacitance decrease and tgδ increase as the applied frequency becomes higher whereas the ambient temperature becomes higher.
7	長時間存放的電容器，在使用前加額定直流電壓處理。 Apply rated DC voltage treatment to the capacitors which have been stored for a long time. 長時間的存放，實際對電容器的容量和tanδ沒有多大的影響，然而往往會使漏電流增大，耐壓降低。長時間存放後的電容器處理，首先逐漸施加直流電壓至額定電壓，然後再使用。Long periods of storage have virtually no effect on a capacitor's capacitance and tgδ. Such periods tend however, to increase leakage current and decrease withstand voltage. After removing capacitors from long-duration storage, first apply a gradually increasing DC voltage to rated voltage and then use them.
8	電容器的外殼與陰極是通過電解液連接的，如果電容器的外殼必須與線路絕緣, 則電容器的安裝位置處，一定要採取絕緣措施。 The capacitor's case and cathode terminal connect through the electrolyte. If the case is to be completely insulated, that insulation must be at the capacitor's mounting point.
9	電容器的端子或者引線上不要施加過大的力。 過大的力施加到端子和引線上，可能引起引線的斷裂或端子分裂，轉而會引起內部鏈接的破壞 Do not apply excessive force to the terminals and leads. The excessive strong force applied to the terminals and lead wires may cause leads to break or terminals to separate and, in turn, cause the internal contact to fail.

有害物質目錄表
Hazardous substances management table of contents

區分 Type	物質名稱（中文名）Name(chinese)	物質名稱(英文名）Name(English)	有害物質包含與否	
			有 Yes	無 No
Level A-Ⅰ	鉛以及它的化合物	Lead and its compounds	14PPM	
	鎘以及它的化合物	Cadmium and its compounds		NO
	水銀以及它的化合物	Mercury and its compounds		NO
	六價鉻以及它的化合物	Hexavalent chromium ang its compounds		NO
	多溴化的聯苯	Polybrominated biphenyls		NO
	聚溴二苯醚	Polybrominated diphenylethers		NO
Level A-Ⅱ	多氯化聯苯（PCB）	Polybrominated biphenyls（PCB)		NO
	多氯化萘（PCN)	Polybrominated naphthalenes(PCN)		NO
	三磷酸鹽	Polybrominated terphenyls(PCT)		NO
	氯化塗石蠟（SCCP）	Short-chain chlorinated paraffins(SCCP)		NO
	石棉以及它的化合物	Asbestos ang its compounds		NO
	臭氧層破壞物質	Ozone Depleting Substances		NO
	偶氮化合物	Azo compounds		NO
	鎳以及它的化合物	Specific organic tin conpounds		NO
	有機錫類化合物	Nickel and its compounds		NO
	砷以及它的化合物	Specific organic tin conpounds		NO
	甲醛	Formaldehydes		NO
Level B	氯化乙烯樹脂	Polyvinyl chloride,(PET)		NO
	磷苯二甲酸鹽	Phthalates		NO
	鈹以及他的化合物	Berylium and its compounds		NO
	銻及其它的化合物	Antimony and its compounds		NO
	硒及其它的化合物	Selenium and its compounds		NO
	鈀及其它的化合物	Palladium and its compounds		NO
	鉍及其化合物	Bismuth and its compounds		NO
	其他氯類難燃試劑	Other chlorinated flame retardants		NO
	其他溴類難燃試劑	Other brominnated flame retardants		NO
Note	1. 原則上按照公司的管理規定，但由管理總部提出根據客戶的要求制定的另行有害物質管理目錄來執行的要求時，應優先按照管理總部的管理目錄來記載。 2. 確認合作企業現在是否在使用這類物質，應記錄使用與否。			