納入仕様書

SPECIFICATION

仕様書編號
SPEC. No.:XB9-1102-4M1C(01)
發行日：2019.04.02
DATE:

To

鑒

客戶品名 CUSTOMER'S PRODUCT NAME	TDK 品名 TDK'S PRODUCT NAME Ceramic insulated capacitors disc type safety standard 中高壓圓板絕緣形陶瓷電容器(種類 2) Type 形名：ＣＤ××-△２ＧＡ〇〇〇□Ｙ◇ＳＡ

受領印欄 RECEIPT CONFIRMATION

承認日 年 月 日
DATE: YEAR MONTH DAY

ＴＤＫ株式会社
TDK Corporation
販売
Sales
電子部品營業部
Electronic Components Sales & Marketing Group

廈門TDK有限公司
TDK XIAMEN CO.,LTD
製造
Engineering
陶瓷電容器製造部
Ceramic Capacitors Business Group
誘電体製品技術部

責任者 Sales Manager	担当者 Sales

責任者 Engineering Manager	確認者 Superior	担当者 Engineering Person in Charge
B 2019-04-02 许辉兴	B 2019-04-02 汤永飚	B 2019-04-02 夏允秀

Handling precautions for High voltage ceramic capacitors

Please read the following closely before using these products.

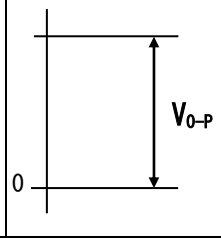
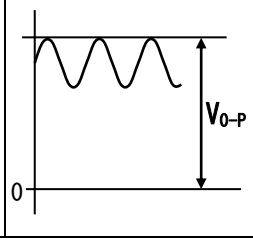
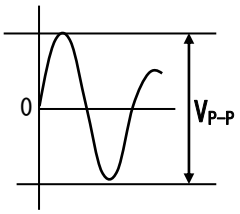
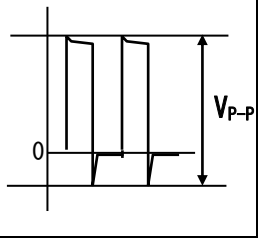
Safety precautions

The following precautions should be observed strictly to ensure safety design.
Misuse of the product may lead to smoking of the product.

⚠ Cautions

1.Operating voltage

Use within the rated voltage of capacitor between terminals. For DC rated voltage application, you should control the peak voltage (Vo-p) under the rated voltage in case the AC voltage is superimposed on the DC voltage. Use within the rated voltage includes peak voltage (Vp-p) when AC voltage or impulse voltage applied in a circuit. Confirm irregular voltage (surge voltage, static electricity, switching noise, etc) occurs in the equipment used, and use within the rated voltage containing the irregular voltage.
When the capacitor is used as a noise suppressor in the AC primary circuit, the voltage proof test should be within the specified conditions (voltage, time, wave form, etc).
Connect by confirmation of non lose contact, and the voltage is started to apply to the circuit from zero to the specified voltage and it is stopped applying from the voltage to zero.

Voltage	(1)DC voltage	(2)DC＋AC voltage	(3)AC voltage	(4)Pulse voltage
Voltage Measuring position				

2. Operating temperature

Be sure to use only those operating temperature described in our catalogue or specification.
Keep the surface temperature under the maximum temperature, which includes the maximum self-heat temperature of 20 degree C.

3. Self-exothermal

Self-exothermal temperature should be within 20 degree C on the condition of atmosphere temperature 25 degree C without the influence of wind such as the cooling fan. Be sure to use a capacitor in a circuit of current increase by AC voltage or pulse voltage applied.
When high frequency voltage or impulse voltage applied in a circuit, reliability should be influenced. Take into considerations the load reduction and self-exothermal temperature, even if voltage should be within the rated voltage.

⚠ Cautions

4. Capacitance change of capacitors

For some of the capacitors, capacitance value may change considerably in the temperature range, or by applied DC voltage. And capacitor has aging characteristic (capacitance decreases by keeping as it is). When you use the capacitor in the time constant circuit, consult TDK whether the capacitor is available or not.

5. Vibration of capacitors

When the capacitor class 2 is used in the AC circuit, or pulse circuit, the capacitor might vibrate or noise might occur in the specified frequency. Be sure to confirm the conditions before using the capacitor.

6. Usage of capacitance and storage

Don't use capacitors in the following environments:

* Direct sunshine
* Areas directly exposed to water or salty water
* Areas that become dewy
* Areas filled with toxic gases (such as hydrogen sulfide, sulfur dioxide, chlorine, ammonia, etc)
*Areas exposed to excess vibrations or shock conditions described in our catalogue or specification.

Store capacitors in an environment from -10 to 40 degree C, with 15 to 70%RH for 6 months maximum and use within the period after receiving the capacitors.

7. Inserting precautions

When inserting capacitors into the PC board by automatic insertion machine, confirm the conditions (such as pressure of pusher, adjustment of clinching portion) and minimize the impact force by chucking the body, or clinching the lead terminals.
Distances between the hole position onto a PC board should be equal to the pitch of capacitors.
When stretching the lead terminal, any force may load the bottom of the capacitor body and result in damage to the insulation coating. Severe damages may cause poor reliability.

8. Soldering

Don't immerse the capacitor body into the molten solder.Use PC board, and solder the terminals in the opposite side of the body. Soldering conditions,such as pre-heat temperature, soldering temperature, and soldering time, should be followed by the descriptions in our catalogue or specification. (refer to Fig.-1)
Adjust the amount of solder within the proper volume. Select an appropriate soldering material.
When using soldering iron for installing capacitors or reworking onto the PC board, sufficient pre-heating and temperature control should be used. We recommend that the iron condition is 350±10 degree C/ 3.5±0.5s. as 1 time, and you should use an adequate tip diameter (φ3mm Max.) with the soldering iron as well as a proper wattage (50W Max.). Don't touch the capacitor body directly with soldering tip, except for the terminals of capacitor.

9. Flux

When using flux for soldering capacitors onto the PC board, spread it thinly and uniformly.
Flux will be composed of halogenated material less than 0.1 wt% (cl conversion).
Don't use a strong acid grade of flux. When using water-soluble flux, sufficient cleansing should be done.

⚠ Cautions

10. Cleansing

When the cleansing should not be sufficient, the cleansing liquid or any residue might leave on the capacitor body, they may deteriorate the insulation coating or performance (insulation resistance, etc).
When using ultrasonic cleansing, avoid transmitting vibrations onto the PC board. Conditions of ultrasonic cleansing, such as output frequency and time of the method, should be taken into considerations.
After cleansing capacitors, dry them well. Cleansing liquid should not contain electrolyte, nor leave any residue. Through the result of the cleansing method, confirm whether the quality of the capacitors have been affected due to the conditions.

11. Coating or molding

When coating or molding capacitors after installing components onto the PC board, confirm whether the performance of capacitors may not be damaged by the work.

12. Mechanical stress

Don't submit to excessive mechanical shock. Don't use capacitors which may have been damaged due to dropping, etc.
If possible, avoid bending the terminals of capacitors. In an unavoidable case of bending, use a small jig to decrease the mechanical stress on the capacitors.

13. Others

Please contact TDK before using our capacitors listed in this catalogue or specifications for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property, or when intending to use one of our capacitors for other applications than specified in this catalog or specifications.

* Medical equipment
* Aerospace equipment
* Power plant equipment
* Aircraft equipment
* Transportation equipment (vehicles, trains, ships, etc)
* Undersea equipment
* Traffic signal equipment
* Disaster prevention, crime prevention equipment
* Data processing equipment exerting influence on public
* Application of similar complexity and, or reliability requirements to the applications listed in the above

Please refer to the guideline of notabilia for fixed ceramic capacitors issued by JEITA (Japan Electronics and Information Technology Association, EIAJ RCR-2335).

中高壓電容器使用注意事項

使用製品前請認真閱讀本規格書。

安 全 注 意 點

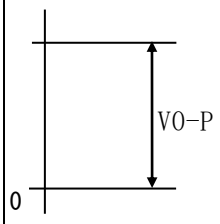
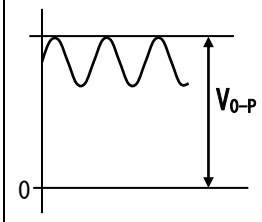
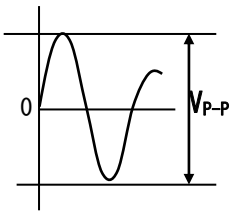
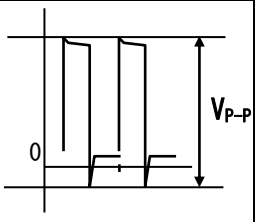
使用本製品時，請充分考慮注意事項、進行安全設計。錯誤的使用方法可能造成產品異常。

⚠ 注　　意

1．使用電壓

使用電容器時，在端子間印加的電壓應該低於額定電壓。在直流電壓上重迭加交流電壓時，峰值電壓應該低於額定電壓。使用交流電壓或脈衝電壓時，尖峰電壓也應該低於額定電壓。另外，要確認使用的電源設備是不是有可能印加異常電壓〈浪湧電壓，靜電，開關突峰電壓〉,如果產生則異常電壓也應該低於額定電壓（如下圖示）。

交流一次側回路時，用於防止雜波的電容器其交流耐壓試驗的實驗條件不能超過規定的條件〈電壓，時間，波形〉。並且，確保接觸良好，防止接觸不良發生，電壓從“0”開始上升，下降時也必須下降至“0”。

电压	(1)直流电压	(2)直流+交流电压	(3)交流电压	(4)脉冲电压
相位 （额定电压）				

2．使用溫度

使用溫度必須控制在製品纳入仕樣書規定的溫度範圍內。

另外，使用時，電容器的表面溫度，包括其自身發熱，必須低於最高使用溫度。

3．自發熱

在環境溫度 25℃，沒有冷卻風扇工作的狀態下，自身發熱（電容器的表面溫度與環境溫度的差值 ）必須在 20℃以下。在連續印加交流電壓或脈衝電壓，電流較大的回路中，更要特別的注意。在連續印加高頻電壓，高頻脈衝電壓的回路中，雖然在額定電壓以下，也有可能影響到信賴性，所以使用時要考慮到減輕負荷及自身發熱。

⚠ 注　　意

4．電容器的靜電容量變化
由於使用溫度和印加電壓的不同，電容器的靜電容量就有可能發生變化。而且，電容器在自然放置其間，靜電容量也有可能減少，也就是 Aging 特性。在特定回路中也會無法使用，所以如有特殊要求請說明。

5．電容器的振動
電容器（種類Ⅱ）在交流回路或者脈衝回路中使用時，由於特定的頻率，電容器本身可能會發生振動，或者發出聲音，噪音。所以在使用之前，請確認能否符合貴司要求。

6．電容器的使用及保存（保管）
請不要在以下地方使用（保管）電容器。
- 受到阳光直射的地方。
- 直接接触到到水，盐水的地方
- 凝結露水的地方
- 有腐蚀性气体的地方，如；硫化氢，亚硫酸，氯气，氨气等
- 振动或者冲击条件超过制品说明书货纳入式样书的规格范围的恶劣环境

電容器請不要保管在高溫高濕的環境中，而應該保管在室溫-10~40℃，濕度 15~70%RH 以內的環境中，並在納入後 6 個月內使用。

7．　安裝上的注意點
用自動插件機把電容器插入到基板上時，要確認並管理自動插件機的安裝條件（推杆壓力、剪切部的調整等），製品拔取，導線剪切時，不要對製品施加過度的衝擊和壓力。電容器的端子間隔要與基板孔的間隔一致。（外力改變導線間距的時候，有可能會損壞導線根部的塗料，如果發生此類的損壞，就有可能導致信賴性下降。）

8．焊锡
- 焊锡时，不要把电容器本体浸到焊锡液重。
- 插入基板後,請於電容器正反面與基板接觸的部位作焊接。
- 波峰焊锡条件（預熱的溫度及時間，焊錫的溫度及時間）在製品說明書或納入仕樣書的規格範圍內。
- 焊錫量要適中，請選定合適的焊錫材料。
- 修正作业时，要进行充分地预热，并進行溫度管理。
- 用电烙铁修正焊錫時，要特別注意電烙鐵的直径以及功率。
- 電烙鐵的先端不要直接接觸到電容器引腳以外的部位。

9．助焊劑
把電容器放到印刷基板上進行焊錫時，要使用必要最小量的助焊劑進行均勻的塗布。使用的助焊劑的鹵系物質含有量應該小於 0.1%wt（Cl 換算)。而且，不能使用強酸性物質。使用水溶性的助焊劑時，要充分洗淨。

⚠ 注　　意

１０．洗淨

若未進行充分洗淨，助焊劑的殘渣及其他的異物附著在電容器表面，有可能使電容器的塗裝樹脂惡化，使電容器的性能（絕緣抵抗）惡化。用超音波洗淨的話，要做到直接振動不傳導到基板。要注意超音波洗淨條件中的輸出頻率以及時間。洗淨後要進行充分的乾燥。另外，洗淨液中不能含有電解質，注意沒有殘留電解質殘渣。洗淨前，要確認實際的洗淨條件不會對電容器的品質造成影響。

１１．樹脂塗裝及樹脂成形

電容器安裝到基板上後進行樹脂塗裝及樹脂成形時，要確認安裝狀態不會對品質有所影響。不要對電容器施加超過其使用溫度範圍的熱度。由於熱膨脹、收縮應力，使電容器的絕緣塗料產生傷痕，變形，有可能導致電容器的機械強度以及信賴性下降。接著劑、塗裝樹脂含有有機溶劑的話，要確認其對電容器品質沒有影響。同時，如果乾燥、硬化不完全，電容器 的樹脂就有可能導致樹脂蓬鬆，導致絕緣不良。

１２．機械壓力

不要給電容器施加過度的機械性衝擊，由於落下等原因，電容器受到過度的衝擊或振動就有可能導致失效。儘量不要对电容器的端子進行彎曲加工，如果必須進行彎曲加工，請使用不會對端子本體造成機械性衝擊的治具。

１３．本仕様書中記載的製品使用在廣泛使用的標準用途的一般電子設備(影音設備、自動化辦公設備、通信設備、家用電器、娛樂設備、電腦、個人電器、事務機器、計測機器、工業用機器人）上，而且這些一般電子設備只限於通常的操作及使用方法。但是如果製品用於有高安全性，信賴性要求的用途，或者可能會對社會造成重大影響的以下特定用途，我們並不保證其適合性及其性能的發揮，如果因為使用時超出本仕様書的條件或使用在特殊用途上而發生損害，本公司不予負責，請瞭解。

①航空，航天機器
②運輸工具(汽車，電車，船舶等)
③醫療設備
④發電控制用設備
⑤核能相關設備
⑥海底設備
⑦交通相關控制設備
⑧公共性的高情報處理設備
⑨軍事用途設備
⑩電加熱設備，燃燒設備
⑪防災及防暴設備
⑫各種安全機器
⑬其他被公認為特定用途的部件、設備

另外,本製品使用於廣泛使用的標準用途時，為了進一步確認安全性，請注意設計保護回路、備用回路等。
其他關於電容器的使用注意事項請參照[電子機器用固定磁器電容器的使用注意事項指導書] JEITA 發行（EIAJ RCR-2335)。

Scope 適用範圍

This specification applies to ceramic insulated capacitors disc type used in electronic equipment.
本承認規格書適用於電子機器等回路使用之中高壓圓板絕緣形陶瓷電容器。

Relative standards 相關規格

JIS C 6422-1991 [電子機器用固定磁器電容（種類2）]
JIS C 5102-1994 [電子機器用固定電容的試驗方法]
The electrical appliance and material safety law of Japan [電氣用品安全法]

Mention item 記載內容

1.	Applicable safety standard approval	適用安全規格
2.	Acquired safety standard approval	獲得安全規格
3.	Part Name	品名
4.	Operating temperature range	使用溫度範圍
5.	Test condition	試驗條件
6.	Performance	性能
7.	Safety performance	安全性能
8.	Marking	記號
9.	Figure & Dimension	形狀及尺寸
10.	Label & Transport	標籤內容及運輸
11.	Notification before the modification	變更的事前聯絡

We do not use the following material (1),(2) in these products.
本製品未使用下列物質名的溴化阻燃劑。
(1) PBBOs（Poly Bromo Biphenyl Oxides）
(2) PBBs (Poly Bromo Biphenyls)

We do not use Class Ⅰ ODS (Ozone depleting substances) in all our process of these products.
在本製品的加工、組裝等全過程中，未使用 CLASS Ⅰ ODS (破壞臭氧層化學物質)。

These products shall conform to RoHS Directive.
本制品符合 RoHS 指令。

These products are Halogen-free.(Br≦900ppm, Cl≦900ppm, Br+Cl≦1500ppm)
本制品为无卤品。

Manufacturing place 生產場所

Manufacturing site should be TDK Taiwan & TDK Xiamen
本製品的生產場所為臺灣 TDK 及廈門 TDK。

改訂履歷	版	年 月 日	担 当	変 更 内 容

Division 事業部（部）	Date Issued 作成日	Dwg. No. 仕様書編號
Ceramic Capacitors Business Group 陶瓷電容器製造部	2018.03.22	XB9-1102-4M1C(01)

1．Applicable safety standard 適用安全規格

This is specification applies the BSI, SEMKO, VDE, NEMKO, DEMKO, SAA, IMQ, UL, CSA, CQC approved ceramic capacitor disc type for Antenna-Coupling, Line-By-Pass and Across-The-Line. and approved by BSI, SEMKO, VDE, SEV, FIMKO, NEMKO, DEMKO, IMQ, CSA, CQC for IEC 60384-14/EN 60384-14.

本承認規格書適用於 BSI、SEMKO、VDE、NEMKO、DEMKO、SAA、IMQ、UL、CSA、CQC 安全認證機構認可的天線耦合、旁路、跨接的回路中。且已通過 IEC 60384-14/EN 60384-14 認證的 BSI、SEMKO、VDE、SEA、FIMKO、NEMKO、DEMKO、IMQ、CSA、CQC 認證。

2．Acquired safety standard approval 取得安規認證

認證依据及取得的认证规格

IEC 60384-14, EN 132400, EN60384-14 Approved

IEC 60384-14, EN 132400, EN60384-14 承認

Safety Standard 安全規格	Standard No. of IEC IEC 標準號碼	Standard No. 規格 No.	T.C. 温度特性	Subclass 副 級	W.V 額 定 電 壓	Approval report No. 認 可 No.	
						Taiwan 台灣	Xiamen 廈門
BSI	IEC 60384-14 IEC 60065	BS EN 60384-14 BS EN 60065	B, E	X1, Y1	250 V AC	KM37103	
VDE	IEC 60384-14	EN 60384-14		X1	250 V AC	40029780	
				Y1	250 V AC		
SEV				X1	250 V AC	19.0040	
				Y1	250 V AC		
SEMKO				X1, Y1	250 V AC	1607978	
NEMKO						P16220841	
DEMKO						D-05009	
FIMKO						FI 29442	
IMQ						V3691	
SAA	IEC 60065	AS 3250		———	400 V AC	CS6268	
UL	———	UL 60384-14		(X, Y)	250 V AC	2278970(LR35801)	
CSA	IEC 60384-14	CAN/CSA-E60384-14		(X, Y)	250 V AC	E37861	
CQC	IEC 60384-14	GB-T 14472-1998		X1, Y1	250 V AC	CQC10001051638	CQC03001004816

SAA is not conformed IEC 60384-14

SAA 不對應 IEC 60384-14。

* T.C.: Temperature Characteristic.

* Certificate No(s) shall be changed owing to the revisions of the related standards and renewal of certificate.

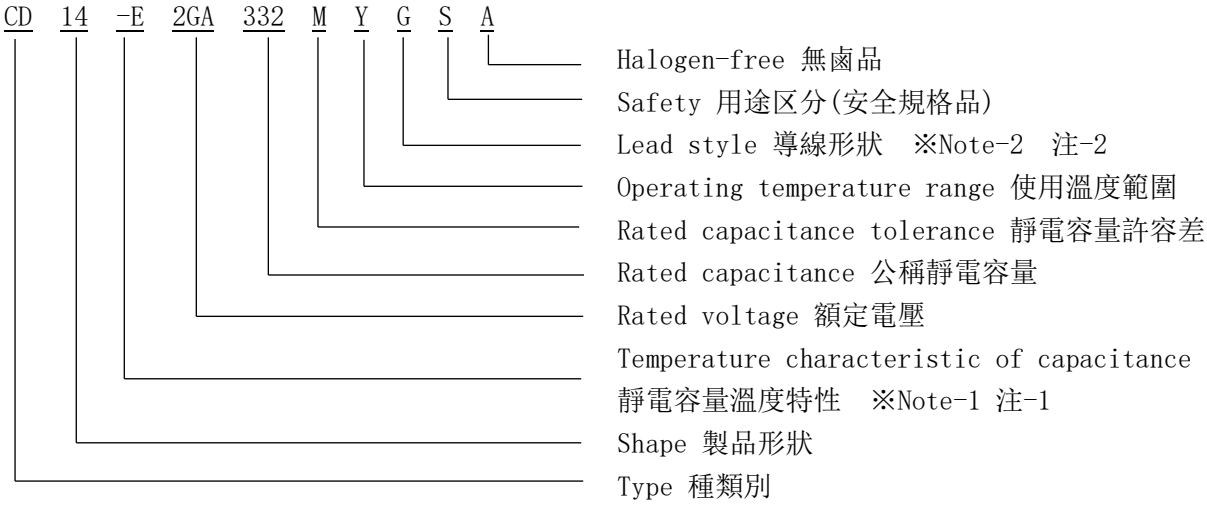
* 規格改訂或認證更新時，認證編號可能隨之更新。

TDK

DWG No. 仕様書編號：XB9-1102-4M1C(01)

3．Part name　品名

(Example 例)



※ Note-1 注-1

Temperature characteristic of capacitance:　-B:TC B, -E:TC E

靜電容量溫度特性

※ Note-2 注-2

Lead style 導線形狀	G : Vertical kink long lead	(Bulk)	側彎長導線形	(散裝品)
	N : Vertical kink short lead	(Bulk)	側彎短導線形	(散裝品)
	V : Vertical kink long lead	(Taping)	側彎長導線形	(編帶品)

4．Operating Temperature range 使用溫度範圍 : -25 ℃ to +125 ℃

5．Test condition 試驗狀態

Test and measurement shall be made at the standard condition, (Temperature 15 to 35 ℃, relative humidity 45 to 75 % and atmospheric pressure 860 to 1060 Pa.),Unless otherwise specification herein. If doubt occurred on the value of measurement, and remeasurement was requested by customer capacitors shall be measured at the reference condition (Temperature 20 ±2 ℃ ,relative humidity 60 to 70 % and atmospheric pressure 860 to 1060 Pa.)

無特別規定時，在標準狀態下【常溫(溫度 15 ～35℃)、常濕(相對濕度 45 ～75%)、常壓(860～1060hPa.)】下進行試驗及測定。假如對標準狀態的測定值判定有疑問或特別要求的情況下，以判定狀態測定（溫度 20 ±2 ℃、相對濕度 60 ～70 %、氣壓 860～1060 Pa.）結果判定。

6．Performance 性能

The performances shall comply with Table-1

電容器必須滿足表-1 各項規格要求。

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DWG No. 仕様書編號:XB9-1102-4M1C(01)

Table-1 表-1

No. 編碼	Items 項 目		Performance 性 能	Test method 試驗方法
1	Appearance and dimension 外觀及尺寸		The appearance and dimension shall be as given in paragraph 9 and Table-3 to 5 參照內容 9 及表 3～5	Visual check and measuring with calipers. 目視外觀檢查 尺寸使用遊標卡尺測定
2	Marking 記號		The marking shall be easily legible (Paragraph 8) 參照內容 8，清晰且易讀	Visual check 目視檢查
3	Withstand voltage 耐電壓	Between terminals 端子間	No failure 無異常	Voltage: 4000V AC (50 or 60 Hz) Test time: 60 s Charge and discharge current shall be 50 mA or less. 以頻率 50 或 60Hz 的 4000V AC 之電壓測定 60 秒鐘，其充放電流限制在 50mA 以下。
		Between terminal and exterior cladding 端子外裝間	No failure 無異常	4000VAC (50 or 60Hz) shall be applied for 60 s between the terminal connected together and the enclosure of capacitor with metal foil from the distance 2.6mm of the body. 用金屬箔片包裹距導線根部 2.6mm 以上的電容器本體，在導線兩端及金屬箔間施加頻率 50 或 60Hz 的 4000V AC 之電壓測定 60 秒鐘。
4	Insulation resistance 絕緣阻抗	Between terminals 端子間	10000 MΩ or more 以上	60±5 sec. after application with 500±50V DC. 以 500±50V DC 電壓測定 60±5 秒後之值
5	Capacitance 靜電容量		With the tolerances specified with Table-4 to 6 符合表 4～6 規定的許容差	Measuring frequency : 1kHz ±20 % Measuring voltage : 5Vrms. or less 測定頻率 : 1kHz ±20 % 測定電壓 : 5V(rms) 或以下
6	Dissipation factor (tanδ)		B,E: 2.5 % or less 以下	
7	Capacitance temperature characteristic 靜電容量溫度特性 (No voltage application 不加電壓)		B: Within ±10 % 以內 E: Within -55 % to +20 % 以內	Standard temperature: 20℃ 基準溫度:20℃ Temperature range: -25 to +85℃ 測定溫度範圍：-25℃～+85℃ Initial：pre-heat 125±2℃，1h, leaving room temp. for 24±2h 初期：125±2℃條件下熱處理 1 小時，于標準狀態下放置 24±2 小時后測定。

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Table-1 Continue 表-1 (續)

No. 編碼	Items 項 目		Performance 性 能	Test method 試驗方法
8	Strength of terminal 端子強度	Tensile strength 抗張強度	Lead wire shall not be disconnected, and capacitor shall not be damaged. 導線不斷裂、電容器不破損	The force of 10N shall be applied to the axial direction of the termination. 在導線引出方向施加 10N 的力。
		Bending strength 彎曲強度	Lead wire shall not be disconnected, and capacitor shall not be damaged. 導線不斷裂、電容器不破損	The force of 5N shall be applied to the axial direction of the terminal and the body shall be inclined through an angle of 90 degrees, then the body shall be returned to the original position. Furthermore the body shall be inclined to the other direction of 90 degrees. This operation shall be carried out two times. 在導線引出方向施加 5N 的力，將電容器本體旋轉到 90° 位置後釋放到 180° 相反位置後並回到原點。重复 2 次。
9	Vibration resistance 耐振性	Appearance 外觀	No marked defect 無明顯異常	Vibration frequency range: 10 to 55Hz. Displacement: 0.75mm Total duration: 6 hours (2 hours for each direction: X,Y,Z) 頻率：10～55 Hz 位移：0.75mm 時間：在 X,Y,Z 3 個方向各 2 小時，共計 6 小時。
		Capacitance change 靜電容量變化率	Within the tolerances specified with No.5 符合 No.5 記載的規格值	
		Dissipation factor (tan δ)	Within the value specified with No.6 符合 No.6 記載的規格值	
10	Resistance to soldering heat 焊錫耐熱性	Appearance 外觀	No marked defect 無明顯異常	Soldering temperature:350±10℃/3.5±0.5 s or 260±5℃/10±1 s Dipping depth: 1.5 to 2.0mm from the bottom of lead terminal. (shielding board shall be used.) Initial: pre-heat 125±2℃, 1h, leaving room temp. for 24±2h After test: leaving room temp. for 24±2h. 焊錫溫度:350±10℃/3.5±0.5 秒 或者、260±5 ℃/10±1 秒 浸漬位置：離導線根部 1.5mm～2mm(使用遮擋板) 初期：125±2℃條件下熱處理 1 小時，于標準狀態下放置 24±2 小時后測定。 試驗后：在標準狀態下放置 24±2 小時后測定。
		Capacitance change 靜電容量變化率	B : Within ±10 % 以內 E : Within ±15 % 以內	
		Withstand voltage 耐電壓 (Between terminals 端子間)	No failure 無異常	
11	Solder ability 焊錫性		At least 3/4 of circumferential dipped into solder shall be covered with new solder. 導線橫截面上須有圓周之 75%以上面積被焊錫所履蓋	Soldering temperature : 245 ±5 ℃ Dipping time : 2 ±0.5 sec. Concentration of solution shall be about 25 % colophonium in weight ratio. 焊錫溫度: 245 ±5 ℃ 焊錫時間: 2.0 ±0.5 秒 松脂濃度為 25Wt%。

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Table-1 Continue 表-1 (續)

No. 編碼	Items 項 目		Performance 性 能	Test method 試驗方法
12	Temperature cycle and dipping cycle 溫度及浸漬循環	Appearance 外觀	No marked defect 無明顯異常	Temperature cycles first, then dipping cycle should be tested. Temperature cycle: 5 cycles Step 1: -25℃, 30 min. Step 2: room temp., 3 min. Step 3: +125℃, 30 min. Step 4: room temp., 3 min. Dipping cycle: 2 cycle Step 1: +65℃, 15 min. Step 2: 0℃, 15 min. (saturated aqueous solution of salt) Precondition :pre-heat 85±2℃, 1hr, leaving room temp. for 24±2 hrs. 按下記條件進行溫度循環、浸漬循環。 溫度循環: 5 cycles 步驟 1: -25℃、30 分 步驟 2: 常溫、3 分 步驟 3: +125℃、30 分 步驟 4: 常溫、3 分 浸漬循環: 2 cycles 步驟 1: +65℃、15 分（清水） 步驟 2: 0℃、15 分（飽和食鹽水） 前處理：在 85±2℃的條件下，進行 1 小時熱處理，再至於標準狀態下 24±2 小時後進行測定，所得值為初期值。 後處理：試驗後至於標準狀態下 24±2 小時後，再測定。
		Capacitance change 靜電容量變化率	B: Within ±10 % 以內 E: Within ±20 % 以內	
		Dissipation factor (tan δ)	B, E: 5.0 % or less 以下	
		Insulation resistance 絕緣阻抗	1000 MΩ or more 以上	
		Withstand voltage 耐電壓 (Between terminals 端子間)	No failure 無異常	
13	Moisture resistance 耐濕性 (Steady state 定常狀態)	Appearance 外觀	No marked defect 無明顯異常	Test temperature : 40 ±2 ℃ Relative humidity : 90 to 95 % Test time : 500 +12, -0 hours Capacitors shall be measured after leaving it under room temperature for 1 to 2 hours. 在溫度 40 ±2 ℃、相對濕度 90 ～95 %的恒溫恒濕中放置 500 +12, -0 小時後取出在室溫下放置 1 ～2 小時後測定。
		Capacitance change 靜電容量變化率	B: Within ±10 % 以內 E: Within ±20 % 以內	
		Dissipation factor (tan δ)	B, E: 5.0 % or less 以下	
		Insulation resistance 絕緣阻抗	1000 MΩ or more 以上	
14	Moisture resistance loading 耐濕負荷	Appearance 外觀	No marked defect 無明顯異常	Test temperature : 40±2 ℃ Relative humidity: 90 to 95% Test time : 500+12,-0 hours 200OV DC applied. Capacitors shall be measured after leaving it under room temperature for 1 to 2 hours. Charging and discharging current Shall be 50mA or less. 在溫度 40±2℃、相對濕度 90～95%的恒溫恒濕中連續印加 2000V DC，持續 500+12,-0 小時、取出後在室溫下放置 1～2 小時後測定。充放電流限制在 50mA 以下。
		Capacitance change 靜電容量變化率	B: Within ±10 % 以內 E: Within ±20 % 以內	
		Dissipation factor (tan δ)	B, E: 5.0 % or less 以下	
		Insulation resistance 絕緣阻抗	500 MΩ or more 以上	

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Table-1 Continue

No. 編碼	Items 項 目		Performance 性 能	Test method 試驗方法
15	High temperature loading 高溫負荷	Appearance 外觀	No marked defect 無明顯異常	Test temperature : 125±3 ℃ Test time: 1,000+24,-0 hours 4000V DC applied. Capacitors shall be measured after leaving it under room temperature for 1 to 2 hours. Initial: pre-heat 125±2℃, 1h, leaving room temp. for 24±2h After test: leaving room temp. for 24±2h. Charge and discharge current shall be 50mA or less. 於 125±3℃的恒溫恒濕的環境中放置 1,000+24, -0 小時。放置期間連續印加 4000V DC 電壓。在室溫下放置 1～2 小時后再測定。 初期：125±2℃條件下熱處理 1 小時，于標準狀態下放置 24±2 小時后測定。 試驗后：在標準狀態下放置 24±2 小時后測定。 充放電流限制在 50mA 以下。
		Capacitance change 靜電容量變化率	B: Within ±10 % 以內 E: Within ±20 % 以內	
		Dissipation factor (tan δ)	B, E: 4.0 % or less 以下	
		Insulation resistance 絕緣阻抗	2000 MΩ or more 以上	

7． Safety performance 安全性能

The safety performance shall comply with the following.

滿足下記安全性能。

BSI	BS EN 60065 BS EN 60384-14	(A) Humidity test	濕度試驗
SEMKO NEMKO DEMKO VDE SEV FIMKO	EN 60384-14	(B) Endurance test	耐久性試驗
		(C) Active flammability test	自燃性試驗
		(D) Passive flammability test	阻燃性試驗
UL	UL 60384-14		
CSA	CAN/CSA-E60384-14		

8．Marking　記號

Marking on the two sides　雙面記號。

(1) Type 類型　：　CD

(2) Rated capacitance tolerance　額定電壓及許容差

Example 例)　3300 pF : 332

±20 %　: M

(3) Rated voltage 額定電壓 250V AC : 250V～

(4) Subclass 副級　X1 & Y1 : X1Y1

(5) Manufacturer’s trade mark :

製造工廠（工廠代表圖）

	Taiwan　台灣
	Xiamen　厦門

(6) Date code : 8 3　※ Note-1 注-1

(7) Approved monogram 認定規格　: Table-2

(8) Marking position of safety standard monogram is only your reference.

安全規格字母代表位置僅供參考。

※Note-1 注-1 Date code 製造年月記號

8 3

Last digit of era 陽曆末尾

Month　月

Jan.　1 月･･･1
Feb.　2 月･･･2
Mar.　3 月･･･3
Sep.　9 月･･･9
Oct.　10 月･･･O
Nov.　11 月･･･N
Dec.　12 月･･･D

Table-2

BSI	SEMKO	VDE	UL	CQC

【Example 例】

Front 正面	Back 反面
CD332M 250～X1Y1 Data code	

製造年月

※Note-2 : Mark color 記號顏色: Black or nearly color 黑色或與黑色相近顏色。

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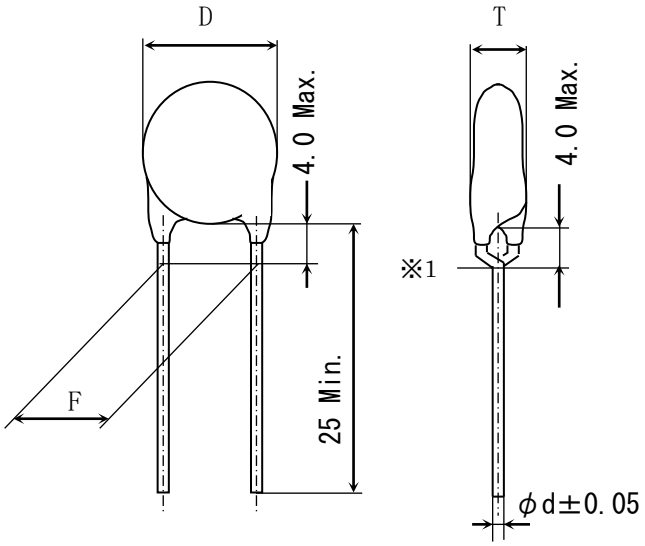
9. Figure & dimension　形狀及尺寸

9.1 Vertical kink long lead (Lead style: G / Bulk)

側彎長導線形（記號: G / 散裝品）

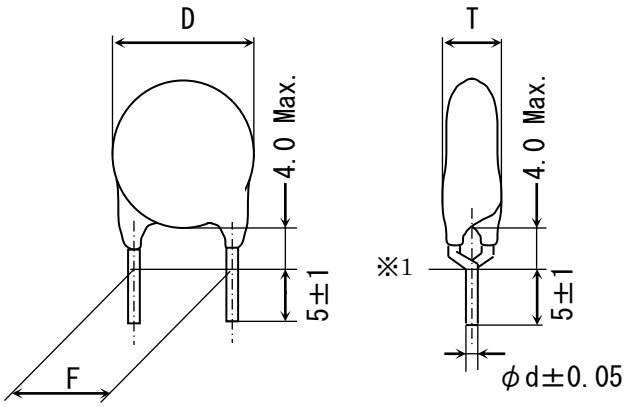
At Table-4 / Page-13
請參照 13 頁 / 表-4。



9.2 Vertical kink short lead (Lead style: N / Bulk)

側彎短導線形(記號:N / 散裝品)

At Table-5 / Page-13
請參照 13 頁 / 表-5。

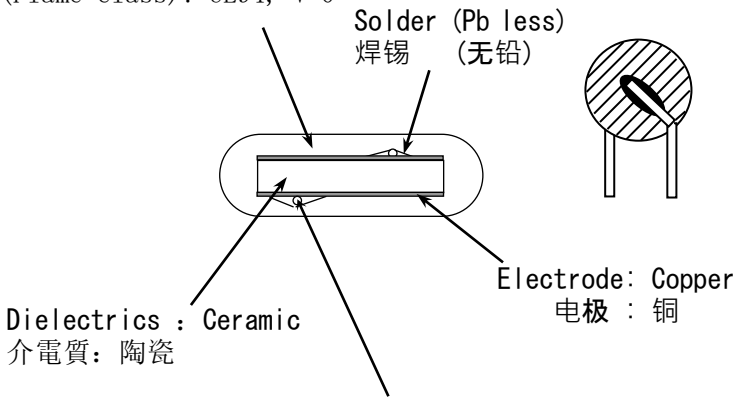


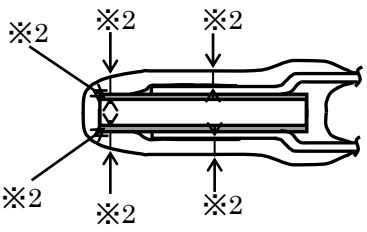
※1 Coating on lead shall not extend beyond the bottom of vertical kink.
P長(塗料付著長度)不可超出成形部位根部。

Unit : mm
單位

Coating material: Epoxy resin (Color: Blue)
絕緣塗料: 環氧樹脂（藍色）
(Flame class): UL94, V-0

※2 Coating thickness is 0.4mm Min. from the live part.
單邊膜厚 0.4 mm以上





Lead wire: CP wire (Tin plated copper covers steel wire, Pb less)
導線:CP 線 （無鉛鍍錫銅包鋼線）

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9.3 Vertical kink long lead (lead style: V / Taping)

側彎長導線形（记号：V / 编带品）

（F=10.0mm, Pitch: 15.0mm, Shape: A, at table-6 / Page-14
導線間距 F=10.0mm，製品間距 P=15.0mm, 形狀圖 A， 參照 14 頁 / 表-6）

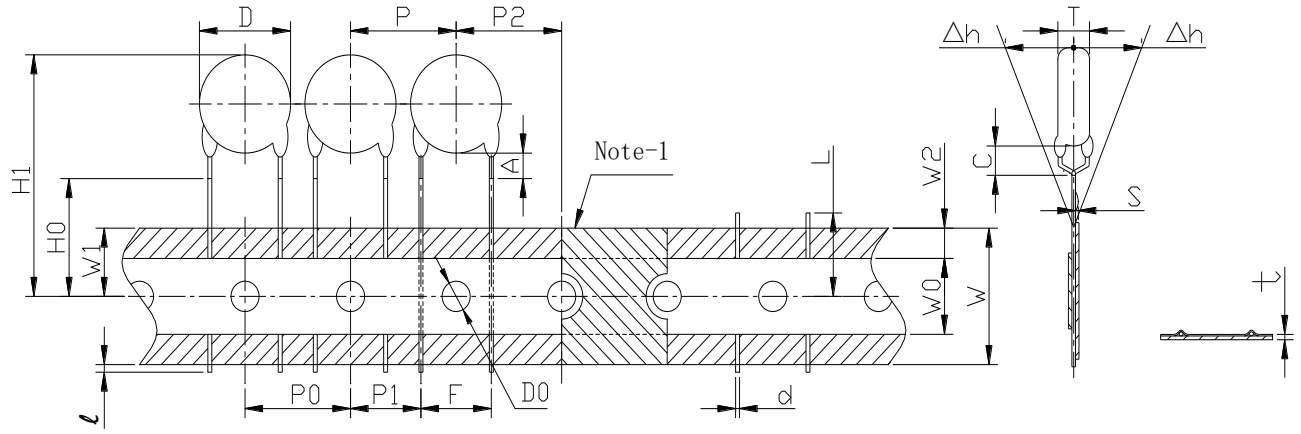

Table-3 表-3 Unit: mm

Item 項目 / Name 名稱	Symbol 記 号	Dimension 尺 寸	Remarks 備 註
Body diameter 製品直徑	D	Table-6	
Body thickness 製品厚度	T	Table-6	
Lead-wire diameter 導線直徑	φd	0.6±0.05	
Pitch of component 製品間距	P	15.0±1.0	Including the slant of body 含製品傾斜部份
Feed hole pitch 驅動孔間距	P_0	15.0±0.3	Excepting the tape splicing part 不包括接頭部份
Feed hole center to lead 驅動孔位置偏移	P_1	10.0±0.7	
Feed hole center to component center 驅動孔位置偏移	P_2	15.0±1.3	Including the slanting body due to bending lead-wire 含由導線彎曲引起的偏移部分
Lead-to lead distance 導線間隔	F	10.0 ±1.0	Measuring point is bottom kink 從彎腳底部開始測定
Component alignment, F-R 製品傾斜	△h	0 ±2.0	Including the slanting body due to bending lead-wire 含由導線彎曲引起的偏移部分
Tape width 臺紙寬度	W	$18.0 \pm^{1.0}_{0.5}$	
Adhesive tape width 粘著膠帶寬度	W_0	10.0 Min.	
Hole position 驅動孔位置偏移	W_1	9.0 ±0.5	
Adhesive tape position 黏著膠帶偏移	W_2	4.0 Max.	Adhesive tape do not stick out the tape 膠帶不可超出紙帶之外
Bottom of kink from tape center 彎腳底部到驅動孔中心	H_0	$16.0 \pm^{1.5}_{0.5}$	
Height of body from tape center 製品高度	H_1	46.0 Max.	
Lead-wire protrusion 導線尾端長度	ℓ	1.0 Max.	
Feed hole diameter 驅動孔直徑	D_0	4.0 ±0.2	
Total tape thickness 臺紙厚度	t	0.6 ±0.3	Including adhesive tape 含膠帶
Length of snipped lead 不良品切斷位置	L	11.0 Max.	
Coating on lead 塗料附著長度	C	4.0 Max.	
Height of kink 成形部位高度	A	4.0 Max.	Measuring point is bottom of kink 從彎腳底部開始測定
Spring action 導線彈性彎曲	S	2.0 Max.	

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9.4 Vertical kink long lead (lead style: V / Taping)

側彎長導線形（记号：V / 编带品）

〔 F=10.0mm, Pitch: 25.4mm, Shape: B, at table-6 / Page-14
導線間距 F=10.0mm，製品間距 P=25.4mm, 形狀圖 B, 參照 14 頁 / 表-6 〕

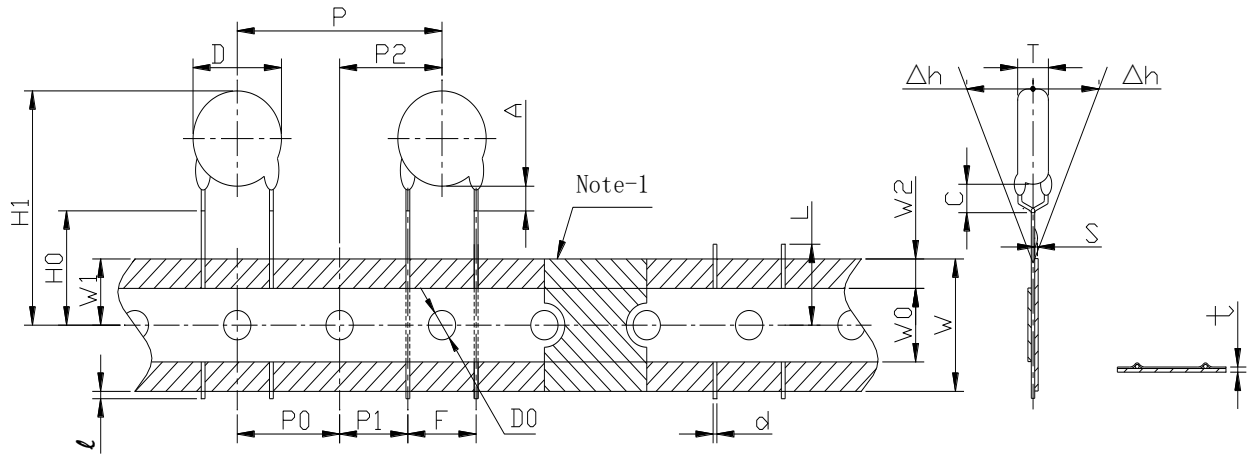

Table-3 Continue 表-3(續) Unit: mm

Item 項目 / Name 名稱	Symbol 記 号	Dimension 尺 寸	Remarks 備 註
Body diameter 製品直徑	D	Table-6	
Body thickness 製品厚度	T	Table-6	
Lead-wire diameter 導線直徑	Φd	0.6±0.05	
Pitch of component 製品間距	P	25.4±1.0	Including the slant of body 含製品傾斜部份
Feed hole pitch 驅動孔間距	P_0	12.7±0.3	Excepting the tape splicing part 不包括接頭部份
Feed hole center to lead 驅動孔位置偏移	P_1	7.7±0.7	
Feed hole center to component center 驅動孔位置偏移	P_2	12.7±1.3	Including the slanting body due to bending lead-wire 含由導線彎曲引起的偏移部分
Lead-to lead distance 導線間隔	F	10.0 ±1.0	Measuring point is bottom kink 從彎腳底部開始測定
Component alignment, F-R 製品傾斜	△h	0 ±2.0	Including the slanting body due to bending lead-wire 含由導線彎曲引起的偏移部分
Tape width 臺紙寬度	W	$18.0 \pm^{1.0}_{0.5}$	
Adhesive tape width 粘著膠帶寬度	W_0	10.0 Min.	
Hole position 驅動孔位置偏移	W_1	9.0 ±0.5	
Adhesive tape position 黏著膠帶偏移	W_2	4.0 Max.	Adhesive tape do not stick out the tape 膠帶不可超出紙帶之外
Bottom of kink from tape center 彎腳底部到驅動孔中心	H_0	$16.0 \pm^{1.5}_{0.5}$	
Height of body from tape center 製品高度	H_1	46.0 Max.	
Lead-wire protrusion 導線尾端長度	ℓ	1.0 Max.	
Feed hole diameter 驅動孔直徑	D_0	4.0 ±0.2	
Total tape thickness 臺紙厚度	t	0.6 ±0.3	Including adhesive tape 含膠帶
Length of snipped lead 不良品切斷位置	L	11.0 Max.	
Coating on lead 塗料附著長度	C	4.0 Max.	
Height of kink 成形部位高度	A	4.0 Max.	Measuring point is bottom of kink 從彎腳底部開始測定
Spring action 導線彈性彎曲	S	2.0 Max.	

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Note-1 Use the gummed tape to connect two ends of broken tape.
臺紙切斷位置用膠帶接合。

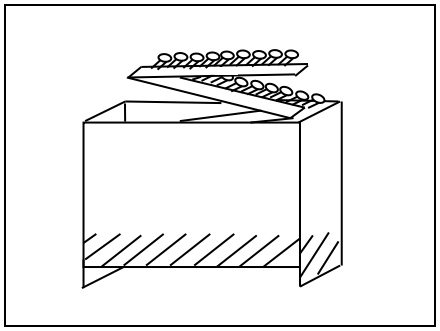
Note-2 Dropouts of parts shall be limited to no more than three consecutive parts.
制品在臺紙上的空缺不超過連續 3 個（≤3）。

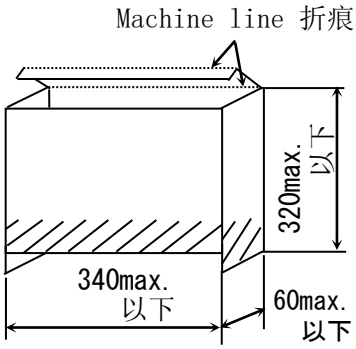
Note-3 Packaging method and dimensions see below.
包裝形態及規格如下圖。

Note-4 Quantity 包裝數量

Pitch: 15.0mm 製品間距	1000 pcs / Box. 1000 個 / 箱
Pitch: 25.4mm 製品間距	500 pcs / Box. 500 個 / 箱

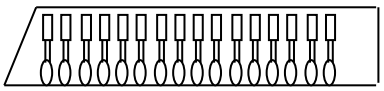
Packaging : Ammo pack
包裝方法 編帶折疊





Unit:mm
單位

Note-5 Package of shipment
放置形態



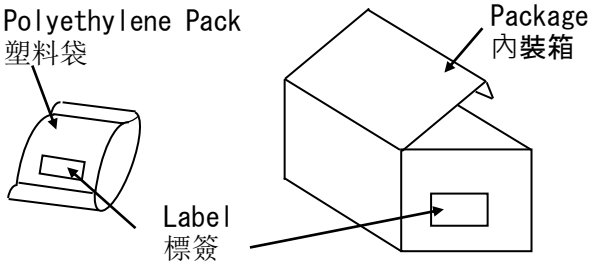
Capacitors pack in downward
製品朝下放入包裝箱

10. Label and transport 標簽及運輸

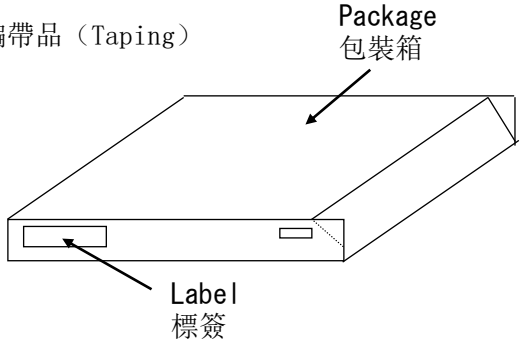
Capacitors shall be packaged prior to shipment so as to prevent damage during transportation and storage. Sipping carton contains the following information on the label.
使用確保製品在運輸及保管中免受損傷的出貨包裝方式。
包裝箱加貼包含如下內容的標簽。

a) TDK item name 製品名稱
b) Quantity 數量
c) TDK inspection number 出貨檢查編號
d) Manufacturer’s name 製造商名
e) Country of origin 原產國

散裝品（Bulk）



編帶品（Taping）



11. Notification before the modification 變更事前聯絡

We’ll previously notify the modified place of manufacture, manufactured articles and materials.
製造場所、製造方法及材料變更時，事先聯絡，告知變更。

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TDK

Type 系列　　: CD
T.C　温度特性 : B,E

Vertical kink long lead (lead style: G / Bulk)
側彎長導線形(記號: G / 單品)

Table-4　表-4

Your part No. 客戶料號	TDK part No. TDK 品名	T.C. 溫度 特性	Cap. 公稱靜 電容量	C-Tol. 靜電容量 許容差	Dimension 尺寸 (Unit : mm 單位)			
					D Max.	T Max.	F	Φd
	CD70-B2GA101KYGSA	B	100 pF	±10 %	7.0	7.0	10+2/-1	0.6
	CD70-B2GA151KYGSA	B	150 pF	±10 %	7.0	7.0	10+2/-1	0.6
	CD85-B2GA221KYGSA	B	220 pF	±10 %	8.5	7.0	10+2/-1	0.6
	CD90-B2GA331KYGSA	B	330 pF	±10 %	9.0	7.0	10+2/-1	0.6
	CD95-B2GA471KYGSA	B	470 pF	±10 %	9.5	7.0	10+2/-1	0.6
	CD75-E2GA681MYGSA	E	680 pF	±20 %	7.5	7.0	10+2/-1	0.6
	CD85-E2GA102MYGSA	E	1000 pF	±20 %	8.5	7.0	10+2/-1	0.6
	CD10-E2GA152MYGSA	E	1500 pF	±20 %	10.0	7.0	10+2/-1	0.6
	CD12-E2GA222MYGSA	E	2200 pF	±20 %	11.5	7.0	10+2/-1	0.6
	CD14-E2GA332MYGSA	E	3300 pF	±20 %	13.5	7.0	10+2/-1	0.6
	CD16-E2GA472MYGSA	E	4700 pF	±20 %	15.5	7.0	10+2/-1	0.6

Vertical kink short lead (lead style: N / Bulk)
側彎短導線形(記號: N / 單品)

Table-5　表-5

Your part No. 客戶料號	TDK part No. TDK 品名	T.C. 溫度 特性	Cap. 公稱靜 電容量	C-Tol. 靜電容量 許容差	Dimension 尺寸 (Unit : mm 單位)			
					D Max.	T Max.	F	Φd
	CD70-B2GA101KYNSA	B	100 pF	±10 %	7.0	7.0	10+2/-1	0.6
	CD70-B2GA151KYNSA	B	150 pF	±10 %	7.0	7.0	10+2/-1	0.6
	CD85-B2GA221KYNSA	B	220 pF	±10 %	8.5	7.0	10+2/-1	0.6
	CD90-B2GA331KYNSA	B	330 pF	±10 %	9.0	7.0	10+2/-1	0.6
	CD95-B2GA471KYNSA	B	470 pF	±10 %	9.5	7.0	10+2/-1	0.6
	CD75-E2GA681MYNSA	E	680 pF	±20 %	7.5	7.0	10+2/-1	0.6
	CD85-E2GA102MYNSA	E	1000 pF	±20 %	8.5	7.0	10+2/-1	0.6
	CD10-E2GA152MYNSA	E	1500 pF	±20 %	10.0	7.0	10+2/-1	0.6
	CD12-E2GA222MYNSA	E	2200 pF	±20 %	11.5	7.0	10+2/-1	0.6
	CD14-E2GA332MYNSA	E	3300 pF	±20 %	13.5	7.0	10+2/-1	0.6
	CD16-E2GA472MYNSA	E	4700 pF	±20 %	15.5	7.0	10+2/-1	0.6

Type 系列　　: CD
T.C 溫度特性 : B, E

Vertical kink long lead(lead style: V / Taping)
側彎長導線形(記號: V / 編帶品)

Table-6　表-6

Your part No. 客戶料號	TDK part No. TDK 品名	T.C. 溫度特性	Cap. 公稱靜電容量	C-Tol. 靜電容量許容差	Dimension 尺寸 (Unit : mm) 單位				Shape 形狀圖
					D Max.	T Max.	F	Φd	
	CD70-B2GA101KYVSA	B	100 pF	±10 %	7.0	7.0	10±1	0.6	A
	CD70-B2GA151KYVSA	B	150 pF	±10 %	7.0	7.0	10±1	0.6	A
	CD85-B2GA221KYVSA	B	220 pF	±10 %	8.5	7.0	10±1	0.6	A
	CD90-B2GA331KYVSA	B	330 pF	±10 %	9.0	7.0	10±1	0.6	A
	CD95-B2GA471KYVSA	B	470 pF	±10 %	9.5	7.0	10±1	0.6	A
	CD75-E2GA681MYVSA	E	680 pF	±20 %	7.5	7.0	10±1	0.6	A
	CD85-E2GA102MYVSA	E	1000 pF	±20 %	8.5	7.0	10±1	0.6	A
	CD10-E2GA152MYVSA	E	1500 pF	±20 %	10.0	7.0	10±1	0.6	A
	CD12-E2GA222MYVSA	E	2200 pF	±20 %	11.5	7.0	10±1	0.6	A
	CD14-E2GA332MYVSA	E	3300 pF	±20 %	13.5	7.0	10±1	0.6	B
	CD16-E2GA472MYVSA	E	4700 pF	±20 %	15.5	7.0	10±1	0.6	B

Flow soldering recommended condition 波峰焊建議使用條件

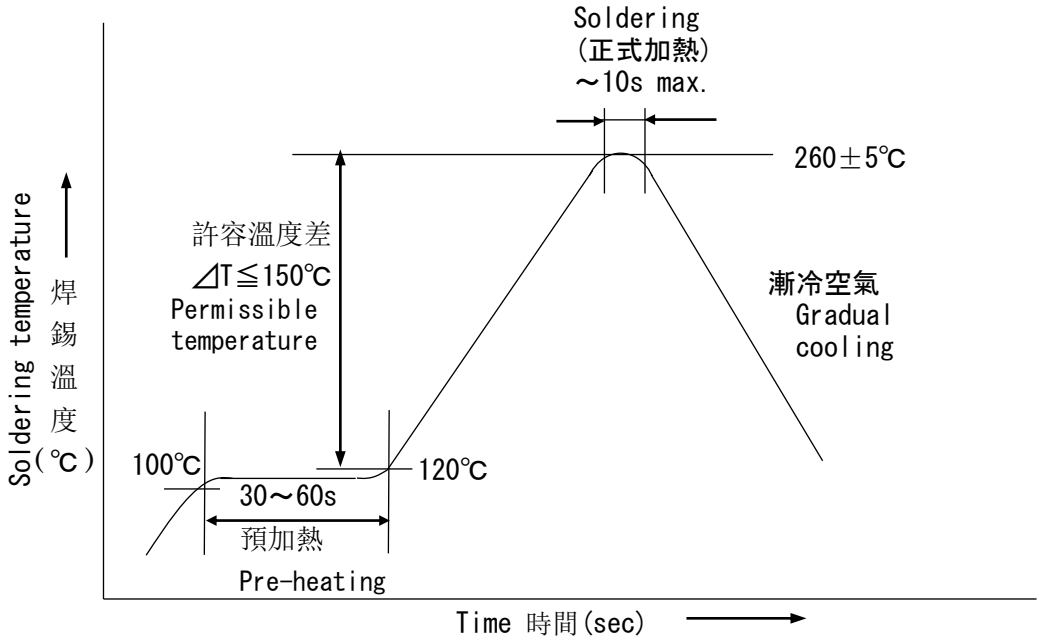

Fig.-1 圖-1

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单击下面可查看定价，库存，交付和生命周期等信息

>>TDK Corporation(东电化)