

1. 適用範圍 / SCOPE

此份規格書涵蓋 STEJ-series 金屬陶瓷跳線電阻元件相關規格。
This specification covers STEJ-series, which are Metal Foil Jumper Resistor.

2. 產品型號 / TYPE NUMBER

STEJ	0603/0805/1206/2010/2512
(1)	

(1) 產品系列號 / SERIES NUMBER : Ex.STEJ0805 = 短電極 / short electrode ; 兩端子 / two terminal ; 有側導 / side electrode ; 跳线电阻 / Jumper Resistor ; 尺寸 / size “0.08×0.05”

3. 產品尺寸 / PRODUCT DIMENSIONS

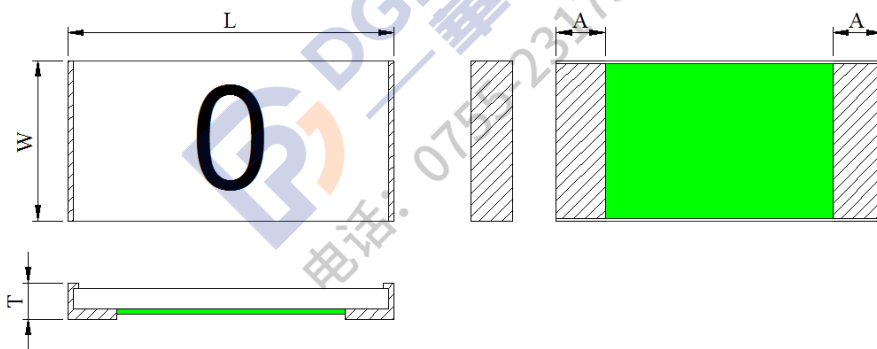


圖 1 / Fig.1

Unit(mm)

Part Number	W	L	T	A
STEJ0603	0.80±0.10	1.55±0.10	0.55±0.10	0.35±0.20
STEJ0805	1.35±0.15	2.10±0.15	0.70±0.10	0.55±0.20
STEJ1206	1.55±0.10	3.10±0.20	0.70±0.10	0.80±0.20
STEJ2010	2.54±0.25	5.08±0.25	0.65±0.20	2.10±0.30
STEJ2512	3.20±0.30	6.40±0.30	0.65±0.20	0.95±0.30

4. 產品結構及使用材料說明 (參考圖 2) / STRUCTURE & MATERIAL (Ref to Fig.2)

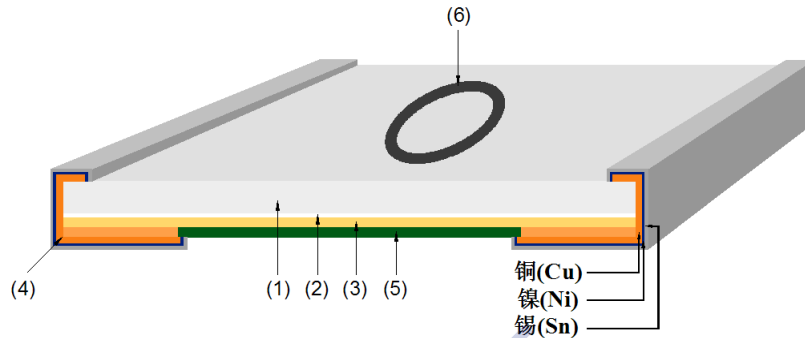


圖 2 / Fig.2

- 4.1 基板 / Substrate(1) : 氧化鋁陶瓷基板 / Alumina Ceramic
- 4.2 粘著層 / Adhesion layer(2) : 環氧樹脂 / Epoxy
- 4.3 電阻本體 / Resistive element(3) : 純銅 / Cu
- 4.4 端電極 / Terminal electrode(4) : 錫、鎳、銅 / Sn、Ni、Cu
- 4.5 保護防焊層 / Protective coating(5) : 防火級環氧樹脂,符合 UL- 94-V0 要求(綠色) / Flame-retardant epoxy, meets UL- 94-V0 requirements(green)
- 4.6 文印防焊層 / Marking coating(6) : 防火級環氧樹脂,符合 UL- 94-V0 要求(黑色) / Flame-retardant epoxy, meets UL- 94-V0 requirements (black)

5. 電氣特性 / ELECTRICAL CHARACTERISTICS

Part Number	Rmax (mΩ)	I _{max} (A)	R _i (MΩ)	T _a (°C)
STEJ0603	0.5	22.4	>100	70
STEJ0805	0.5	31.6	>100	70
STEJ1206	0.5	38.7	>100	70
STEJ2010	0.2	70.7	>100	70
STEJ2512	0.5	63.2	>100	70

實際使用 I_{max} 依據焊墊設計決定 / Practiced I_{max} is based on pad layout

5.1 R_{max} : 元件在室溫下的最大電阻值 / Device maximum resistance

5.2 I_{max} : 元件在 70°C 下的最大工作電流 / Max. Current allowed in circuit at 70°C

5.3 R_i : 防焊層與電阻本體間的絕緣電阻 / Insulation resistance between protective layer and resistive element

5.4 T_a : 額定周圍環境溫度 / Rated ambient temperature

6. 產品特性及信賴性測試規範 / PRODUCT CHARACTERISTICS AND RELIABILITY TEST STANDARD

測試方法 Parameter	條件 Conditions	允收標準 Requirements
瞬間過載測試 / Short Time Over Load	$P = 2.5P_r$; $T = 25 \pm 2^\circ\text{C}$, $t = 5\text{sec}$. For 2010 $I = 2.5I_{\text{max}}$; For 0603/0805/1206/2512	$< R_{\text{max}}$
高溫測試 / High Temp. Exposure	$T = +155 \pm 2^\circ\text{C}$; $t = 1000\text{h}$	$< R_{\text{max}}$
低溫測試 / Low Temp. Storage	$T = -55 \pm 2^\circ\text{C}$; $t = 1000\text{h}$	$< R_{\text{max}}$
濕度負載壽命測試 / Moisture Load Life (60°C 、 $95\%RH$)	$V_{\text{test}} = V_{\text{max}}$; $T = 40 \pm 2^\circ\text{C}$; $RH = 90 \sim 95\%$; $t = 90\text{min ON}$, 30min OFF , 1000h	$< R_{\text{max}}$
冷熱衝擊測試 / Thermal Shock	$[-55^\circ\text{C } 30\text{min.} \rightarrow \text{R.T. } 3\text{min.} \rightarrow +155^\circ\text{C } 30\text{min.}$ $\rightarrow \text{R.T. } 3\text{min.}]$, 100 個連續循環 / 100Cycles	$< R_{\text{max}}$
在 70°C 下負載壽命測試 / Load Life at 70°C	$V_{\text{test}} = V_{\text{max}}$; $T = 70 \pm 2^\circ\text{C}$; $t = 90\text{min ON}$, 30min OFF , 1000h	$< R_{\text{max}}$
可焊性測試 / Solderability	浸入錫爐 / Dip into solder at $T = 245 \pm 5^\circ\text{C}$, $t = 3 \pm 0.5\text{sec}$.	錫涵蓋面積 / The covered area $> 95\%$ IEC60115-1 4.17
抗焊熱性測試 / Resistance to Solder Heat	浸入錫爐 / Dip into solder at $T = 260 \pm 5^\circ\text{C}$, $t = 10 \pm 1\text{sec}$.	$< R_{\text{max}}$
機械衝擊測試 / Mechanical Shock	加速度 $a = 50G$, 振幅時間 $t = 11\text{ms}$, 5 個衝擊 $a = 50G$, $t = 11\text{ms}$, 5 times shock	$< R_{\text{max}}$
基板彎曲測試 / Substrate Bending	兩支撐點間距 / Span between fulcrums : 90mm ; 振幅 / Bend Width: 2mm ; 測試板 / Test board: 玻璃纖維板 / Glass-Epoxy Board ; 厚度 / Thickness : 1.6mm	$< R_{\text{max}}$

7. 環境特性 / ENVIRONMENTAL CHARACTERISTIC

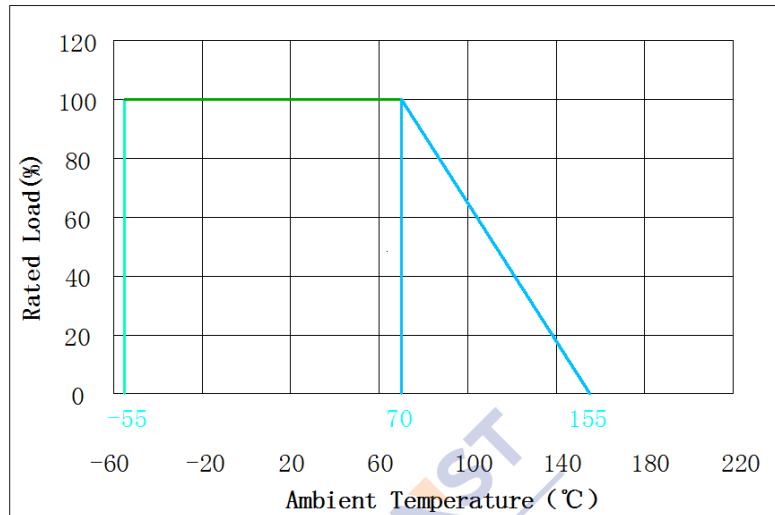
7.1 操作溫度範圍: $-55^\circ\text{C} \sim 155^\circ\text{C}$ / Operating Temperature: $-55^\circ\text{C} \sim 155^\circ\text{C}$

額定功率溫度衰變曲線 / Typical Thermal Derating Curve

額定功率乃指於 70°C 以內可連續滿額功率使用的術語。

下圖為當操作溫度高於 70°C 時的可使用功率衰減曲線。

Power rating is based on continuous full load operation at rated ambient temperature of 70°C . For resistors operated at ambient temp. in excess of 70°C , the max. load shall be derated in accordance with the following curve.



7.2 存儲條件 / STORAGE CONDITIONS

在溫度+10°C ~ 40°C、相對濕度 ≤ 75% 的密閉條件下可存放2年。 /

Under airtight in temperature +10°C ~ 40°C、relative humidity ≤ 75% can store 2 years.

在溫度+10°C ~ 60°C、相對濕度為95%的非露天下最多可存放30天。 /

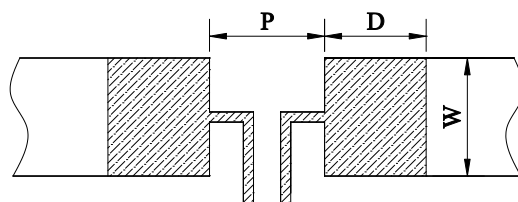
Without dew in temperature +10°C ~ 60°C、relative humidity be 95% maximum value for 30days.

8. 焊錫墊尺寸及焊接條件 / SOLDER PAD SIZE AND WELDING CONDITIONS

8.1 建議如下圖焊接方式焊接，並滿足所要求的尺寸。 / Propose that the following picture installation way is installed, and satisfied the required size.

Part Number	P	W	D	Loading
STEJ0603	0.60mm	0.92mm	1.30mm	0.25w
STEJ0805	0.80mm	1.44mm	1.40mm	0.50w
STEJ1206	1.20mm	1.84mm	1.80mm	0.75w
STEJ2010	0.70mm	2.88mm	3.65mm	1.00w
STEJ2512	3.80mm	3.40mm	2.10mm	2.00w

loading : 適用於本公司建議焊墊設計並使用於限定穩定電流下 /
suit for specific pad layout and specific steady current



8.2 建議客戶焊接參數 / Recommended Customer Soldering Parameters

8.2.1 回流焊溫度曲線 / Solder reflow Temperature condition (圖 3 / Fig.3)

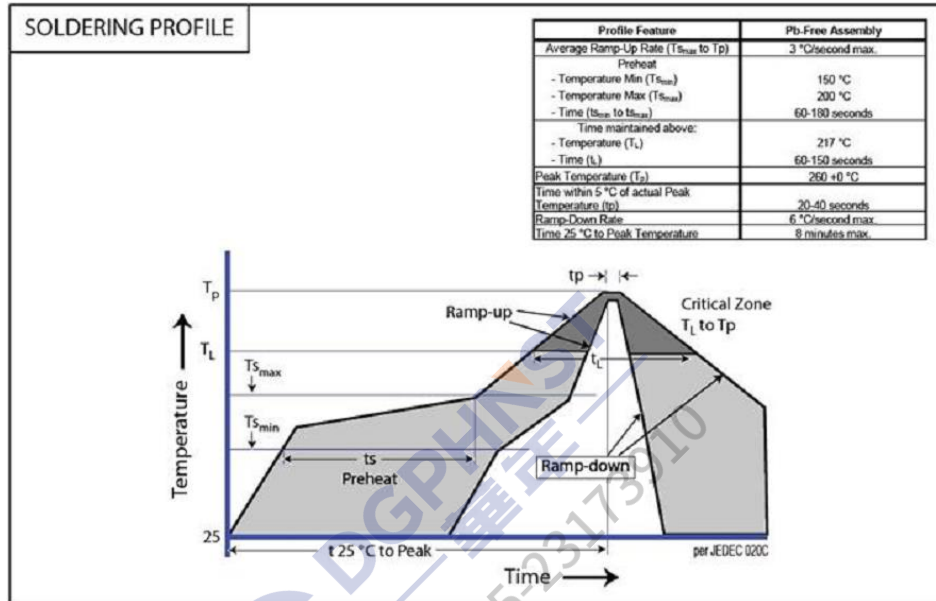


圖 3 / Fig.3

8.2.2 允許烙鐵焊接條件(熱風設備) / Rework temperature (hot air equipment) : 350°C, 3~5seconds

8.2.3 焊接方法建議 / Recommended reflow methods

焊接熱源方式可用紅外線, 熱蒸氣, 熱風. / IR, vapor phase oven, hot air oven

如果焊錫溫度超過允許最高溫度, 則產品本身會有功能損壞的疑慮. / If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

9. 批量生產後出貨測試項目 / Lot ACCEPTANCE TEST REQUIREMENTS

每一批生產均須作入庫檢驗, 每一批生產單量不可超過500Kpcs. /

Qualification shall consist of passing a program of following tests. Parts shall be pulled from each lot and maximum lot quantity shall be within 500Kpcs.

9.1 外觀 / Visual

方法 / Procedure : 利用放大鏡進行檢查 / Visual

標準 / Acceptance Criteria : 不能有髒汙、不潔、文印錯誤、破損等 / No parts are outstandingly stained

9.2 尺寸 / Dimensions

方法 / Procedure : 使用合適且經校正的尺規 / As appropriate, calipers, micrometers, optical comparator, or approved gages

標準 / Acceptance Criteria : 尺寸均在規定標準範圍內 / No parts outside specific dimensions

9.3 單體元件電阻(Ro) / Resistance (Ro)

方法 / Procedure : 在 25°C 下利用四線量測技術量測之 / Resistance shall be measured with 25 °C in the 4-wire resistance test

標準 / Acceptance Criteria : 電阻值均在規定標準範圍內 / The resistance of the test device shall be within the limits specified

9.4 電阻溫度係數 / TCR

方法 / Procedure : 利用四線法量測出元件分別在 25°C 及 125°C 下的電阻值, 並將其帶入下面公式中即可得出 TCR 值 / Getting the sampling device resistance values measured in 25°C and 125°C and put them in to the following equation to calculate the TCR

標準 / Acceptance Criteria : 溫度係數值均在規定標準範圍內 / All parts must within the specific $TCR = (R_b - R_a) / R_a \times 1 / (T_b - T_a) \times 10^6$

9.5 絕緣電阻 / Insulation resistance (Ri)

方法 / Procedure : 利用絕緣測試儀量測 / Resistance between protective layer and resistive shall be measured by high ohm meter

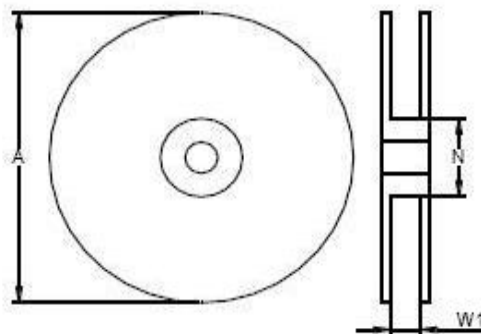
標準 / Acceptance Criteria : 防焊層與電阻本體絕緣電阻至少高於 100MΩ / The resistance of the test device shall over 100MΩ

10. 包裝訊息 / PACKAGING INFORMATION

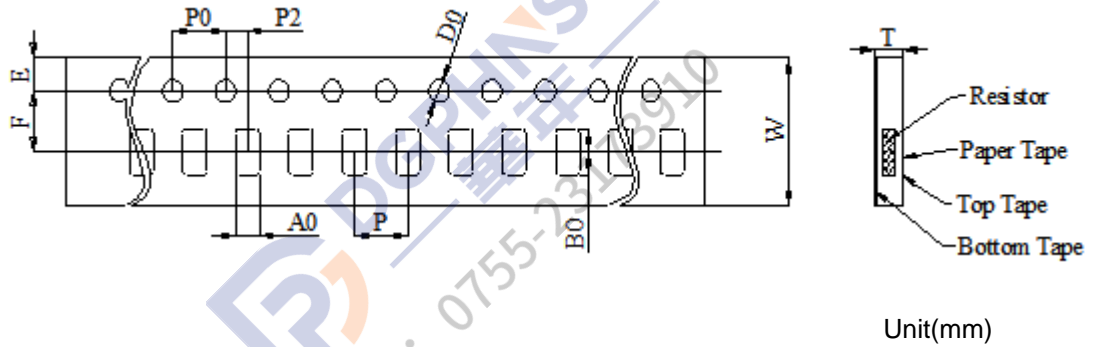
10.1 包裝數量、重量 / QUANTITY & WEIGHT

型號 / Type Number	數量 / Quantity (pcs)	重量 / Weight (g)
STEJ0603	5,000	130±30
STEJ0805	5,000	150±30
STEJ1206	5,000	160±40
STEJ2010	4,000	210±40
STEJ2512	4,000	270±50

10.2 捲輪規格 / Reel & Tape specifications



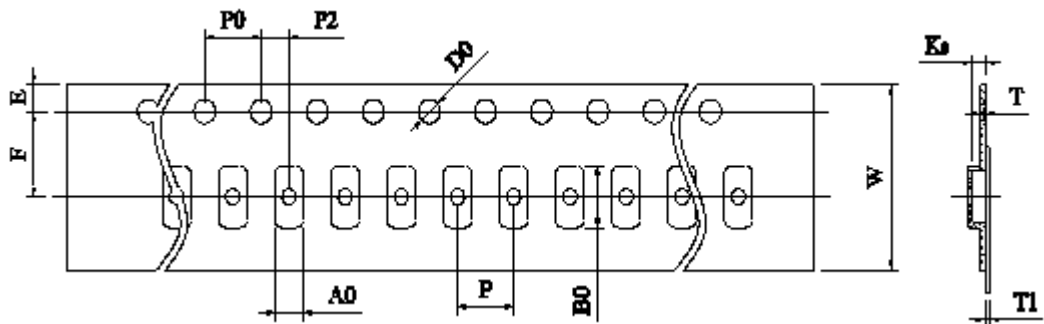
型號 / Type Number	A±5 (mm)	N±2 (mm)	W1±1 (mm)
STEJ0603	178	60	9.0
STEJ0805	178	60	9.0
STEJ1206	178	60	9.0
STEJ2010	178	60	13
STEJ2512	178	60	13



STEJ0603							
W	8.00 ± 0.30	P0	4.00 ± 0.10	P	4.00 ± 0.10	P2	2.00 ± 0.10
A0	1.10 ± 0.10	B0	1.90 ± 0.10	D0	1.50 ± 0.10	F	3.50 ± 0.10
E	1.75 ± 0.10	T	0.75 ± 0.10	/	/	/	/

STEJ0805							
W	8.00 ± 0.30	P0	4.00 ± 0.10	P	4.00 ± 0.10	P2	2.00 ± 0.10
A0	1.55 ± 0.10	B0	2.30 ± 0.10	D0	1.50 ± 0.10	F	3.50 ± 0.10
E	1.75 ± 0.10	T	0.87 ± 0.10	/	/	/	/

STEJ1206							
W	8.00 ± 0.30	P0	4.00 ± 0.10	P	4.00 ± 0.10	P2	2.00 ± 0.10
A0	2.05 ± 0.20	B0	3.65 ± 0.20	D0	1.50 ± 0.10	F	3.50 ± 0.10
E	1.75 ± 0.10	T	0.87 ± 0.10	/	/	/	/



Unit(mm)

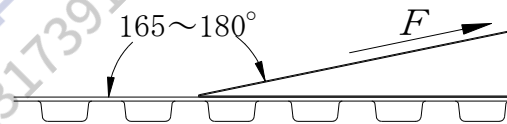
STEJ2010							
W	12.00 ± 0.30	P0	4.00 ± 0.10	P	4.00 ± 0.10	P2	2.00 ± 0.10
A0	2.85 ± 0.20	B0	5.45 ± 0.20	D0	1.50 ± 0.10	F	5.50 ± 0.10
E	1.75 ± 0.10	T	0.25 ± 0.10	T1	Max. 0.1	K0	0.80 ± 0.20

STEJ2512							
W	12.00 ± 0.30	P0	4.00 ± 0.10	P	4.00 ± 0.10	P2	2.00 ± 0.10
A0	3.40 ± 0.20	B0	6.75 ± 0.20	D0	1.50 ± 0.10	F	5.50 ± 0.10
E	1.75 ± 0.10	T	0.25 ± 0.10	T1	Max. 0.1	K0	1.00 ± 0.20

10.3 密封膠膜剝離強度要求 / Peeling Strength of Seal Tape

F = 剝離強度 : 0.1 – 1.0N (10 - 100gf)

F = Peeling Strength: 0.1 – 1.0N (10 - 100gf)



11. 其他 / OTHERS

11.1 如果在使用中有超出本規格書的要求，必須經由雙方協商確認。 / In the event that an impropriety is found beyond this specification , it shall be fixed by mutual agreement between the parties.

11.2 如果本規格書有不適當的情況，必須通過雙方協商並由本公司修改。 / In the event that an impropriety is found in this specification , Juneway Electronic Technology Co., Ltd. shall amend it by mutual agreement between the parties.