


1. 適用範圍 / SCOPE

此份規格书仅涵盖1206HC系列产品.

This specification covers 1206HC series devices, which is SMD Fuse.

2. 產品編碼 / Part Numbering

例「example」：

| | | | |
|--------|-----|-----|---|
| 1206HC | **A | **V |  |
| (1) | (2) | (3) | (4) |

- (1) 系列號/Series Number
- (2) 額定電流/Rated Current
- (3) 額定電壓/Rated Voltage
- (4) 認證符號/Approved Symbol

(1) 系列號: 1206HC (尺寸:1206 = 0.12×0.06; 系列標識: HC = 高電流)

Series Number: 1206HC (Size: 1206 = 0.12×0.06; Series Mark: HC = High Current)

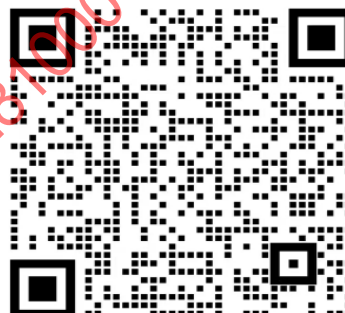
(2) 額定電流: (例如:25 A=25 安培)

Rating Current : (Ex. :25 A = 25 Ampere)

(3) 額定電壓: (例如:48 V=48 伏特)

Rating Voltage : (Ex. :48 V = 48 Volt)

安規認證 / Safety Approval



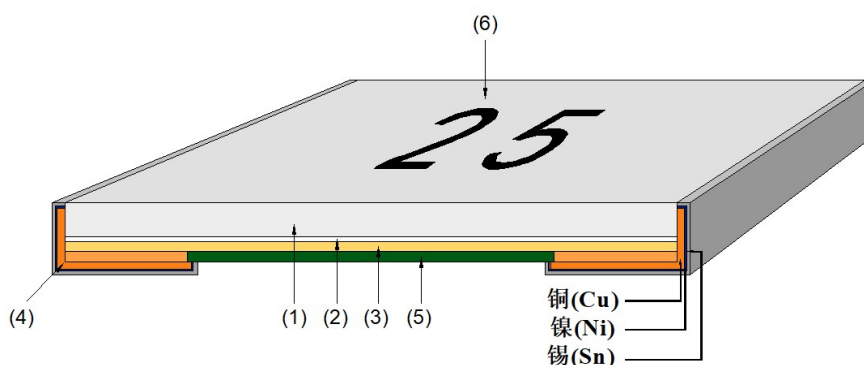
3. 產品尺寸和結構 / SIZE AND STRUCTURE

3.1 尺寸 (單位: mm) / SIZE (Unit: mm)



| 型號 / Type number | W | L | T | A |
|------------------|-----------|-----------|-----------|-----------|
| 1206HC **A **V | 1.70±0.30 | 3.30±0.30 | 0.82±0.20 | 0.64±0.28 |

3.2 產品結構及使用材料說明 / STRUCTURE & MATERIAL



| 編號 No. | 元件 Component | 材質 Material |
|-----------|-----------------------------|----------------------------------|
| (1) | 基板 Substrate | 氧化鋁陶瓷 Alumina Ceramic |
| (2) | 粘著層 Adhesion layer | 環氧樹脂 Epoxy |
| (3) | 熔絲本體 Fuse element | 銅合金/錫 Cu Alloy / Sn |
| (4) | 端電極 Terminal electrode | 銅/鎳/錫 Cu / Ni / Sn |
| (5) | 保護防焊層 Protective coating | 防火級環氧樹脂 Flame-retardant epoxy |
| (6) | 文印防焊層 Marking coating | 防火級環氧樹脂 Flame-retardant epoxy |

4.基本資訊/ ORDERING INFORMATION

| 型號 Type Number | 標示 Marking | 額定電流 Rated Current | 額定電壓 Rated Voltage | 阻值 Nominal Resistance | I^2t Nominal Melting I^2t (min.) |
|-------------------|---------------|-----------------------|-----------------------|--------------------------|--|
| | | (A) | (VDC) | (Ω) | (A^2s) |
| 1206HC 12A 35V | 12 | 12 | 35 | 0.00268 | 20.0 |
| 1206HC 15A 35V | 15 | 15 | 35 | 0.00205 | 35.0 |
| 1206HC 20A 48V | 20 | 20 | 48 | 0.00136 | 80.1 |
| 1206HC 25A 48V | 25 | 25 | 48 | 0.00106 | 89.0 |
| 1206HC 30A 48V | 30 | 30 | 48 | 0.00086 | 142.0 |
| 1206HC 40A 48V | 40 | 40 | 48 | 0.00068 | 240.0 |

說明/Notes :

- a. “一般電阻值”是在通以小於額定電流的 10%的弱電流條件下量測的阻抗。
Nominal Resistance measured with $<10\%$ rated current ;
- b. “一般 I^2t ”是指通以 10 倍額定電流動作過程所對應的 I^2t 。
Nominal Melting I^2t measured at 10 times of rated current.



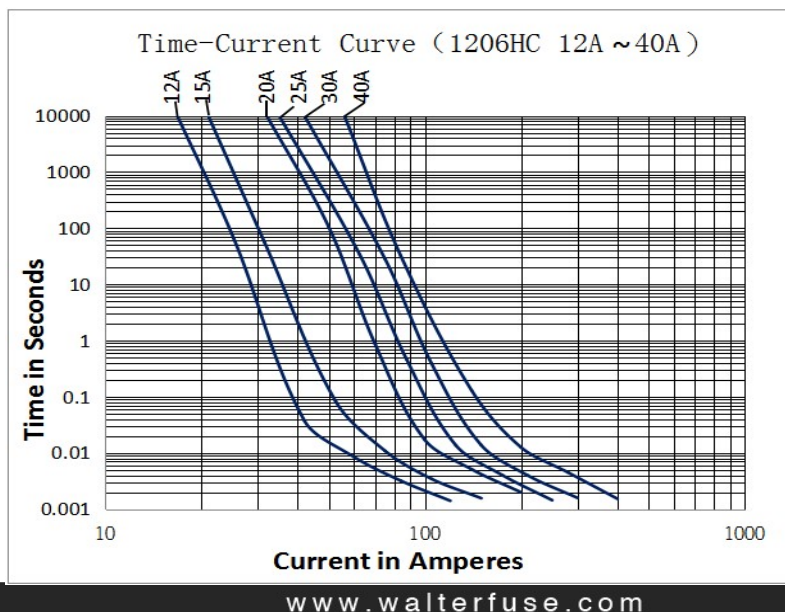
5.電氣特性 / ELECTRICAL CHARACTERISTICS

5.1 時間-電流特性/ Pre-Arcing Time-Current Characteristics (limits)

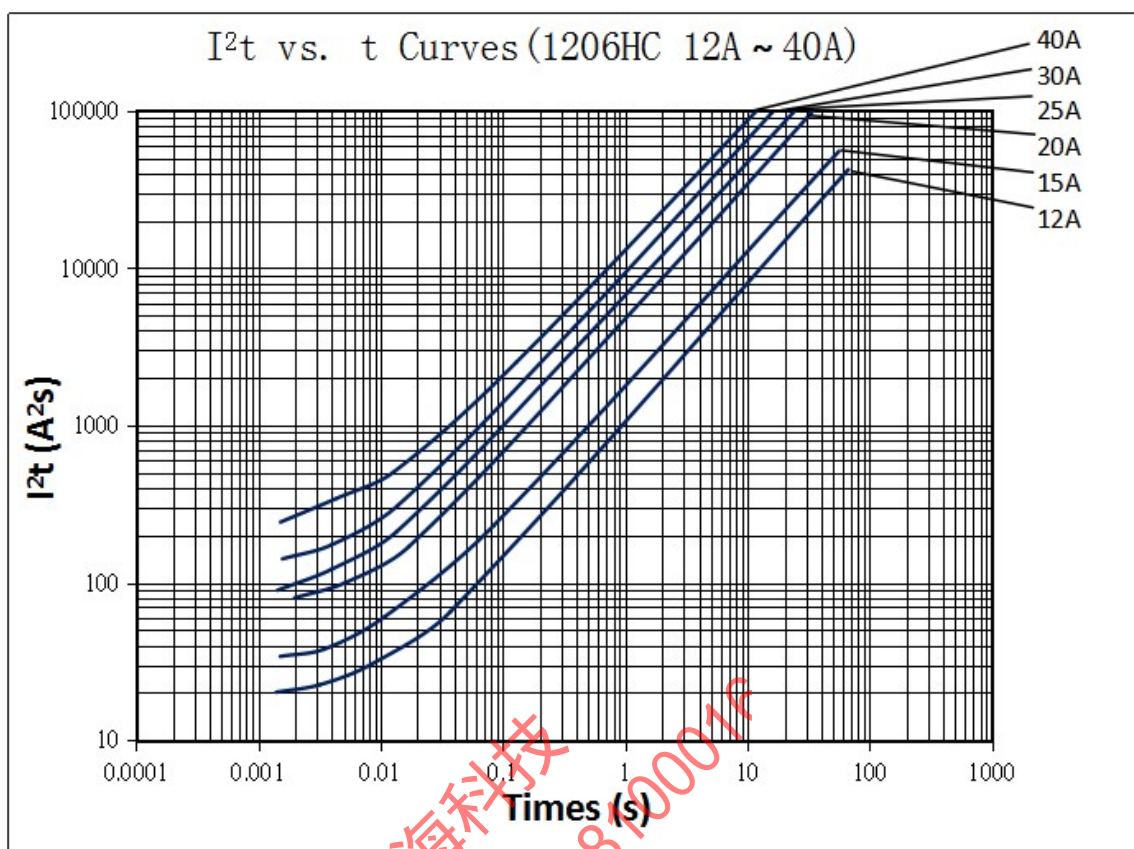
| 額定電流 RATED CURRENT | 1.0In | 3.5In |
|-----------------------|-----------|-----------|
| 12A ~ 40A | 4hrs min. | 5sec max. |

In : 25°C 下額定電流 / Rating Current at 25°C

時間-電流特性曲線 / Time-Current Curve:



5.2 I²t 曲線 / I²t Curve:



5.3 分斷能力 / Breaking Capacity

| 額定電流 RATED CURRENT | 分斷能力 BREAKING CAPACITY |
|-----------------------|---------------------------|
| 12A ~ 15A | V =35V DC ; I=150A |
| 20A ~ 40A | V =48V DC ; I=200A |

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

| 序號 No. | 項目 Item | 內容 Contain | 判定標準 Criteria |
|-----------|---|--|---|
| 1 | 時間/電流特性 Time/current characteristics | 12A ~ 40A,分別通以 1.0In、3.5In 電流, 得出相對應的時間 12A ~ 40A, I=1.0In、3.5In and measure the value of time individually by meter , | 各電流條件下的時間參數符合規定值 Value of time measured in different currents is within spec. UL248-1/-14 |
| 2 | 分斷能力測試 Breaking capacity | 12A ~ 15A: V = 35V DC ; I=150A 20A ~ 40A: V = 48V DC ; I=200A | 沒有持續飛弧、燃燒、爆裂現象 No a permanent arcing, ignition, bursting UL248-1/-14 |
| 3 | 可焊性 Solderability | 熔錫溫度 245°C±5°C, 浸錫時間 5s±0.5s, 浸入深度從基座面起 2.0mm±0.5mm, 放在 20X 的放大鏡下檢查 Temperature =245°C±5°C, t=5s±0.5s, magnifier : 20X | 錫覆蓋率 ≥95% Cover ≥95% MIL-STD-202 Method 208 |
| 4 | 抗焊性測試 Soldering heat resistance | 熔錫溫度/ T =260°C±5°C, 浸錫時間/ t =10±5s Temperature :260±5°C, t=10±5s | 外觀無裂紋和損傷, 前後阻值偏差小於或等於±15%; 文印清晰可辨 No crack and damage, ΔR ≤±15% Marking is easily legible MIL-STD-202, Method 210F |
| 5 | 冷熱衝擊 Thermal Shock | -65°C,放置時間為 15min,→ 25°C, ,放置時間為 5min→ 125°C 放置時間 15min 迴圈次數為 100 個 -65°C (15min)~25°C (5min)~ +125°C (15min) ; 100 cycles | 外觀無裂紋和損傷, 前後阻值偏差小於±10% No crack and damage, ΔR <±10% MIL-STD-202, Method 107G |

7.環境特性 / ENVIRONMENTAL CHARACTERISTIC

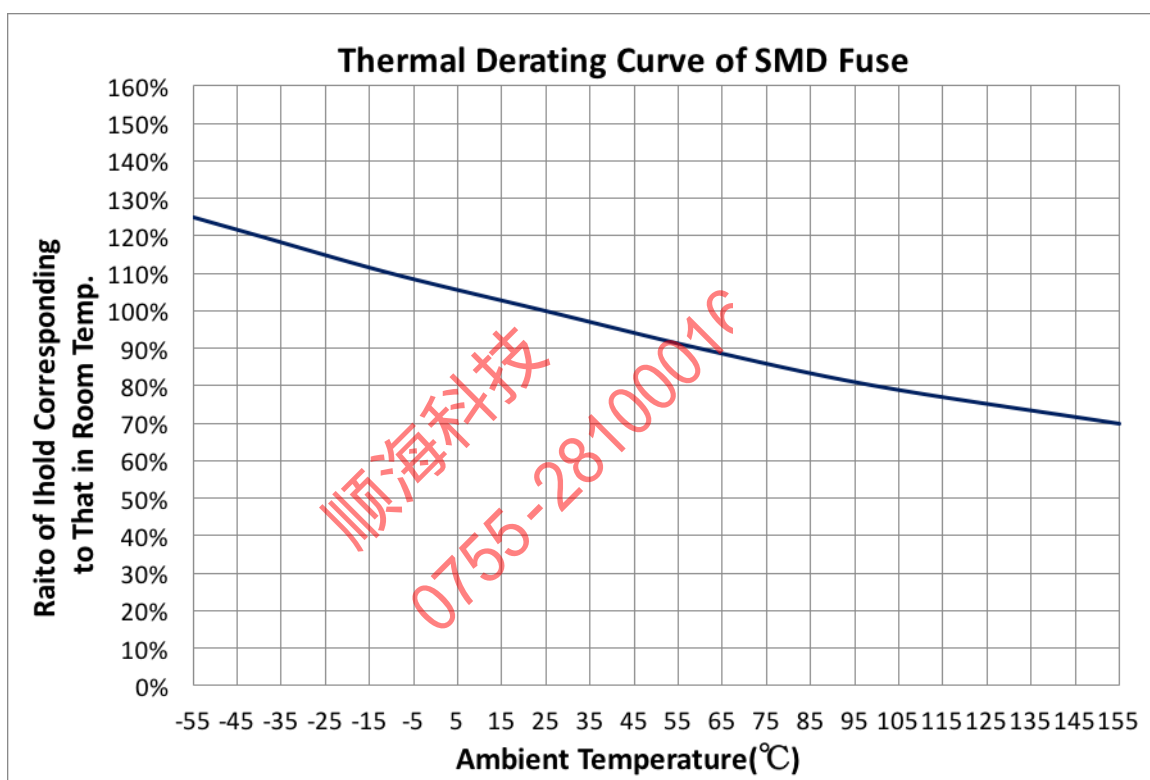
7.1 操作溫度範圍: $-55^{\circ}\text{C} \sim 150^{\circ}\text{C}$ / Operating Temperature: $-55^{\circ}\text{C} \sim 150^{\circ}\text{C}$

若貴司操作環境溫度超出 $25 \pm 5^{\circ}\text{C}$ 範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。請參照：溫度-電流曲線圖。

When choosing the fuse's specification, if the operating environmental temperature beyond the scope from $20 \sim 30^{\circ}\text{C}$, you should consider the environmental temperature's affection to fuses.

please refer:

Temperature-Current curve:



7.2 存儲條件 / Storage Conditions

在溫度 $10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ 、相對濕度 $\leq 75\%$ 的密閉條件下可存放 2 年。

Under airtight in temperature $10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ 、relative humidity $\leq 75\%$ can store 2 years.

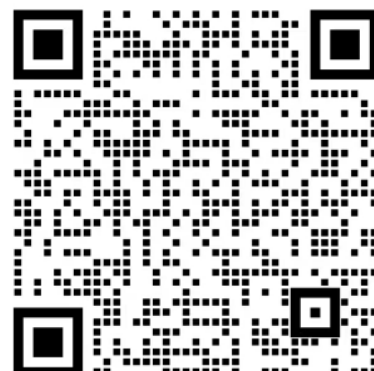
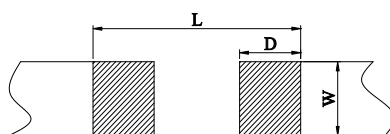
在溫度 $10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ 、相對濕度為 95% 的非露天下最多可存放 30 天。

Without dew in temperature $10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ 、relative humidity be 95% maximum value for 30 days.

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

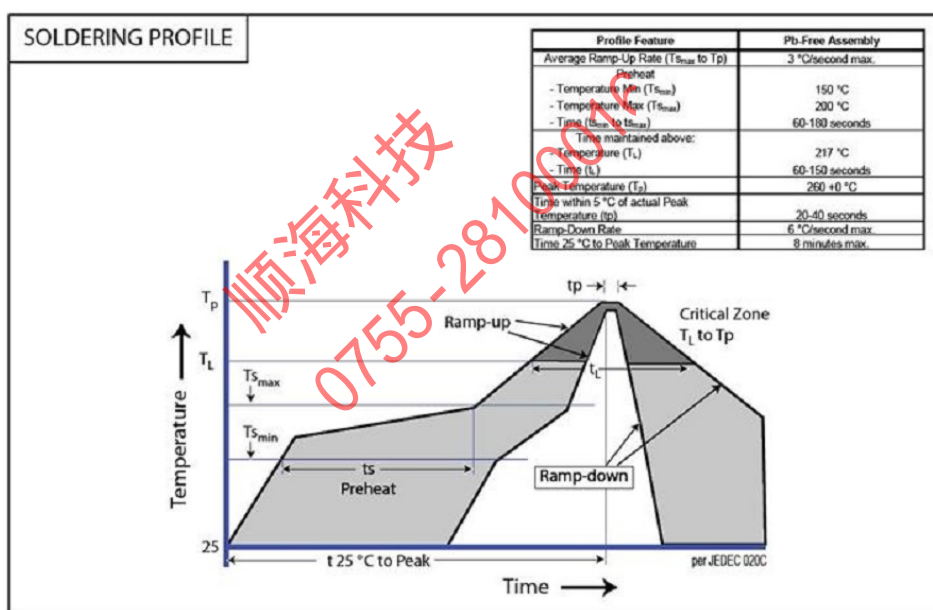
8.1 焊墊尺寸建議 / Recommended Size of the Pad.

| | | |
|--------|--------|--------|
| L | W | D |
| 4.40mm | 2.40mm | 1.20mm |



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



8.2.2 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. 批量生產出貨測試專案 / LOT ACCEPTANCE TEST REQUIREMENTS

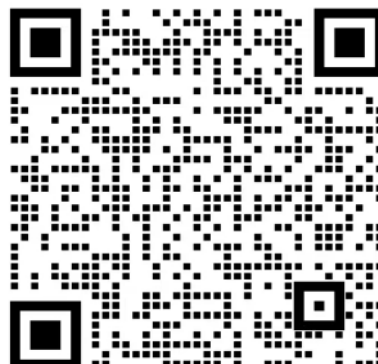
9.1 外觀 / Visual

方法：利用放大鏡進行檢查

Procedure: Visual

標準：不能有髒汙、不潔、文印錯誤、破損等

Acceptance Criteria: No parts are outstandingly stained.



9.2 尺寸 / Dimensions

方法：使用合適且經校正的尺規

Procedure: As appropriate, calipers, micrometers, optical comparator, or approved gages.

標準：尺寸均在規定標準範圍內

Acceptance Criteria: No parts outside specific dimensions.

9.3 時間-電流特性 / Time-Current Characteristics

方法：測試電流 $I=1.0I_n$; $3.5I_n$, 量測出個別電流下的對應時間

Procedure : $I=1.0I_n$; $3.5I_n$ and measure the value of time individually by meter at 25°C

標準：對應時間值均在規定標準範圍內

Acceptance Criteria: All parts must within the specification.

9.4 分斷能力 / Breaking Capacity

方法： $12\text{A} \sim 15\text{A}:V = 35\text{V}/\text{DC}$; $I=150\text{A}$; $20\text{A} \sim 40\text{A}:V = 48\text{V}/\text{DC}$; $I=200\text{A}$ 利用此條件衝擊組件

Procedure: $12\text{A} \sim 15\text{A}:V = 35\text{V}/\text{DC}$; $I=150\text{A}$; $20\text{A} \sim 40\text{A}:V = 48\text{V}/\text{DC}$; $I=200\text{A}$ and used this condition to impact components

標準：組件不發生持續飛弧, 燃燒及爆裂

Acceptance Criteria: No permanent arcing, ignition, bursting

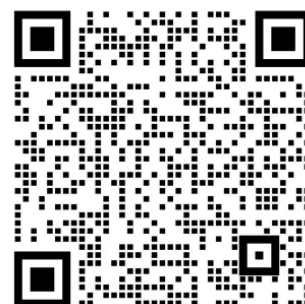
10. 安全認證及編號 / STANDARDS AND APPROVALS

| | | |
|----|-------|--------|
| UL | NO. : | E56092 |
|----|-------|--------|

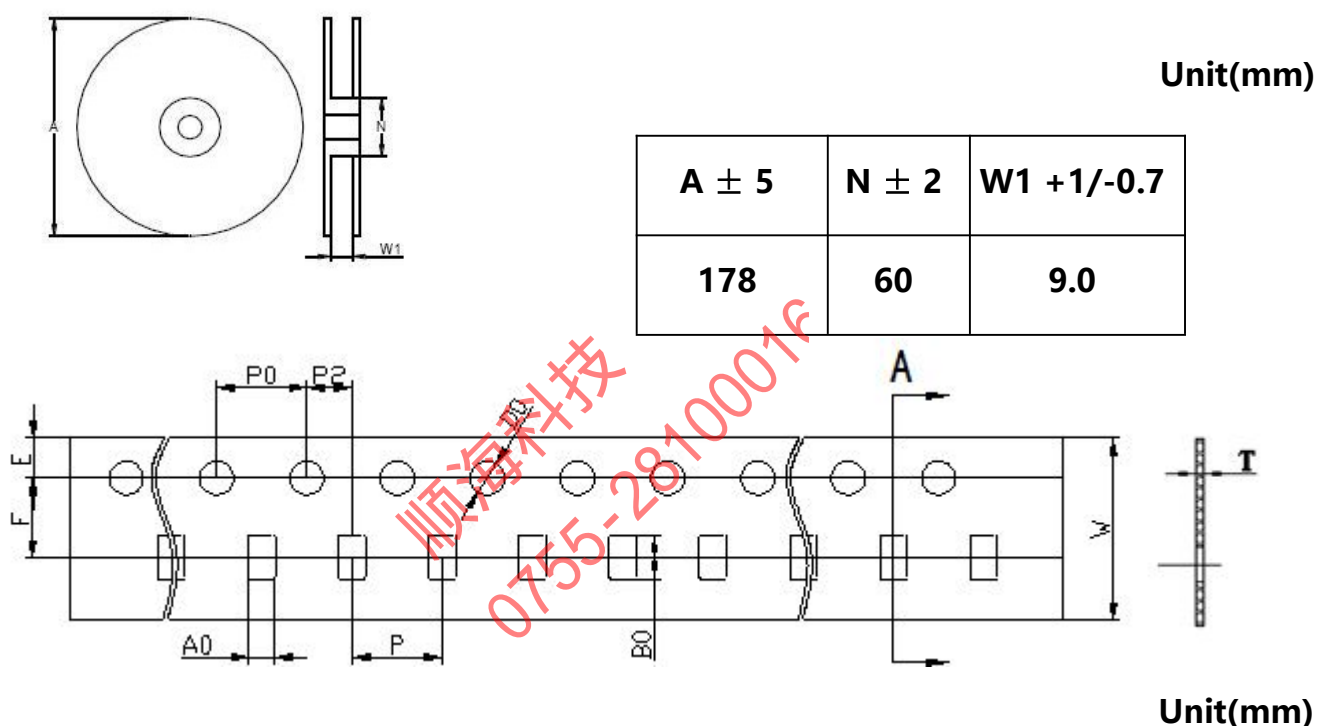
11. 包裝訊息 / PACKING INFORMATION2

11.1 包裝數量 / QUANTITY

| 編碼 Part Number | 數量 (pcs) Quantity(pcs) |
|----------------|------------------------|
| 1206HC **A **V | 4,000 |



11.2 卷輪規格 / Reel & Tape specifications

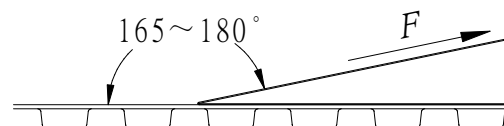


| | | | | | | | |
|----|-------------|----|-------------|----|-------------|----|--------|
| W | 8.00 ± 0.30 | P0 | 4.00 ± 0.10 | P | 4.00 ± 0.10 | P2 | 2.00 ± |
| A0 | 2.10 ± 0.10 | B0 | 3.70 ± 0.10 | D0 | 1.50 ± 0.10 | F | 3.50 ± |
| E | 1.75 ± 0.10 | T | 1.12 ± 0.10 | / | / | / | / |

11.3 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)



12.其他 / OTHERS

12.1 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.

12.2 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, SUZHOU WALTER ELECTRONIC CO., LTD. shall amend it by mutual agreement between the parties.



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UL iQ for Fuses



Fuses

E56092

Guide Information

SUZHOU WALTER ELECTRONIC CO LTD

NO.99 Xinli Road, Fenhu Technic Development Zone, Wujiang Jiangsu 215211 CN

1206HC

Supplemental micro fuses: surface mount

| <u>Size</u> <u>mm(in)</u> | <u>Amps</u> <u>(A)</u> | <u>Volts</u> <u>(V)</u> | <u>Interrupting</u> <u>Rating (A)</u> |
|---------------------------------------|---------------------------|----------------------------|--|
| 3.3 x 1.7 x 0.82 (0.13 x 0.07 x 0.03) | 12 - 15 | 35Vdc | 150 |
| | 20 | 48Vdc | 200 |
| | 25 - 40 | 48Vdc | 200 |

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