



功得電子工業股份有限公司
CONQUER ELECTRONICS CO.,LTD.

規格書

Spec. No. SFA016

Specification For Approval

型號：UFE/UFE-A 系列 快速型玻璃管保險絲

Model：UFE/UFE-A *Quick Acting Low Breaking Capacity*

www.conquer.com.tw

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History of Change

REV.	Description	Date	Drawn	Designed	Checked	Approved
1	(1)Issue	2010.08.25	黃世宏	邱俊偉	蔡進義	蔡其湖
3	(1)新增內文項次5：拉力強度(或10牛頓) (2)新增內文項次9：一箱包裝數量 (3)修改內文項次11：移除SEMKO標誌 (4)新增內文項次13：冷阻值範圍 & I2T (5)新增內文項次14：建議生產參數	2018.03.27	黃世宏	邱俊偉	蔡進義	蕭煥益

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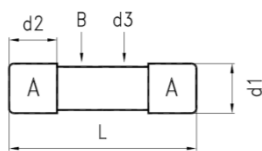
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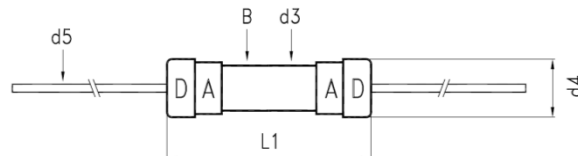
～ 筒管狀保險絲 ～

Fuses for Instrument, Power and Telephone (Non-indicating)

- 適用範圍:** 本標準適用於保護儀器、電源供應器和電話機用之筒管式熔斷保險絲。
Available Range: For protecting instruments, power supplies and telephone sets.
- 形狀及尺寸如下圖** 單位: mm
Shape & Size as following illustrations.



UFE Series



UFE-A Series

- 2.1 構造形狀 Structure & Shape : 如上圖 As shown in figure above
- 2.2 額定電壓 Rated Voltage: 250V AC
- 2.3 額定電流 Rated Current: 63mA~10A
- 3 **材料 Material:**
 - 3.1 筒管本體: 透明玻璃管不可破裂或變形。
Tube (Body): Transparent glass tube. No breaking or deformation is allowed.
 - 3.2 兩端銅蓋: 需以導電率良好之黃銅為材料。
Two brass end caps: Made of brass of good conductivity.
 - 3.3 銅蓋處理: 銅蓋部份鍍鎳, 標示最後若加 "S" 者, 表示須鍍銀。
Coating of brass caps: Plating the surface with nickel. If the indication is added with "S", it needs to be plated with silver.

NO.	Part Name 部品名稱	Volume 數量
A	Brass Cap - Nickel Plating 銅帽 - 鍍鎳	2
B	Glass Tube - Transparent Glass 玻璃管 - 透明玻璃	1
C	Fuse Element 可熔體	1
D	Cap-on Lead-Cap - Tinned Copper Wire and Cap 銅帽附腳 - 銅蓋加鍍錫銅線	2
d1	Dia. of Cap - 5.2 ^{+0.1} _{-0.1} mm 銅頭直徑	
d2	Height of Cap - 5.25±0.1mm 銅頭高度	
d3	Dia. of Glass - 4.56±0.2mm 玻璃管直徑	
d4	Dia. of Cap - 5.9±0.2mm 銅帽直徑	
d5	Dia. of Lead Wire - 0.8±0.05mm 附腳直徑 Length of Lead Wire - 38±2mm 長度	
L	Body of Fuse - 20.00±0.5mm 本體尺寸	
L1	Total Length W/Cap-on on Both Ends 21.00±0.75mm	

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4 電氣特性 Electrical Characteristics:

4.1 負載容量: 通過額定電流值 150 % (亦即 $1.5 \times I_n A$)，能繼續通電至少 1 小時無任何熔化現象。
(額定電流大於 6.3A 的則 30 分鐘)

Loading Capacity: Loading 150% Rated Current (i.e. $1.5 \times I_n A$) for flowing, and it's available to let current keep on flowing at least 1 hour without any melting. (Can keep 1 Hour minimum) (for rating above 6.3A 30 minutes)

4.2 壓降測量: 以額定電流，通過保險絲，其兩端壓降值不得超過最大值，可參考 IEC60127-2 Sheet 2。

Voltage drop: Loading 100% of rated current (ie $1.0 \times I_n$), the voltage drops across the fuse-links shall not exceed the maximum values given on the relevant standard sheet (IEC60127-2 Sheet 2)

4.3 過載熔斷: 請參照下表。Melting due to overloading: Details as follows Table.

※最大熔斷時限 Operating Characteristics

安培數 Rating	150% Rating		210% Rating		275% Rating		400% Rating		1000% Rating	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
63mA~100mA	60 min			30 min	10 ms	500 ms	3 ms	100 ms		20 ms
125mA~6.3A	60 min			30 min	50 ms	2 sec	10 ms	300 ms		20 ms
8A~10A	30 min			30 min	50 ms	2 sec	10 ms	400 ms		40 ms

5 機械特性 Mechanical Properties:

5.1 拉力強度: 當施加軸拉力 720g/cm (或 10 牛頓) 於兩端附腳 (或銅帽)，無鬆動或損壞現象發生。
Terminal Strength: Leads and/or caps are soldered (adhered) to withstand axial pulling force of 720g/cm (or 10N) without loosening or any harmfulness to firmly attachment.

5.2 彎折強度 Bending Strength:

(1) 銅帽附腳腳徑 1.0mm (含) 以下，經過兩次反向之彎折後 (彎折 90 度再折回原位謂之一次彎折) 不發生損壞。

Diameter of lead wire ≤ 1.0 mm: After two bends of opposite directions (bending through an angle of 90° and back is defined as one bend) of lead, no damage is to be visualized.

(2) 銅帽附腳腳徑 1.2mm (含) 以上，距離銅帽附腳卯合處 10mm 以上，作一次 90 度之彎折，不發生損壞。

Diameter of lead wire ≥ 1.2 mm: Only one bend of an angle of 90° without back shall be tested for each lead wire and the bending position shall be at least 10mm a way from the cap-on. After the test there shall be no damage to be visualized.

6 突波實驗 Pulse Test

為適應電感或電容性電路所產之暫態電流，本品可承受最少 1ms $10 I_n$ 電流之突波。
Surge Test: In order to stand transient current caused by inductive or capacitive, the fuses are designed to have minimum clearing time of 1 millisecond at 1000% rated current.



7 耐久實驗 Endurance(On-Off Test):

7.1 於額定電流 (1.2 x In) , 1小時ON , 15分鐘OFF , 共100次。

Loading 120% rated current (1.2 x In), 1 hour ON, 15 minutes OFF. Keep 100 cycles.

7.2 接著以1.5倍之額定電流(1.5 x In) 通過1小時(額定電流大於6.3A的則30分鐘)。

Followed by 1 Hour at 1.5 times the rated current (1.5 x In)(for ratings above 6.3A 30 minutes).

7.3 再以4.2之方式量測壓降值, 所測得之壓降值不可比原值增加10%以上。

The voltage drop across the fuse-link after the test shall not have increased by more than 10% of the original value measured before the test

8 遮斷能力 Breaking Capacity(Interrupting rating):

35 amperes or 10 x rated current ; whichever is greater at 250V AC.

9 包裝 Packing :

UFE- 1000 PCS/盒、一箱數量：10000 PCS ; UFE-A- 500 PCS/盒、一箱數量：5000 PCS

內盒印明下列標示:料號、額定(電壓、電流、遮斷能力)及安規名稱。

包裝材料均符合RoHS或者HF的環保要求,且包裝材料不會和零件發生化學反應,造成不良。

UFE- 1000 pcs in an inner box ,Outer box Q'ty:10000 pcs ; UFE-A- 500 pcs in an inner box , Outer box Q'ty:5000 pcs. The following items indicated on the box.

Mark: Catalog number; ratings (voltage, current, interrupting capacity),and safety mark.

The packing material conforms to RoHS or the HF environmental protection request.

And the packing material can't have the chemical reaction with the components.

10 其他 Other:

10.1 除非另有指定, 上述機械、電器特性, 係於常溫, 標準狀況下測試之。

Unless otherwise, specified, all tests to be performed at 25±5°C and 35-75% RH.

10.2 於標準狀況下儲放一年, 本品乃確保上述機械與電氣之特性。

After one year's storage under normal condition, this item is guaranteed to meet the requirements mentioned above.

11 標記/安規認證 Mark/ Safety certification:

UFE Series

Mark Approvals								
63 mA	**	**	**	**		**	*	
80 mA	**	**	**	**		**	*	
100 mA	**	**	**	**		**	*	
125 mA	**	**	**	**		**	*	
160 mA	**	**	**	**		**	*	
200 mA	**	**	**	**		**	*	
250 mA	**	**	**	**		**	*	
315 mA	**	**	**	**		**	*	
400 mA	**	**	**	**		**	*	
500 mA	**	**	**	**		**	*	

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UFE Series

Mark Approvals							
630 mA	**	**	**	**		**	*
800 mA	**	**	**	**		**	*
1 A	**	**	**	**	**	**	*
1.25 A	**	**	**	**	**	**	*
1.6 A	**	**	**	**	**	**	*
2 A	**	**	**	**	**	**	*
2.5 A	**	**	**	**	**	**	*
3.15 A	**	**	**	**	**	**	*
4 A	**	**	**	**	**	**	*
5 A	**	**	**	**	**	**	*
6.3 A	**	**	**	**	*	**	*
8 A	**		**	**	*		*
10 A	**		**	**	*		*

*: 有安規認證 Have safety certify

** : 有安規認證及銅帽上有安規印字標記 Have safety certify and safety mark on the cap

UFE-A Series

Mark Approvals						
63 mA	*	*	*	*		
80 mA	*	*	*	*		
100 mA	*	*	*	*		
125 mA	*	*	*	*		
160 mA	*	*	*	*		
200 mA	*	*	*	*		
250 mA	*	*	*	*		
315 mA	*	*	*	*		
400 mA	*	*	*	*		
500 mA	*	*	*	*		
630 mA	*	*	*	*		
800 mA	*	*	*	*		
1 A	*	*	*	*	*	
1.25 A	*	*	*	*	*	
1.6 A	*	*	*	*	*	
2 A	*	*	*	*	*	
2.5 A	*	*	*	*	*	
3.15 A	*	*	*	*	*	
4 A	*	*	*	*	*	

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UFE-A Series

Mark Approvals						
5 A	*	*	*	*	*	
6.3 A	*	*	*	*	*	
8 A	*	*	*		*	*
10 A	*	*	*		*	*

*: 有安規認證 Have safety certify

** : 有安規認證及銅帽上有安規印字標記 Have safety certify and safety mark on the cap

12 產品描述 Product Description:

描述 Description	安培數 Ampere Rating
VBS UFE ___A ___V(PF)	63mA~6.3A
VBS UFE-A ___A ___V(PF)	
VUC UFE ___A ___V(PF)	8A/10A
VUC UFE-A ___A ___V(PF)	

例: VBS UFE A V (PF)
 1 2 3 4 5

- 1 安規認證 Safety Approval
- 2 系列品名 Series Model : UFE/UFE-A
- 3 安培數 Ampere Rating : 63mA~10A
- 4 伏特數 Voltage : 250V
- 5 無鉛標示 Pb Free : (PF)

13 冷阻值範圍 & I²T Cold Ohms Range & I²T :

Ampere Rating	Nominal Resistance Cold Ohms Range	Nominal Melting I ² t A ² Sec	Ampere Rating	Nominal Resistance Cold Ohms Range	Nominal Melting I ² t A ² Sec
63 mA	7.2317-13.430	0.0009	1 A	0.0560-0.1040	1.1925
80 mA	5.3802-9.9918	0.0018	1.25 A	0.0484-0.0900	2.0869
100 mA	3.1973-5.9378	0.0023	1.6 A	0.0351-0.0653	7.2069
125 mA	2.2544-4.1867	0.0028	2 A	0.0261-0.0485	7.9544
160 mA	1.8659-3.4652	0.0054	2.5 A	0.0211-0.0393	8.7019
200 mA	1.2754-2.3686	0.0160	3.15 A	0.0157-0.0291	17.208
250 mA	0.9266-1.7208	0.0250	4 A	0.0124-0.0230	28.368
315 mA	0.2911-0.5407	0.0396	5 A	0.0104-0.0194	49.140
400 mA	0.2068-0.3840	0.1250	6.3 A	0.0072-0.0134	93.017
500 mA	0.1737-0.3227	0.2077	8 A	0.0054-0.0100	157.59
630 mA	0.1352-0.2512	0.3029	10 A	0.0041-0.0075	253.08
800 mA	0.0886-0.1645	0.7477			

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14 建議生產參數(無鉛焊錫使用)：

Recommended Process Parameters(for the action to Lead-free solder alloy)：

14.1 波峰參數 Wave Parameter	預熱溫度 Preheat temperature 最低溫度：100度 Temperature Minimum：100℃ 最高溫度：150度 Temperature Maximum：150℃	錫槽溫度 Solder Pot Temperature 260度 Maximum 260℃ Maximum 焊接時間 2~5 seconds Solder Dwell Time: 2~5 seconds
14.2 建議手持烙鐵焊接參數 Recommended Hand-Solder Parameters	烙鐵溫度：350℃ +/-5℃ Solder Iron Temperature：350℃ +/-5℃ 加熱時間：3 seconds max. Heating Time：3 seconds max.	

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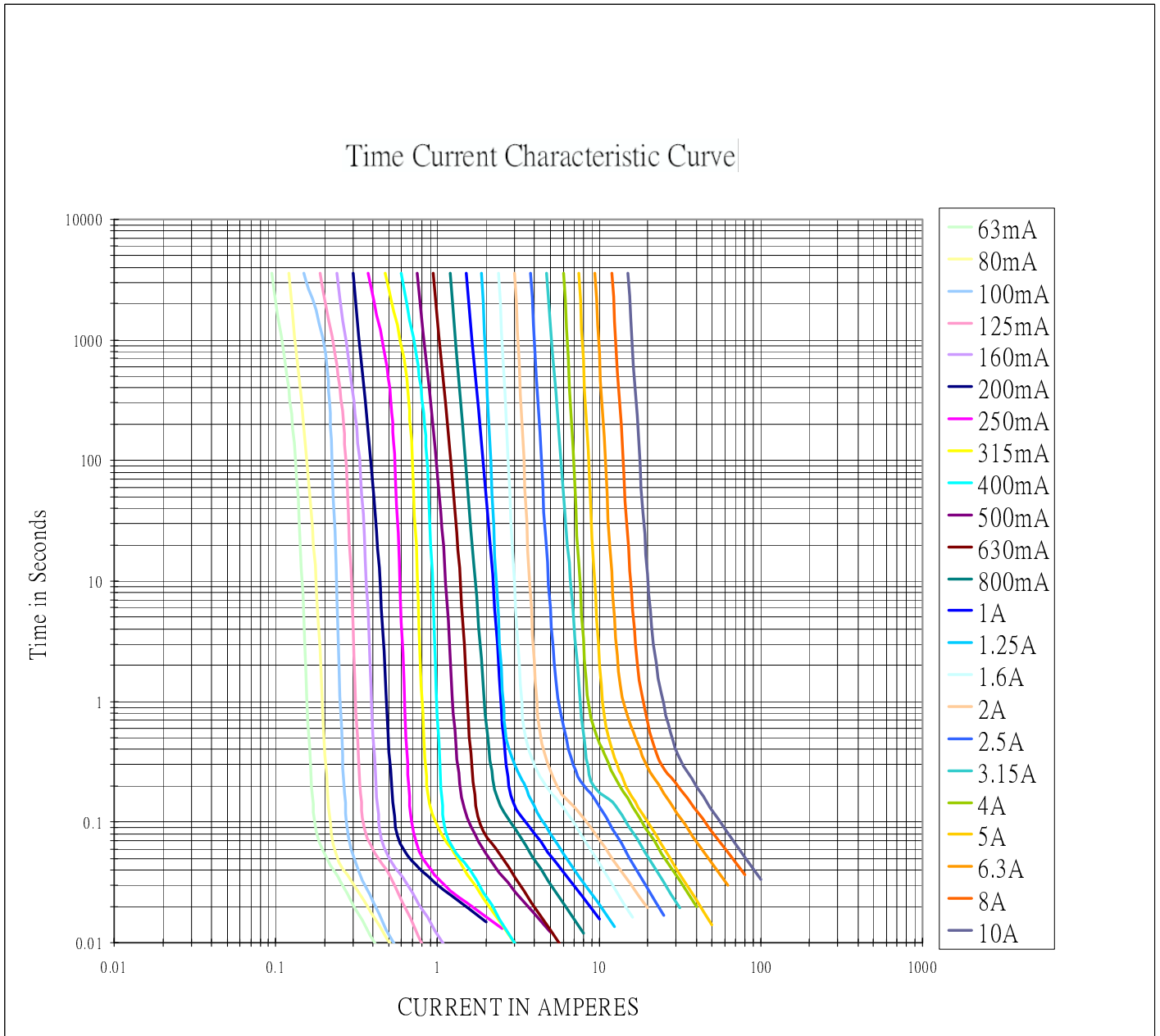
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* The curves are average value, for reference only *

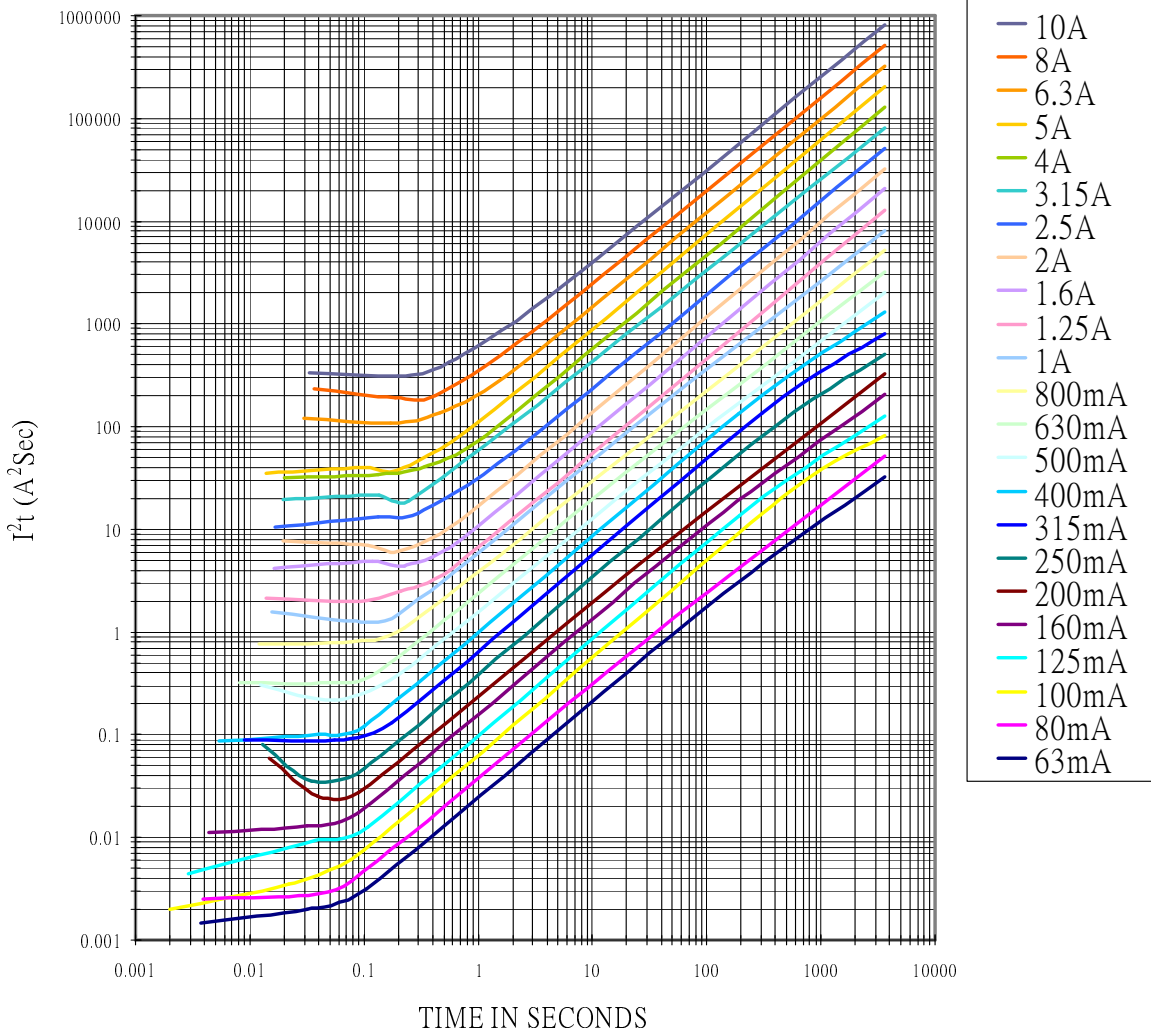


MODEL	ENGINEER	DEPT.	APPROVE
UFE/UFE-A series(PF)	Ryan	Angus Hsiao	Arthur Tsai



* The curves are average value, for reference only *

Average Melting I^2t Curves



MODEL	ENGINEER	DEPT.	APPROVE
UFE/UFE-A series(PF)	Ryan	Angus Hsiao	Arthur Tsai

Product Characteristics & Reliability Tests

Test item	Test Description & Reference
Humidity unload test	MIL-STD-202G , Method 103B , Test Condition A Heat (85±0.5°C) & High Humidity (85±1 % RH), 240 hours , ΔR<15%
Thermal shock test	MIL-STD-202G, Method 107g , Test Condition B Temperature setup : 25°C ~ -65°C ~ 25°C ~ 125°C Time setup : -65°C(30min)~25°C(5min)~125°C(30min)~ 25°C(5min) 5 cycles , ΔR<15%
Vibration test	MIL-STD-202G , Method 201A Frequency setup : 10 ~ 55 ~ 10 Hz Time setup : 1 Minutes/cycle (X-Y-Z,120 Cycles) 6hrs, ΔR<15%
Salt spray Test	MIL-STD-202G , Method 101E , Test Condition A Salt spray concentration : 5 ± 1% Test liquid temperature : 35 ± 0.5°C 96hrs, ΔR<15%
Solderability test	Reference IEC 60068-2-20 Temperature setup : 250 ± 3°C, 3 ± 0.3 sec After test terminal electrode wetting area must be greater than 95%
Resistance to Solder Heat Test	Reference IEC 60068-2-20 Temperature setup : 260± 3°C, 10± 1 sec ΔR<15%