



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

規格書

Spec. No. SFA103

Specification For Approval

型號：K6F/K6F-R 系列 10x38 保險絲

Model : K6F/K6F-R Series 10x38 Fuse

www.conquer.com.tw

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History of Change

REV.	Description	Date	Drawn	Designed	Checked	Approved
1	1.規格書新增(Draft)	2016.11.14	高偉智	黃琦志	蔡進義 趙宏達	蕭煥益
2	1.新增附腳-R 形式	2017.6.12	高偉智	黃琦志	蔡進義 趙宏達	蕭煥益
3	1.修改第11項安規認證 原K6F-R Series安規認證為UL(Pending) 刪除，新增TUV安規認證 2.第8項包裝新增K6F-R包裝方式 3.新增第13項環境特性	2018.1.4	高偉智	黃琦志	蔡進義 趙宏達	蕭煥益
4	1.修改第2項形狀及尺寸 2.修改第11項安規認證阻值範圍	2018.2.12	高偉智	黃琦志	蔡進義 趙宏達	蕭煥益
5	1.修改第7項遮斷能力 UL248-19 600VDC IR升級為50kA 2.修改第11項安規認證 新增K6F-R Series UL安規認證 合併為K6F/K6F-R Series	2018.6.25	高偉智	黃琦志	蔡進義 趙宏達	蕭煥益

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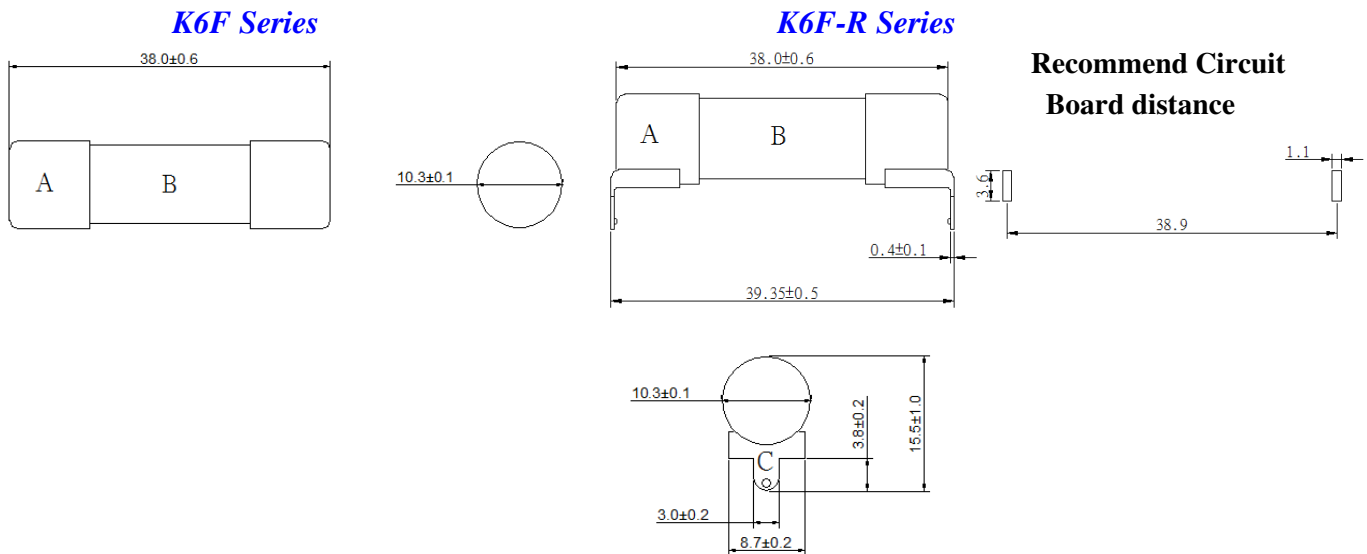
E-mail: conqfuse@ms62.hinet.net Official Website: <http://www.conquer.com.tw>

~ 筒管狀保險絲 ~

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

1 **適用範圍**: 本標準適用於保護光伏系統(gPV)、儀器、電源供應器和電話機用之保險絲。
Available Range: For protecting solar photovoltaic system(gPV), instruments, power supplies and telephone sets.

2 **形狀及尺寸如下圖** 單位: mm
Shape & Size as following illustrations.



2.1 構造形狀 Structure & Shape : 如上圖 As shown in figure above

2.2 額定電壓 Rated Voltage: 600V

2.3 額定電流 Rated Current: 15A~30A

3 **材料** Material:

3.1 筒管本體: 不透明瓷管不可破裂或變形。

Tube (Body): Non-Transparent ceramic tube fuse. No breaking or deformation is allowed.

3.2 兩端銅蓋: 需以導電率良好之銅為材料。

Two copper alloy end caps: Made of copper alloy of good conductivity.

3.3 銅蓋處理: 銅蓋部份鍍鎳。

Coating of copper alloy caps: Plating the surface with nickel.

NO.	Part Name 部品名稱	Volume 數量
A	Copper Alloy Cap - Nickel Plating 銅帽 - 鍍鎳	2
B	Ceramic Tube - Non-Transparent Ceramic Tube 瓷管 - 不透明瓷管	1
C	Terminal - Copper (Tin Plated Copper) 附腳 - 銅鍍錫	2

4 電氣特性Electrical Characteristics:

4.1 過載熔斷: 請參照下表。Melting due to overloading: Detail is as following table.

※最大熔斷時限Operating Characteristics

安培數 Rating	100% Rating		113% Rating		135% Rating		145% Rating		200% Rating	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
15A~30A	4 Hrs		60 min			60 min		60 min		4min

4.2 耗散功率: 通過額定電流值70%(亦即 $0.7 \times I_n$ A)1小時, 其耗散功率不得超過規定值。接著通過額定電流值100%(亦即 $1.0 \times I_n$ A)1小時, 其耗散功率不得超過規定值。請參照表一:

Watts Loss : After loading 70% of rated current (i.e. $0.7 \times I_n$ A) for 1 hour, the power dissipation should not exceed the value shown in Table I. Then after loading 100% of rated current (i.e. $1.0 \times I_n$ A) for 1 hour, the power dissipation should not exceed the value shown in Table I.

表一 (Table I)

Rated Current	Watts Loss 70% I_n (W)	Watts Loss 100% I_n (W)
15A	2.2W	5.4W
20A	2.6W	6.3W
25A	3.1W	6.9W
30A	3.5W	7.6W

4.3 老化試驗:(Aging Test)

保險絲在 $50^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 環境中, 放置3小時或保險絲溫度達到穩定後, 需符合下列測試條件, 且無鬆動或損壞現象發生。

Fuses are conditioned at $50^{\circ}\text{C} \pm 5^{\circ}\text{C}$ for 3 hours and subjected to the following table.

Fuses shall conform to this table, and there is not loosening or any appearance defect.

安培數 Rating	100% Rating		135% Rating		145% Rating	
	Min.	Max.	Min.	Max.	Min.	Max.
15A~30A	4 Hrs			60 min		60 min

4.4 恆溫恆濕試驗:(Humidity Conditioning Test)

保險絲在 25°C , 相對濕度90~100%環境下至少5天。取出後1小時內, 進行4.6電流循環試驗條件, 試驗後前後阻值差異不得超過10%。

At 25°C and 90~100% RH for not less than 5 days, fuse shall be subjected in accordance with clause 4.6.

The test of fuses shall begin within 1 hour of being removed from the humidity chamber.

The resistance of fuse should not differ from the initial measurements by more than 10%.

4.5 冷熱衝擊試驗:(Thermal Shock Test)

保險絲經歷50個加熱和冷卻循環組成的溫度循環;每個循環在-40°C下15分鐘，然後在90°C下15分鐘。50個循環結束後，保險絲應在23±3°C至少3小時後，進行下列測試條件。

Fuse were subjected to temperature cycling consisting of 50 cycles of heating and cooling; each cycle consisting of 15 minutes at -40°C followed by 15 minutes at 90°C.

After 50 cycles, the fuse should be at 23°C ± 3°C for no less than 3 hours, and subjected to the test described as follows:

4.5.1 保險絲需符合下列測試條件，且無鬆動或損壞現象發生。

Fuse subject to the following test conditions, and without loosening or any appearance defect.

安培數 Rating	100% Rating		113% Rating		135% Rating		145% Rating		200% Rating	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
15A~30A	4 Hrs		60 min			60 min		60 min		4min

4.5.2 保險絲需進行4.6電流循環試驗條件，試驗前後阻值差異不得超過10%。

Fuse shall be subjected in accordance with clause 4.6.

The resistance of fuse should not differ from the initial measurements by more than 10%.

4.6 電流循環試驗:(Current Cycle Test)

對保險絲重複進行3000次電流循環試驗。電流循環試驗如圖1所示。試驗前後阻值差異不得超過10%。

The fuse were subjected to 3000 repetitions of current cycling. The current cycle test is shown in Fig 1.

The resistance of fuse should not differ from the initial measurements by more than 10%.

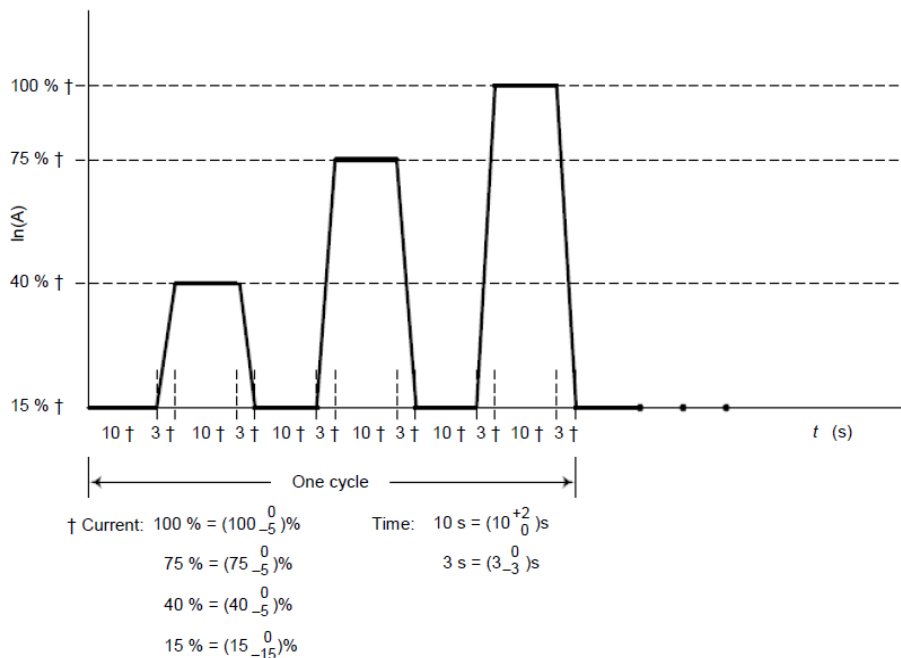


圖1 (Fig 1)



5 **機械特性** Mechanical Properties:

拉力強度:當施加軸拉力4 kg於兩端附腳(或銅帽)，無鬆動或損壞現象發生。

Terminal Strength : Terminals and/or caps are soldered (adhered) to withstand axial pulling force of 4 kg .

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，本品於10倍額定電流的熔斷時間最少為1ms

In order to stand transient current caused by inductive or capacitive circuit ,the fuses are designed to have minimum clearing time of 1 millisecond at 1000% of rated current.

7 **遮斷能力** Interrupting rating:

10000 amperes at 600Vdc(IEC60269-6)

50000 amperes at 600Vdc(UL248-14 & UL248-19)

150000 amperes at 600Vac(UL248-14)

8 **包裝** Packing :

K6F 內盒:10PCS/盒 外盒: 10內盒/外盒 ; K6F-R: 50PCS/盒。

內盒印明下列標示:料號、額定(電壓、電流、遮斷能力)安規名稱，包裝材料均符合RoHS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。

K6F 10 pcs in an inner box, 10 inner box in an outside box; K6F-R 50 pcs in an inner box.

The following items are indicated on the box: Catalog number、rated voltage、rated current、interrupting rating and safety mark. The packing material complied with RoHS environmental protection request and shall not have the chemical reaction with the parts of fuse.

9 **其他** Other:

9.1 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 were performed at 25±5°C and 35-75% RH.

9.2 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。

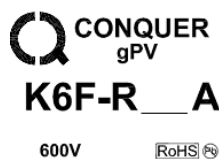
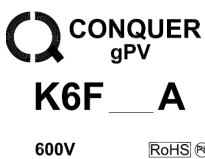
After one year of storage at the atmosphere (25±5°C and 35-75% RH.),

the fuse shall comply with electrical and mechanical requirements in clause 4, 5 and 6.

10 **標記** Marking:

於瓷管表面刻印安培數、電壓、品名及安規標示。

The rated current, rated voltage, series model, company name and safty mark are marked on the surface of ceramic tube.



標記示意圖

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11 安規認證 Safety certification:

K6F/K6F-R Series

Mark Approvals	cUL ^{us} LISTED		Nominal Resistance	Nominal Melting I ² t
			Cold Ohms	A ² Sec
15 A	*	*	0.00567 ~ 0.01054	51.64
20 A	*	*	0.00343 ~ 0.00638	206.48
25 A	*	*	0.00262 ~ 0.00487	1067.18
30 A	*	*	0.00201 ~ 0.00373	1740.00

*:有安規認證 Have safety certify

12 產品描述 Product Description

描述 Description	安培數 Ampere Rating
K6F __A__V__ K6F-R __A__V__	15A~30A

例: K6F A 600V (PF)
 1 2 3 4

- 1 系列品名 Series Model : K6F/K6F-R
- 2 安培數 Ampere Rating : 15A~30A
- 3 伏特數 Voltage : 600V
- 4 無鉛標示 Pb free : (PF)

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13 環境特性 Environmental Specification:

操作溫度 Operating Temperature : $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$

使用環境溫度超出 $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 範圍，在選用保險絲規格時，應考慮使用環境溫度對保險絲的影響如圖2所示。

When the ambient temperature is not at $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$, customers should consider the effect of ambient temperature on current-carrying capacity as shown in Fig2.

CHART SHOWING EFFECT OF AMBIENT TEMPERATURE
ON CURRENT-CARRYING CAPACITY
正常電流負載量情況下環境溫度的影響

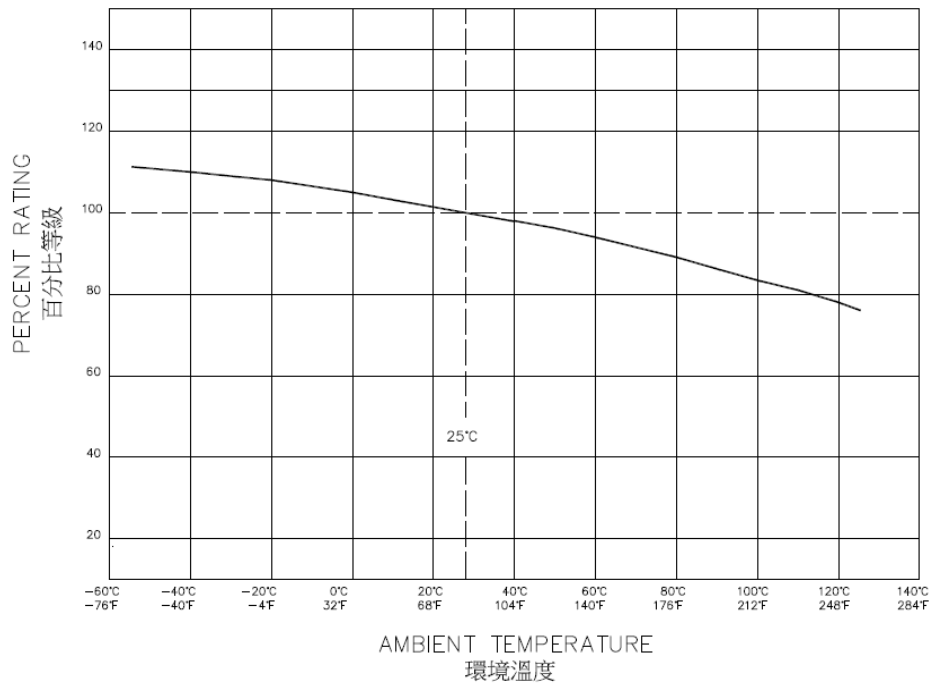
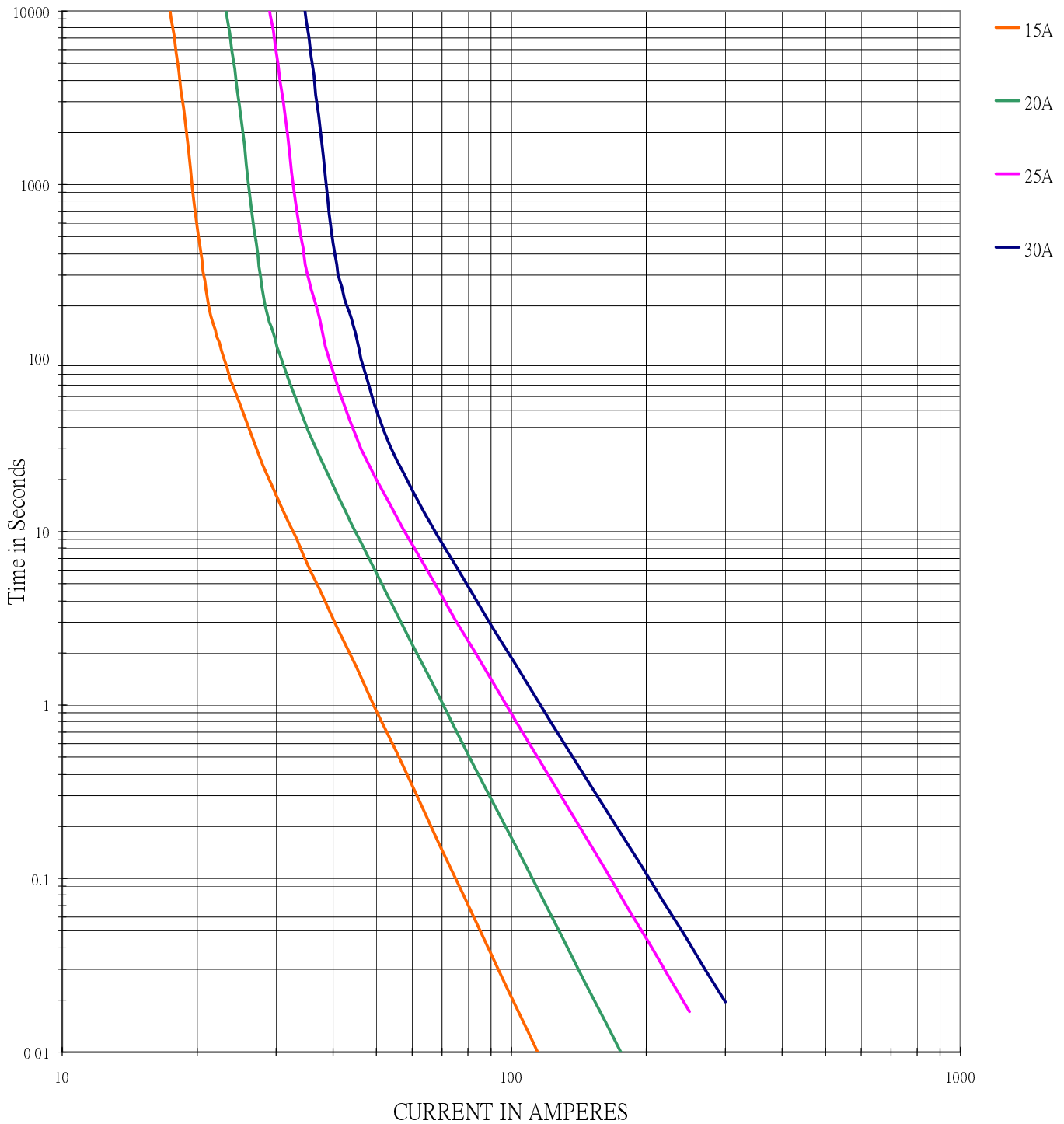


圖2 (Fig 2)



Average Melting IT Curves



MODEL	ENGINEER	DEPT.	APPROVE
K6F Series	Wei Jih Gao	Ivan_huang	Hd_ko

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 Minute/cycle (X 、 Y 、 Z each 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	Temperature setup : 255 ± 2°C, 2.5± 0.5sec After testing,terminal electrode wetting area must be greater than 95%
Resistance to solder heat test	Temperature setup : 275± 5°C, 10± 1 sec ΔR<15%