



**CONQUER**  
功得電子

# 規格書

## Specification For Approval

Spec NO. SFA021

**型號：**UBM/UBM-A 系列  
快速型瓷管保險絲

**Model：**UBM/UBM-A  
*Quick Acting High Breaking Capacity Series*

Designed in accordance to IEC60127 standard.

### Conquer Electronics Co., Ltd.

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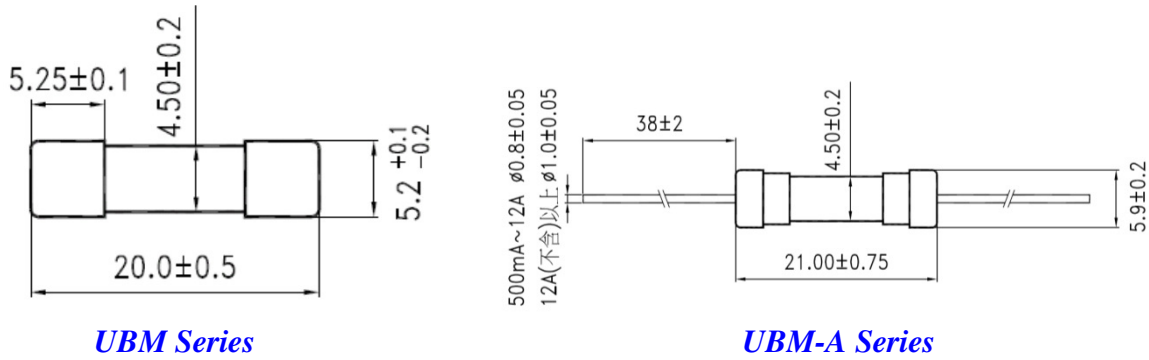
## History of Change

REV.	Description	Date	Drawn	Designed	Checked	Approved
1	(1)發出Issue	2013.09.03	黃世宏	葉志浩	蔡進義	蔡其湖
5	(1)修改內文項次6： Surge Test → Pulse Test (2)新增內文項次13：冷阻值範圍 & I <sup>2</sup> T (3)增加曲線圖與信賴性規範	2014.06.27	黃世宏	邱俊傑	蔡進義	蔡其湖
6	(1)更新封面及更改公司LOGO (2)新增內文項次8：整箱包裝數量 (3)修改內文項次9：100mA~10A安規CQC變更 CCC，TUV安規LOGO變更、印字安規及貼紙變更	2019.12.11	黃世宏	彭彥鳴	邱信雄	蕭順益

**1 適用範圍 Applications:**

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。  
 For protecting instruments, power supplies and telephone sets.

**2 形狀及尺寸 Shape & Dimensions:**



單位: mm

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

2.2 額定電壓 Voltage Rating: 250Vac

2.3 額定電流 Ampere Rating: 63mA~16A

**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.

Part Name 部品名稱		Quantity 數量
Brass Cap 銅帽	- Nickel Plating - 鍍鎳	2
Ceramic Tube 瓷管	- Non-Transparent Ceramic Tube - 不透明瓷管	1
Fuse Element 可熔體		1
Cap-on Lead-Cap 銅帽附腳	- Tinned Copper Wire and Cap - 銅蓋加鍍錫銅線	2

#### 4 電氣特性 Electrical Characteristics:

##### 4.1 For UBM 63mA~16A & UBM-A 63mA~5A

4.1.1 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)

4.1.2 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 1。

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 1 )

4.1.3 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~4A	60 min			30 min	10 ms	2 sec	3 ms	300 ms		20 ms
5A~6.3A	60 min			30 min	10 ms	3 sec	3 ms	300 ms		20 ms
8A~16A	30 min			30 min	40 ms	20 sec	10 ms	1 sec		30 ms

##### 4.2 For UBM-A 6.3A~16A

4.2.1 根據 IEC 60127-2 附件 A, UBM 必須先符合項目 4.1 的電氣特性測試, 針對 UBM-A 只需測試過載額定電流的 210% 且必須在 30 分鐘內熔斷。(參考項目 4.2.3)

According to IEC 60127-2 Annex A, the UBM must to be conformed to the item 4.1 electrical characteristic test first, about UBM-A only need to test 210% rating current, and fuse must open in 30 minutes. (Refer to item 4.2.3)

4.2.2 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 1。

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 1 )

4.2.3 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	210% Rating	
	Min.	Max.
6.3A~16A		30 min

## 5 機械特性 Mechanical Properties:

5.1 拉力強度:當施加軸拉力1kg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 1kg 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  $\leq 1.0$  mm: After two bends of opposite directions (bending through an angle of  $90^\circ$  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  $\geq 1.2$  mm: Only one bend of an angle of  $90^\circ$  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:(For UBM 63mA~16A & UBM-A 63mA~5A ):

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, 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)(For UBM 63mA~16A & UBM-A 63mA~5A):

7.1 於額定電流 ( $1.2 \times I_n$ )，1小時ON，15分鐘OFF，共100次。

Loading 120% rated current ( $1.2 \times I_n$ ), 1 hour ON, 15 minutes OFF. Keep 100 cycles.

7.2 接著以1.5倍之額定電流( $1.5 \times I_n$ ) 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 ( $1.5 \times I_n$ )(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 包裝 Packing:

UBM 1000 PCS/盒、一箱數量：10,000 PCS；UBM-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。

UBM 1000 pcs in an inner box,Outer box Q'ty:10,000 pcs.

UBM-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.


9 標記/安規認證 Mark/Agency Approvals:



*UBM Series*

Mark Approvals	Interrupting Rating											
63 mA	1500A @ 250Vac	**	**	**	**	**			*			
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		*	**	**	**	**	**	**	*			
5 A		*	**	**	**	**	**	**	*			
6.3 A	**	**	**	**	**	**	**	*				
8 A		**		**	**	**	**					
10 A		**		**	**	**	**					
12 A											**	
12.5 A									*	**	**	
15 A											**	
16 A									*	**	**	











\* : 安規認證 Agency approvals

\*\* : 安規認證及保險絲上有安規印字標記 Agency approvals and mark on fuse body.

TUV安規標示:保險絲本體印字為 , 標籤標示



TUV mark:  on fuse body and  in label.



### UBM-A Series

Mark Approvals	Interrupting Rating										
63 mA	1500A @ 250Vac	**	**	**	**			*			
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		**	**	**	**	**	**	*			
5 A		**	**	**	**	**	**	*			
6.3 A		**	**	**	**		**	*			
8 A			**	**	**		**				
10 A			**	**	**		**				
12 A											**
12.5 A									*	**	**
15 A											**
16 A									*	**	**

\*: 安規認證 Agency approvals

\*\* : 安規認證及保險絲上有安規印字標記 Agency approvals and mark on fuse body.






TUV安規標示:保險絲本體印字為，標籤標示

TUV mark:  on fuse body and  in label.

**冷阻值範圍 & I<sup>2</sup>t Nominal Cold Resistance & I<sup>2</sup>t :**

Ampere Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec.)	Ampere Rating	Nominal Cold Resistance (Ohms)	Nominal Melting I <sup>2</sup> t (A <sup>2</sup> sec.)
63 mA	7.2730~13.507	0.00079	1.6 A	0.0641~0.1191	1.34055
80 mA	5.4474~10.117	0.00128	2 A	0.0509~0.0945	1.87920
100 mA	4.4363~8.2388	0.00200	2.5 A	0.0356~0.0662	4.50810
125 mA	2.3296~4.3264	0.00770	3.15 A	0.0259~0.0481	7.13700
160 mA	1.8942~3.5178	0.01272	4 A	0.0198~0.0368	14.5440
200 mA	1.4189~2.6351	0.06300	5 A	0.0146~0.0270	23.7780
250 mA	1.0059~1.8681	0.08820	6.3 A	0.0105~0.0195	38.8863
315 mA	0.6567~1.2195	0.08905	8 A	0.0074~0.0138	91.5381
400 mA	0.2618~0.4862	0.14400	10 A	0.0053~0.0098	189.180
500 mA	0.1750~0.3250	0.20700	12 A	0.0041~0.0075	296.369
630 mA	0.1137~0.2111	0.36512	12.5 A	0.0039~0.0072	323.438
800 mA	0.0792~0.1472	0.58481	15 A	0.0033~0.0061	412.420
1 A	0.0637~0.1183	0.91982	16 A	0.0028~0.0052	462.274
1.25 A	0.1023~0.1901	0.80190			

**貼紙 LABEL**

FUSES 5X20mm		LOT NO.:		CE	
Model and Spec : UBM F				A H250V	
 EN/IEC 60127-1 60127-2 www.tuv.com ID 008000000	UBM*****		Q'TY:		IEC 60127-2 SHEET 1 GB/T 9364.7 SHEET 1 IR: 1500A 250V AC
 					
Description:					
 CONQUER ELECTRONICS CO., LTD. TAIWAN, CHINA					
 XXXXXXXX*XXX*XXXXXXXXXX*XXX*XXXXXX					

填入數量

填入適當安規符號

填入全名

**10 產品描述 Description:**

描述 Description	安培數 Ampere Rating
VBS UBM ___A ___V (PF)	63mA~6.3A
VBS UBM-A ___A ___V (PF)	
RU UBM ___A ___V (PF)	8A/10A
VUC UBM ___A ___V (PF)	
RU UBM-A ___A ___V (PF)	
VUC UBM-A ___A ___V (PF)	12A/15A
CRU UBM ___A ___V (PF)	
CRU UBM-A ___A ___V (PF)	12.5A/16A
TUC UBM ___A ___V (PF)	
TUC UBM-A ___A ___V (PF)	





例： VBS    UBM    A    V    (PF)  
           1           2           3           4           5

- 1 安規認證 Agency Approvals
- 2 系列品名 Series Model : UBM/UBM-A
- 3 安培數 Ampere Rating : 63mA~16A
- 4 伏特數 Voltage Rating : 250V
- 5 無鉛標示 Pb Free : (PF)

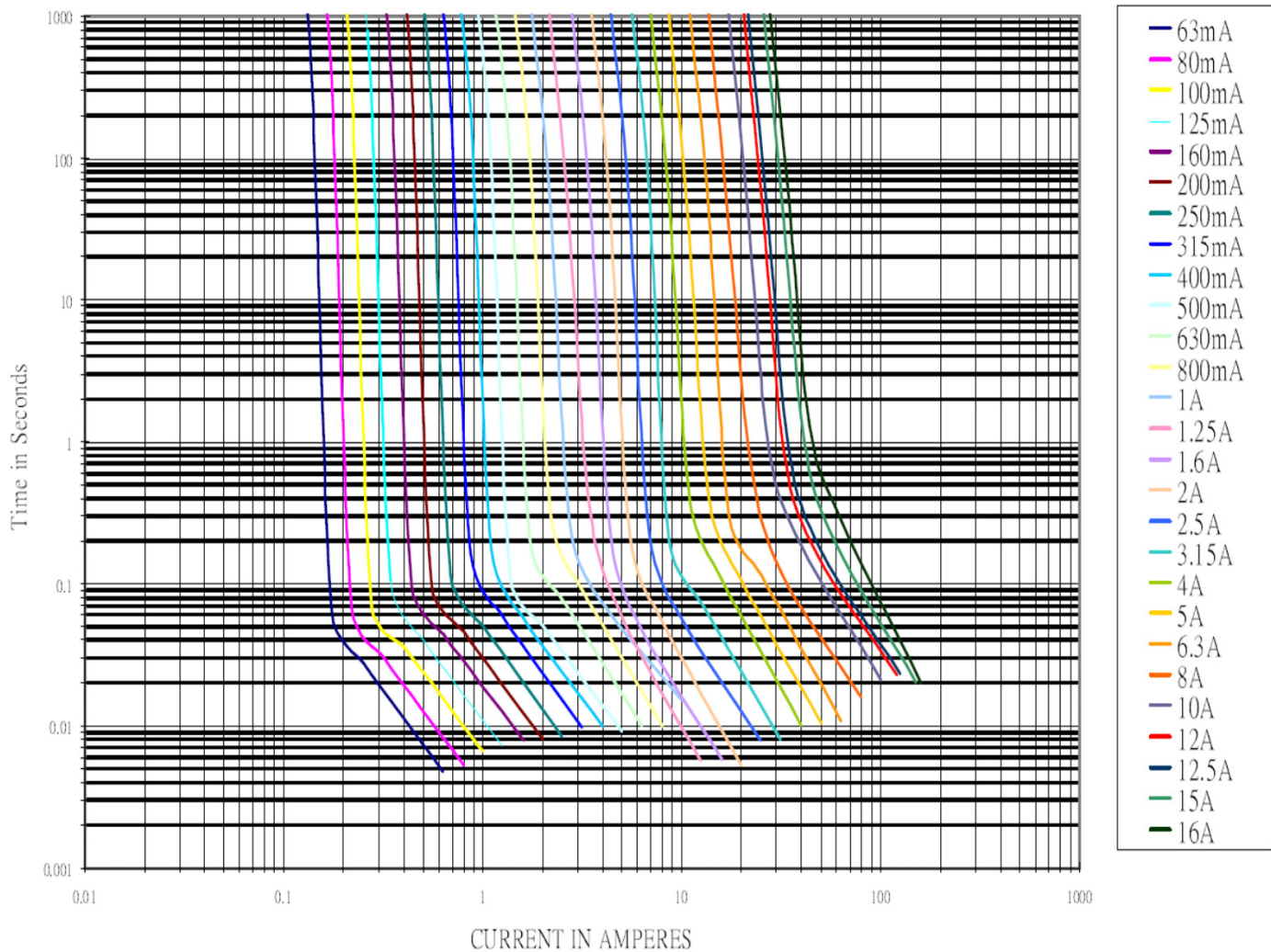
11 建議生產參數(無鉛焊錫使用)：

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

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

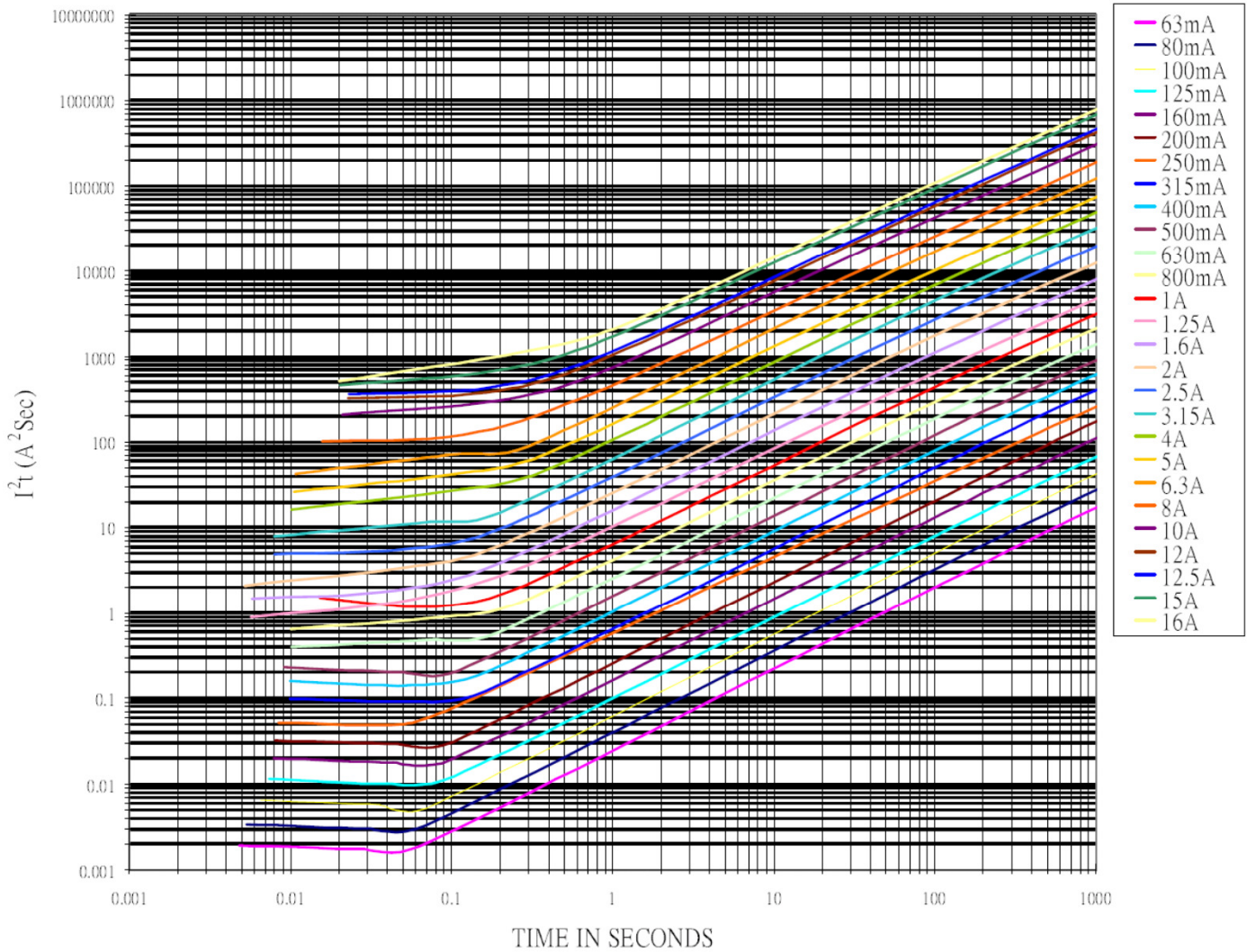
12 **It** 曲線圖 Time Current Characteristic Curve :

### Average Melting IT Curves



13  $I^2t$  曲線圖 Average Melting  $I^2t$  Curves :

### Average Melting $I^2t$ Curves



14 信賴性作業規定 Product Characteristics:

## Product Characteristics & Reliability Tests

Test item	Test Description & Reference
<b>Humidity unload test</b>	MIL-STD-202G · Method 103B · Test Condition A Heat (40±0.5°C) & High Humidity (95±1% RH), 240 hours, ΔR<15%
<b>Thermal shock test</b>	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%
<b>Vibration test</b>	MIL-STD-202G · Method 201A Frequency setup : 10 ~ 55 ~ 10 Hz Time setup : 1 Minutes/cycle (X-Y-Z,120 Cycles) 6hrs, ΔR<15%
<b>Salt spray Test</b>	MIL-STD-202G · Method 101E · Test Condition A Salt spray concentration : 5 ± 1% Test liquid temperature : 35 ± 0.5°C 96hrs, ΔR<15%
<b>Solderability test</b>	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%
<b>Resistance to Solder Heat Test</b>	Reference IEC 60068-2-20 Temperature setup : 260± 3°C, 10± 1 sec ΔR<15%

**15 焊錫性實驗 Solderability Test(For UBM-A):**

將保險絲安裝於電路板上，過錫爐試驗條件為 $250\pm 3^{\circ}\text{C}$ ，時間 $3.0\pm 0.3\text{S}$ ，浸泡深度 $2.0\pm 0.5\text{mm}$ ，經過測試後，焊接點的金屬部份必須被焊錫完全覆蓋，呈現光滑明亮。

Fix the fuse in the pcb and into soldering pot, immersion conditions:  $(250\pm 3)^{\circ}\text{C}$ ;  $(3.0\pm 0.3)\text{S}$ , depth of immersion:  $2.0\pm 0.5\text{mm}$ . After test, the contact areas were covered with a smooth and bright solder coating.

**16 耐溫實驗 Soldering Heat Resistance(For UBM-A):**

將保險絲安裝於電路板上，過錫爐試驗條件為 $260\pm 3^{\circ}\text{C}$ ，時間 $10\pm 1\text{S}$ ，浸泡深度 $2.0\pm 0.5\text{mm}$ ，經過測試後，保險絲是不能破裂的，保險絲上的標記是清楚的，保險絲上的色碼顏色是不能有變化，再量測壓降值，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 IEC 60127-2 Sheet 5。

Fix the fuse in the pcb and into soldering pot, immersion conditions:  $(260\pm 3)^{\circ}\text{C}$ ;  $(10\pm 1)\text{S}$ . depth of immersion:  $2.0\pm 0.5\text{mm}$ . After test, the fuse-link were not be cracked, marking were readable, color coding have not changed color, voltage drop did not exceed the maximum allowed in standard sheet.

**17 其他 Other:**

17.1 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  $25\pm 5^{\circ}\text{C}$  and 35-75% RH.

17.2 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.

17.3 操作溫度 Operation:  $-55^{\circ}\text{C}\sim 125^{\circ}\text{C}$ 。