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

規格書

Spec. No. SFA021

Specification For Approval

品名： UBM/UBM-A 系列
快速型瓷管保險絲

Type： UBM/UBM-A
Quick Acting High Breaking Capacity Series

Safety for your life

www.conquer.com.tw

五股廠：新北市五股區五權五路26號(新北產業園區)
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History of Change

REV.	Description	Date	Drawn	Designed	Checked	Approved
0	(1)發出Issue	2013.09.03	黃世宏	葉志強	蔡進義	蔡其翊
5	(1)修改內文項次6： Surge Test → Pulse Test (2)新增內文項次14：冷阻值範圍 & I^2T (3)增加曲線圖與信賴性規範	2014.06.27	黃世宏	邱俊傑	蔡進義	蔡其翊

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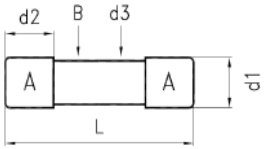
CONQUER

～ 筒 管 狀 保 險 絲 ～

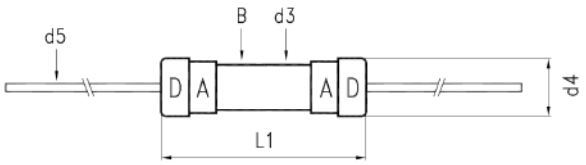
Fuses for Instrument, Power and Telephone (Non-indicating)

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.

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



UBM Series



UBM-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~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.

NO.	Part Name 部 品 名 稱		Volume 數量
A	Brass Cap 銅帽	- Nickel Plating - 鍍鎳	2
B	Ceramic Tube 瓷管	- Non-Transparent Ceramic Tube - 不透明瓷管	1
C	Fuse Element 可熔體		1
D	Cap-on Lead-Cap 銅帽附腳	- Tinned Copper Wire and Cap - 銅蓋加鍍錫銅線	2
d1	Dia. of Cap	- $5.2^{+0.1}_{-0.2}$ mm 銅頭直徑	
d2	Height of Cap	- 5.25±0.1mm 銅頭高度	
d3	Dia. of Ceramic	- 4.50±0.2 mm瓷管直徑	
d4	Dia. of Cap	- 5.9±0.2mm 銅帽直徑	
d5	Dia. of Lead Wire Length of Lead Wire	- (註1)±0.05mm 附腳直徑 - 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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※註1 (Note1)

安培數 Ampere Rating	腳徑 Lead Wire
63mA~12A	φ0.8 mm
12.5A(含)以上	φ1.0 mm

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 x In 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 x In 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 x In), 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 x In), 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720g/cm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 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:(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 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):
1500 amperes at 250V AC

9 **焊錫性實驗** Solderability of terminations(For UBM-A):
將保險絲安裝於電路板上，過錫爐試驗條件為250±3℃，時間3.0±0.3S，浸泡深度2.0±0.5mm，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±3)°C; (3.0±0.3)S, depth of immersion: 2.0±0.5mm. After test, the contact areas were covered with a smooth and bright solder coating.

10 **耐溫實驗** Resistance to soldering heat(For UBM-A):

將保險絲安裝於電路板上，過錫爐試驗條件為260±3℃，時間10±1S，浸泡深度2.0±0.5mm，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±3)°C；(10±1)S. depth of immersion: 2.0±0.5mm.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.

11 **包裝** Packing :

UBM-1000 PCS/盒 ; UBM-A-500 PCS/盒 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. ; UBM-A-500 pcs in an inner box. 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.

12 **其他** Other:

12.1 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℃ and 35-75% RH.

12.2 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.

13 **標記/安規認證** Mark/ Safety certification:

UBM Series

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

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UBM Series

Mark / Approvals											
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										＊＊	＊＊

＊: 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

UBM-A 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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UBM-A 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		＊＊	＊＊	＊＊			＊＊		
12 A									＊＊
12.5 A								＊＊	＊＊
15 A									＊＊
16 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

冷阻值範圍 & I^2T Cold Ohms Range & I^2T :

Ampere Rating	Nominal Resistance Cold Ohms Range	Nominal Melting I^2t A^2 Sec	Ampere Rating	Nominal Resistance Cold Ohms Range	Nominal Melting I^2t A^2 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			

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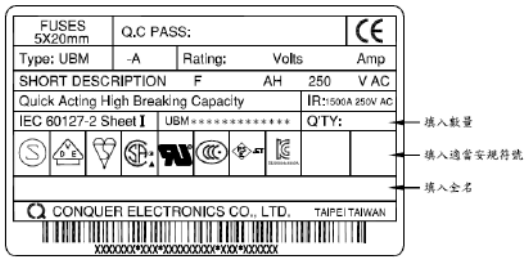
LABEL 貼紙



14 **系列品名列表** series model list :

品名	安培數
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)	
CRU UBM ___A ___V (PF)	12A/15A
CRU UBM-A ___A ___V (PF)	
TUC UBM ___A ___V (PF)	12.5A/16A
TUC UBM-A ___A ___V (PF)	

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

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

15 **建議生產參數(無鉛焊錫使用):**
Recommended Process Parameters(for the action to Lead-free solder alloy) :

15.1 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
15.2 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：5 seconds max. Heating Time : 5 seconds max.	

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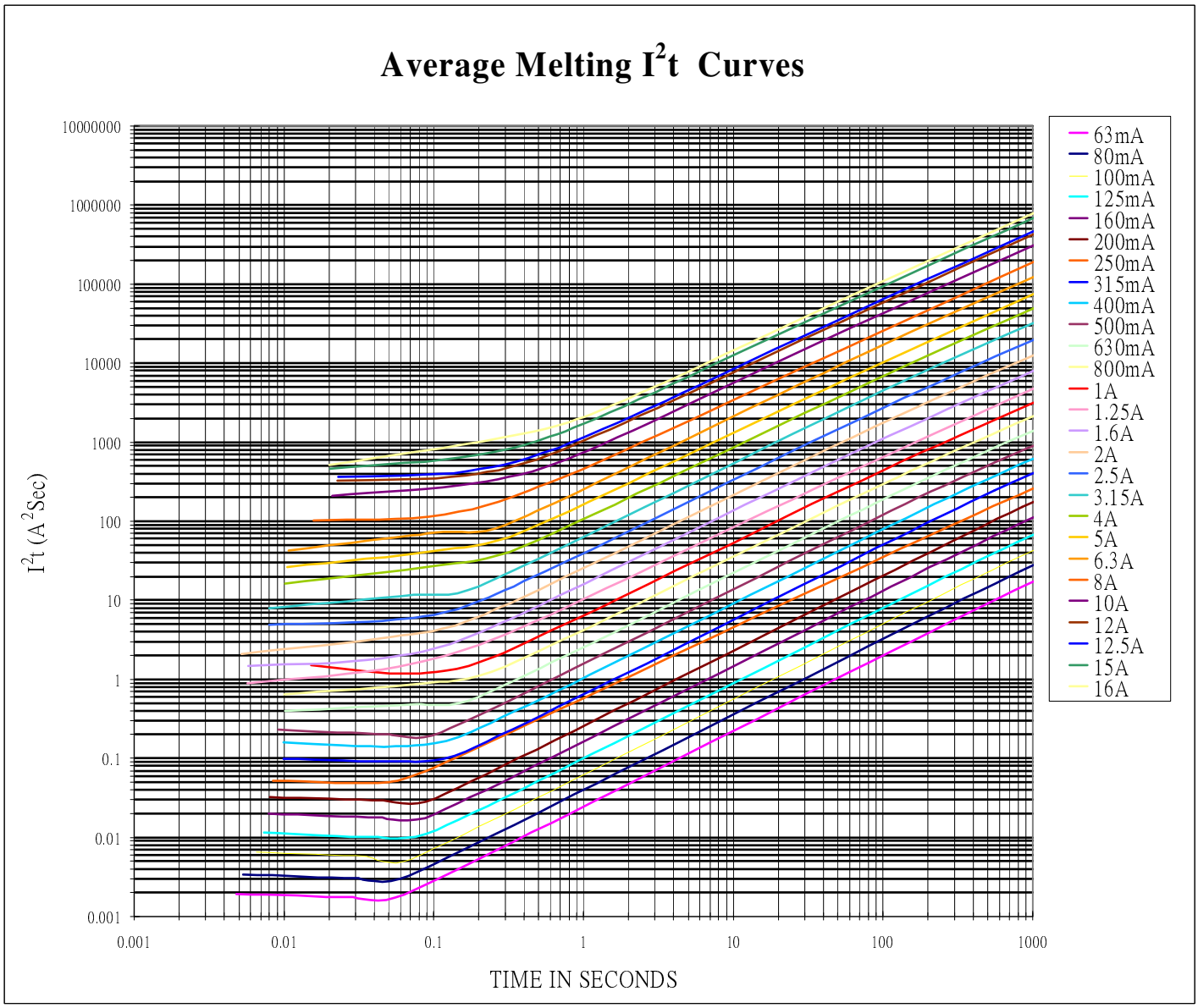
功得電子工業股份有限公司
CONQUER ELECTRONICS CO.,LTD.

* The curves are average value, for reference only *



MODEL	ENGINEER	DEPT.	APPROVE
UBM/UBM-A 250V Series I^2t Curves	Ryan	Jay	Arthur Tsai

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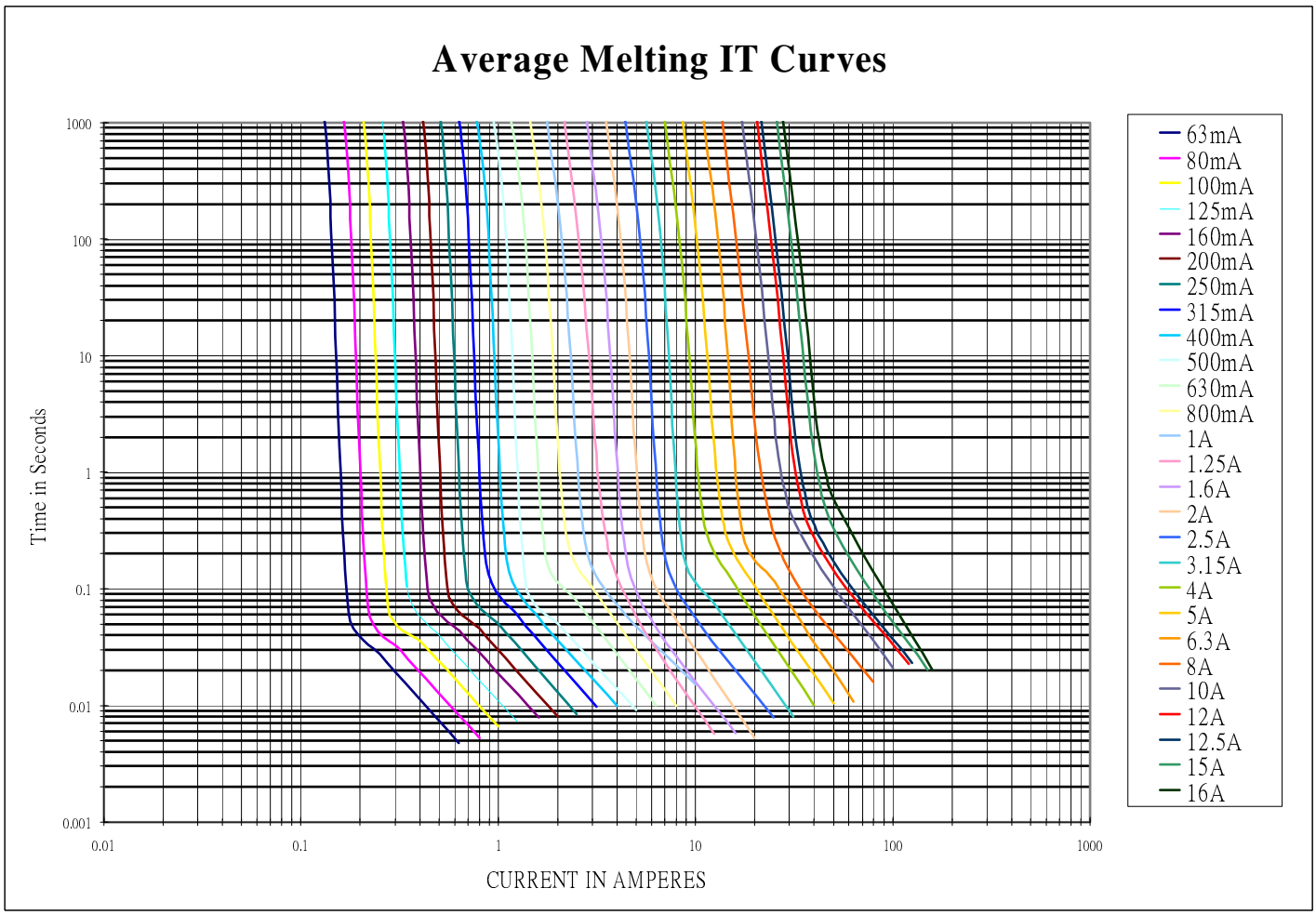

MODEL	ENGINEER	DEPT.	APPROVE
UBM/UBM-A 250V Series It Curves	Ryan	Jay	Arthur Tsai

Product Characteristics & Reliability Tests

Test item	Test Description & Reference
Humidity unload test	**MIL-STD-202G，Method 103B，Test Condition A** **Heat (40±0.5°C) & High Humidity (95±1% RH),** **240 hours , ΔR<15%**
Thermal shock test	**MIL-STD-202G, Method 107g，Test Condition B** **Temperature setup：25℃ ～ -65℃ ～ 25℃ ～ 125℃** **Time setup：-65℃(30min)～25℃(5min)～125℃(30min)~ 25℃(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℃** **96hrs, ΔR<15%**
Solderability test	**Reference IEC 60068-2-20** **Temperature setup：250 ± 3℃, 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℃, 10± 1 sec** **ΔR<15%**