



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

規格書

Spec. No. SFA082

Specification For Approval

品名：ALC 系列 瓷管保險絲

Type：ALC *Series*
Ceramic Tube Fuses

www.conquer.com.tw

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History of Change

REV.	Description	Date	Drawn	Designed	Checked	Approved
1	(1)發出Issue	2014.12.01	陳柏宇	邱俊偉	蔡廷義 趙家榮	蔡其湖

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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。
 Applicability: For protecting instruments, power supplies and telephone sets.

2 形狀及尺寸如下圖

Shape & Size as following illustrations.

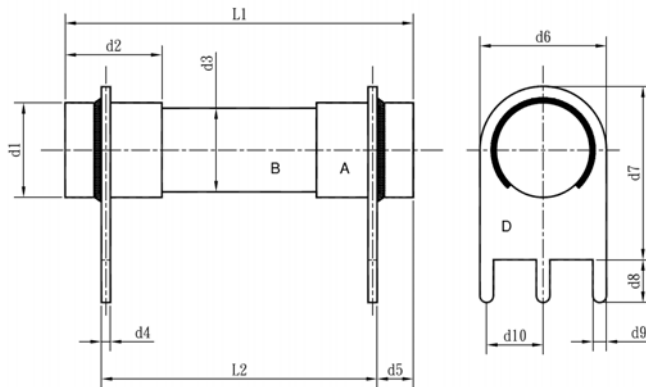


Fig.1

Recommend Circuit Board distance

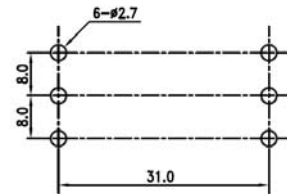


Fig.2

Table I unit:mm

d1	d2	d3	d4	d5	d6
14.6±0.2	10.7±0.1	13.4±0.5	1.0±0.1	4.0(max)	18.0±0.3
d7	d8	d9	d10	L1	L2
23.0±0.5	4.7±0.3	2.0±0.2	8.0±0.2	38.5±1.0	32.0±0.5

2.1 構造形狀：如圖1

Structure & Shape:As shown in figure 1

2.2 額定電壓：600V/250V

Rated Voltage: 600V/250V

2.3 額定電流：25~63A

Rated Current:25~ 63A

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.Breaking or deformation is not 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。

Coating of brass caps: Plating the surface with nickel.

Table II

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	Terminal 附腳 - Copper (Tin plating) - 銅鍍錫	2



4 電氣特性 Electrical Characteristics:

4.1 負載容量: 通過額定電流值 100 % (亦即 $1.0 \times I_n A$) , 能繼續通電至少 4 小時無任何熔化現象。

Loading Capacity: Loading 100% of rated current (i.e. $1.0 \times I_n A$) the fuse shall not operate during 4 hours.

4.2 溫度特性: 通過額定電流值 100% (亦即 $1.0 \times I_n A$) 1.5 小時, 繼續維持原加之電流, 每隔十分鐘測試一次, 連續測三次, 溫度不得升高, 若使用熱偶式測量方法, (Thermocouple method) 則本體溫升在 $175^\circ C$ 以下。

After loading 100% of rated current ($1.0 \times I_n A$) for 1.5 hours, the individual temperature rise readings of 3 continuous readings taken at 10 min intervals shall not exhibit the trend of increasing temperature rise. The maximum temperature rise on the surface of fuse body shall be less than $175^\circ C$ which measured by thermocouple method.

4.3 過載熔斷: Melting due to overloading:

請參照下表: Details as following Table III.

Table III 最大熔斷時限 Operating Characteristics

安培數 Rating	100% Rating		200% Rating	
	Min.	Max.	Min.	Max.
63A	4 Hrs	—	—	120 sec

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 without loosening or any appearance defect.

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 脈波實驗 Cycle Test (On-Off Test):

本實驗乃保證產品之壽命與可靠度, 施加 60% 額定電流之脈波, 1 分鐘 ON, 2 分鐘 OFF, 1000 次以後, 本品不熔斷且內阻變化 20% 以下。

This test is designed to assure a reliable fuse, setting 60% of rated current, 1 minute ON 2 minutes OFF per cycle, the fuse can pass 1000 cycles and the difference of fuse resistance shall be less than 20%.

8 遮斷能力 Interrupting rating:

1500 amperes at 600V AC

2000 amperes at 250V AC

500 amperes at 125V DC


9 包裝 Packing :

ALC 60 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。
 ALC 60 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 or HF environmental protection request and shall not have the chemical reaction with the parts of fuse.

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 were 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 of storage at the atmosphere (25±5°C and 35-75% RH.),
 the fuse shall comply with electrical and mechanical requirements in clause 4 and 5.

11 標記 Marking:

Mark	
Approvals	
63A	**

** : 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

標記 Marking

第一面	第二面
	

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

Ampere Rating	Nominal Resistance Cold Ohms	Nominal Melting I ² t A ² Sec
63A	0.907~1.68mΩ	9892.95

13 系列品名列表 Series model list :

品名	安培數
ALC ___ A ___ V (PF)	25~63A

例: ALC A V (PF)
 1 2 3 4

- 1 系列品名 Series Model : ALC
- 2 安培數 Rated current:25~63A
- 3 伏特數 Rated voltage : 600V/250V
- 4 無鉛標示 Pb free : (PF)



14 建議生產參數(無鉛焊錫使用)：

Recommended Process Parameters(for lead-free solder alloy)：

14.1 建議手持烙鐵焊接參數 Recommended Hand-Soldering Parameters	烙鐵溫度：350°C +/-5°C Soldering Iron Temperature : 350°C +/-5°C 加熱時間：40 seconds max. Heating Time : 40 seconds max.	
14.2 波峰參數 Wave soldering Parameters	預熱溫度 Pre-heat temperature 最低溫度：100度 Minimum Temperature : 100°C 最高溫度：150度 Maximum Temperature : 150°C	錫槽溫度(280度 Maximum) Solder Pot Temperature : 280°C Max 焊接時間 8 seconds max Solder Dwell Time: 8 seconds max

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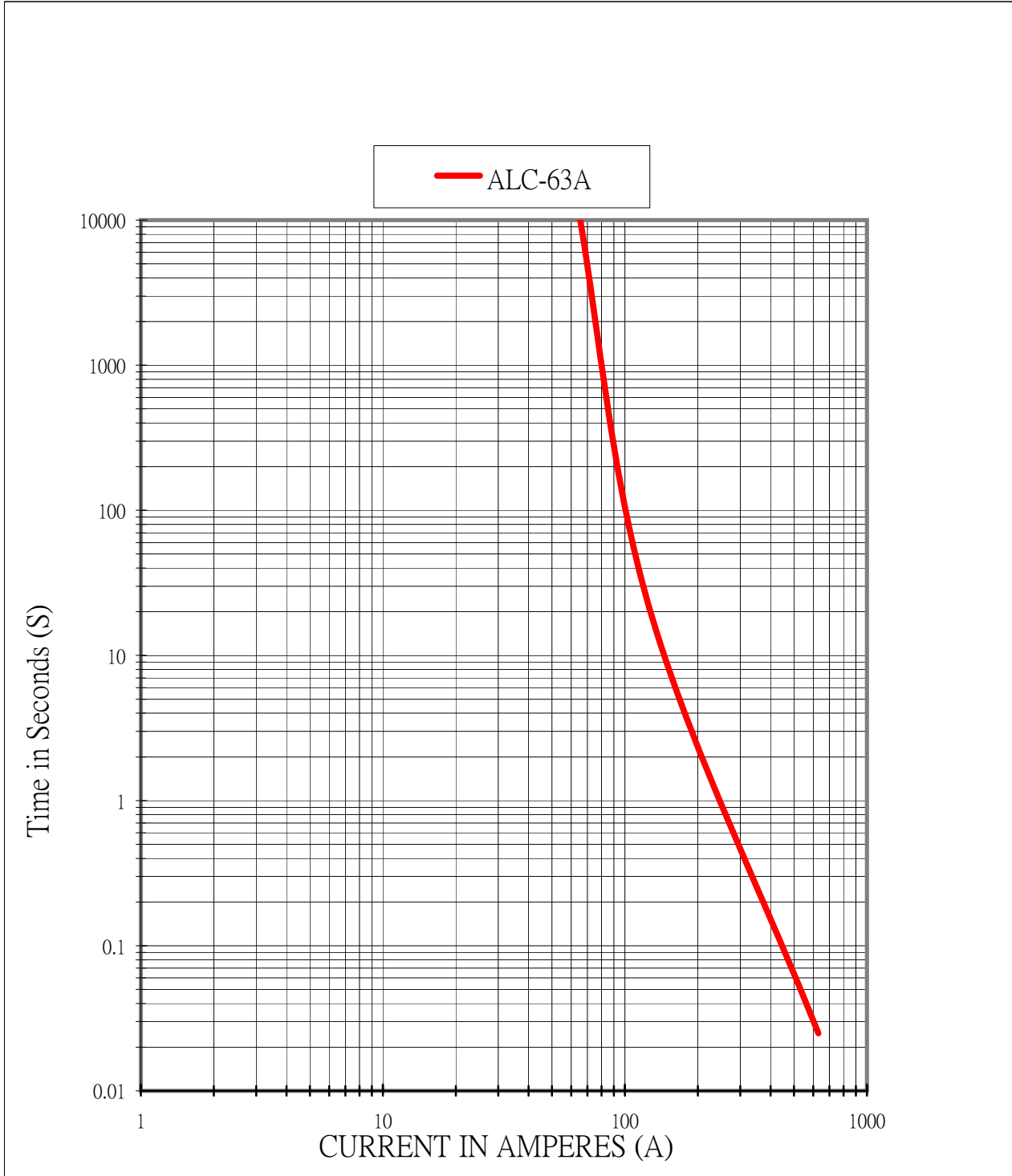
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* The curves are average value, for reference only *

Average Melting It Curves



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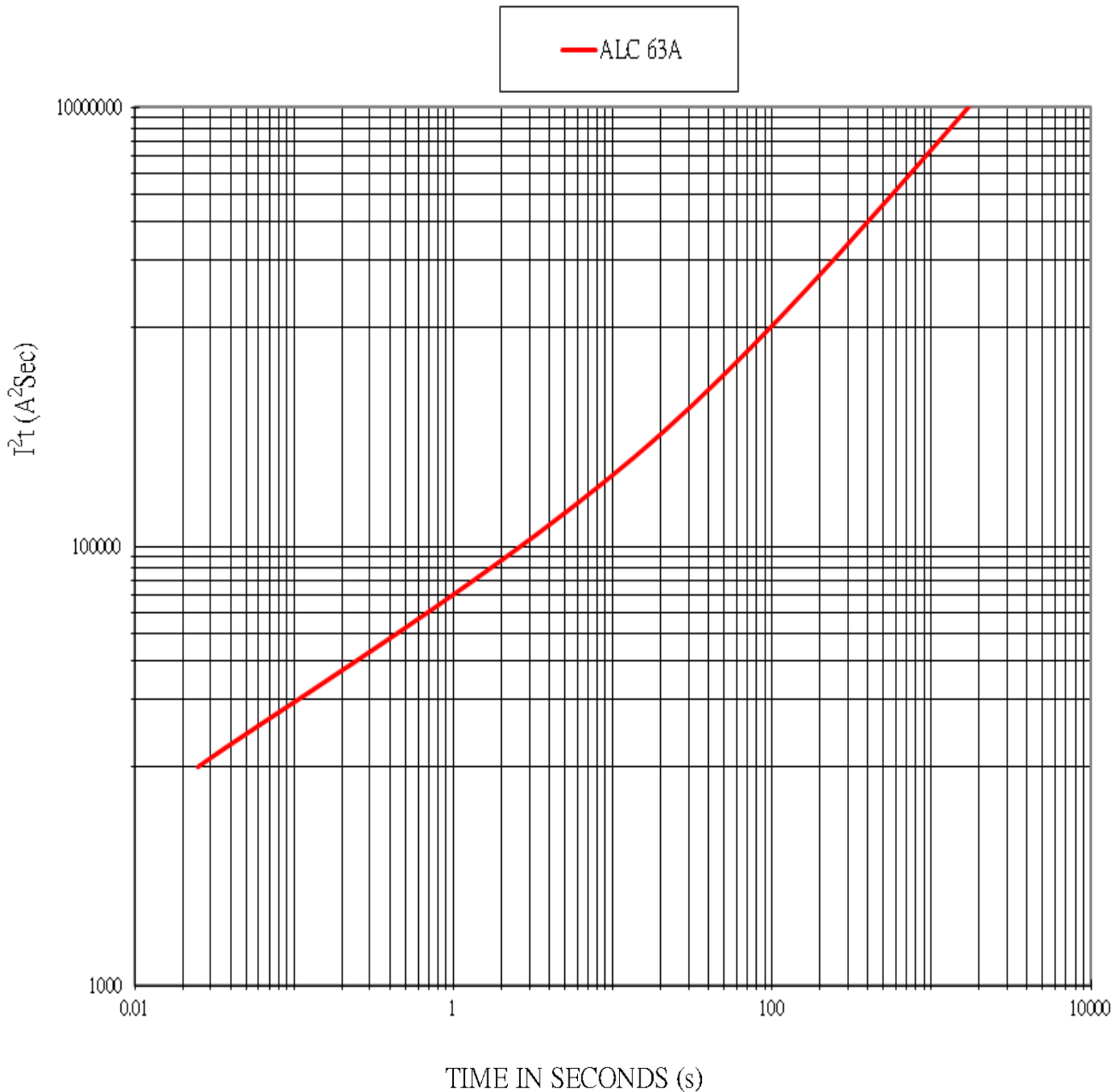
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Average Melting I²t Curves



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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°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%