

规格承认书

SPECIFICATION FOR APPROVAL

客户名称:

CUSTOMER: _____

产品名称:

贴片保险丝 SMD FUSE

PRODUCT NAME: _____

型号:

5F(2050) (RoHS) 20.5*5.06*5.06 (2050) mm

MODEL NO.: _____

客户规格:

CUST.SPECIFICATION: _____

客户料号:

CUST.PART NO.: _____

供应商:

东莞市安伏特电子有限公司

SUPPLIER: _____

DONGGUAN AMPFORT ELECTRONICS CO LTD

编制 PREPARED BY	审核 CHECKED BY	批准 APPROVED BY
李莉	唐虎	罗小权

编制 PREPARED BY	审核 CHECKED BY	批准 APPROVED BY

供方签章:

SUPPLIER: _____

日期:

DATE: _____



需方签章:

CUSTOMER: _____

日期:

DATE: _____

规格承认书

Specification for approval



表面贴装保险丝

产品名称: 5F 系列(2050)慢断型

Product Type: 5F Series (2050) Time-Lag

Surface Mount Fuse

Dongguan AMFORT Electronics Co., Ltd

东莞市安伏特电子有限公司

1. 产品特性及应用范围 / Description, Features and Applications

本产品适用于各类电子设备电路初、次级电路板的过流保护, 广泛应用于固态照明、电池充电、消费电子、电子镇流器、LED AC/DC 电源供应、网络通信、医疗仪器及工业控制器等领域。

Descriptions:

AMPFORT 2050 series *Fast blow* square Surface Mount fuses are ceramic tube/end cap constructions, RoHS compliant, Halogen Free and lead(Pb) exempts of the requirements of RoHS Directive(2002/95/EC), with U.S. (UL/CSA) safety agency approvals. Provide board level primary and secondary circuit protection in a wide variety of applications. With excellent inrush current withstanding capability, excellent reliability for thermal and mechanic shock, also have a high reliability and stable solder ability, end caps are available in gold/silver/nickel plated.

Features:

- Fast-acting
- Wide range of current rating available
- Low temperature de-rating
- Tape and Reel for automatic placement
- Small size(20.5mm*5.06mm)
- Wide operating temperature range
- RoHS compliant
- Conflict free metals

Applications:

- LED lighting
- LCD backlight inverter
- PC server
- Wireless base station
- Digital camera
- Notebook PC
- Portable Devices
- Cooling fan system
- White goods
- Industrial equipment
- Battery devices
- Power supply
- Storage system
- Game console
- Medical equipment
- LCD/PDP devices
- Networking devices
- Telecom system
- Office equipment
- Automotive devices

2. 安规认证标准及编号 / Standards and Agency Approvals

2.1 执行标准: 遵循 UL 248-14。

Standards: In accordance with UL 248-14.

2.2 认证范围 Certification:

安规标准 Agency	认证范围 Ampere Range	证书编号 Agency File Number
UL	200mA ~ 60A	E340427(JDYX2)
cUL	200mA ~ 60A	E340427(JDYX8)

2.3 目录编号 Catalogue No., ● 已认证 Approved / ○ 认证中 Pending

目录编号 Catalog No.	额定电流 Ampere Rating	额定电压 Voltage Rating		分断能力 Breaking Capacity	安规认证	
					Agency Approvals	Agency Approvals
5F2050.0.2	200mA	700VDC/650VAC 600V/500V/400V/350V/250V/125V/AC/DC	250V/125VAC/DC 100V/80V/72V/63V/32VDC	1000A@32V63V72VDC 80V100VDC 500A@250V125VAC/DC 350V400V500VAC/DC 600V650VDC 700VDC	●	●
5F2050.0.25	250mA				●	●
5F2050.0.3	300mA				●	●
5F2050.0.315	315mA				●	●
5F2050.0.375	375mA				●	●
5F2050.0.5	500mA				●	●
5F2050.0.63	630mA				●	●
5F2050.0.8	800mA				●	●
5F2050.1	1A				●	●
5F2050.1.25	1.25A				●	●
5F2050.1.5	1.5A				●	●
5F2050.1.6	1.6A				●	●
5F2050.2	2A				●	●
5F2050.2.5	2.5A				●	●
5F2050.3	3A				●	●
5F2050.3.15	3.15A				●	●
5F2050.3.5	3.5A				●	●
5F2050.4	4A				●	●
5F2050.5	5A				●	●
5F2050.6	6A				●	●
5F2050.7	7A				●	●
5F2050.8	8A				●	●
5F2050.10	10A				●	●
5F2050.12	12A				●	●
5F2050.15	15A				●	●
5F2050.16	16A				●	●
5F2050.20	20A	●	●			
5F2050.25	25A	100V/80V/72V 63V/32V DC	●	●		
5F2050.30	30A		●	●		
5F2050.35	35A		●	●		
5F2050.40	40A		●	●		
5F2050.50	50A		●	●		
5F2050.60	60A		●	●		

- *: These catalog no. cold resistance and I2t value are pending due to fuse elements shall be customized;
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C;
- Typical Pre-arcing I2t are calculated at 10*In Current or 8ms;

➤ Min Interrupting Rating: 1.35*In.

3. 产品标示 / Product Marking

保险丝上需有下列标示 / The fuses shall have the following markings

示例 Example:

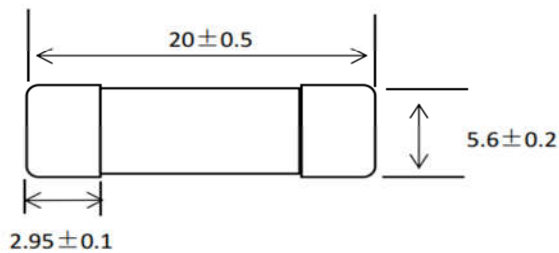
	5F	_A		① 制造厂商标识/ Trade Mark:
③	②	③	④	② 系列型号名称/Series Type Name: 5F
③	额定电流/Rated Current (A): __A 或 or __mA			
④	认证符号/ Approval Marks:			

注: 对于标示的大小和位置没有规定 / Note: Size and position of the markings shall not be provided.

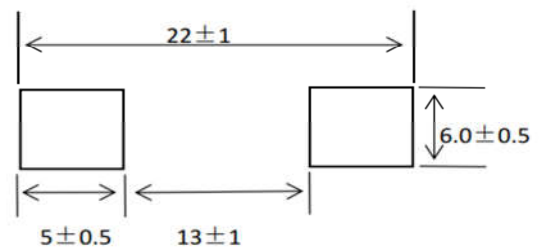
4. 结构及尺寸 / Dimensions and Structure

单位: 毫米 / Unit: mm

Dimensions and Structure (Unit: mm)



Recommended pad layout



5. 材料明细 / Material Details

编号 NO.	零件名称 Part Name	材质 Material
①	端帽 End caps	黄铜镀锡 Tin Plated Brass
②	主体 Body	陶瓷管 Non-Transparent Square Ceramic Tube
③	熔丝 Fuse element	合金 Cu-Ag Alloy wire

6. 产品特性 / Product Characteristics

编号 NO.	项目 Item	内容 Content	参考标准 Reference standards
1	产品标识 Product Marking	Brand, Ampere Rating	Marking standards
2	工作温度 Operating Temperature	-55°C to 125°C	-55°C to 125°C with proper derating
3	可焊性 Solderability	T=240°C±5°C, t=3sec±0.5sec, Coverage≥95%	MIL-STD-202, Method 208
4	耐焊接热 Resistance to Soldering Heat	10 sec at 260°C	MIL-STD-202, Method 210, Test condition B
5	绝缘阻抗 Insulation Resistance (after Opening)	10,000 ohms minimum	MIL-STD-202, Method 302, Test Condition A
6	热冲击 Thermal Shock	5 cycles, -65°C / +125°C, 15 minutes at each extreme	MIL-STD-202, Method 107, Test Condition B
7	机械冲击 Mechanical Shock	100G's peak for 6 milliseconds, 3cycles	MIL-STD-202, Method 213, Test I
8	振动试验 Vibration	0.03" amplitude, 10-55 Hz in 1 min. 2hrs each XYZ=6hrs	MIL-STD-202, Method 201
9	耐湿性 Moisture Resistance	10 cycles	MIL-STD-202, Method 106
10	盐雾试验 Salt Spray	5% salt solution, 48hrs	MIL-STD-202, Method 101, Test Condition B

7. 电气特性 / Electrical Characteristics

7.1 实验条件: Test Condition

所有测试环境温度均为 25±5°C。

All electrical test is to be conducted with the ambient air at a temperature of 25±5°C.

7.2 分断能力 Interrupting Rating:

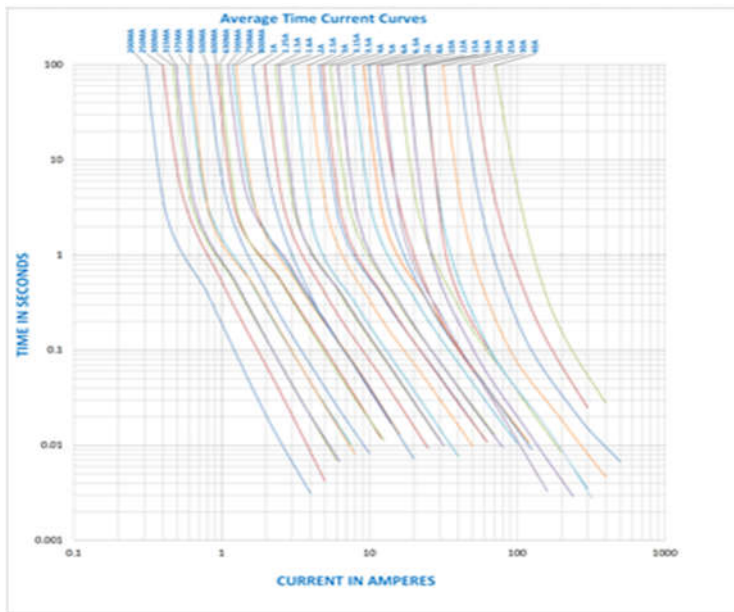
保险丝承受分断能力: 1000A@32V63V72VDC80V100VDC500A@250V125VAC/DC350V400V500VAC/DC
600V650VDC700VDC

Breaking Capacity: 1000A@32V63V72VDC80V100VDC500A@250V125VAC/DC350V400V500VAC/DC
600V650VDC700VDC

7.3 熔断时限 / Operating Characteristics

额定电流的% % of Ampere Rating(In)	熔断时间 Blowing Time
100% * In	大于 4 小时(4 hours Min)
200% * In	小于 120 秒 (120 sec Max)

7.4 平均时间电流曲线图 / Average Time Current Curves

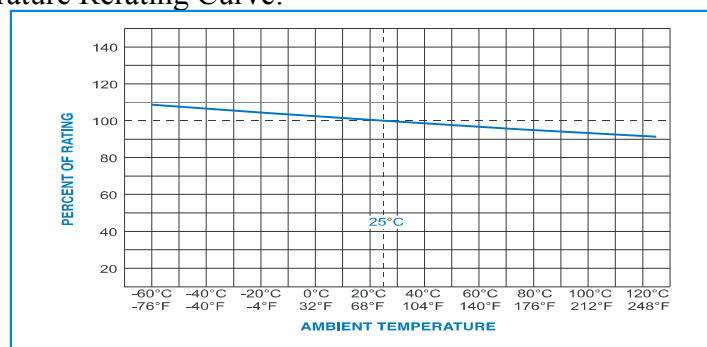


7. 环境特性 / Environmental Characteristic

若操作环境温度超出 $25 \pm 5^\circ\text{C}$ 范围，在选用保险丝规格时，需考虑操作环境温度对保险丝的影响，请参照如下：温度-电流曲线图。

When choosing the fuse's specification, if the operating environmental temperature beyond the scope from $20\sim 30^\circ\text{C}$, engineer should consider the environmental temperature's affection to fuses.

Please refer: Temperature Rerating Curve:



8. 建议焊接参数 / Recommended Soldering Parameters

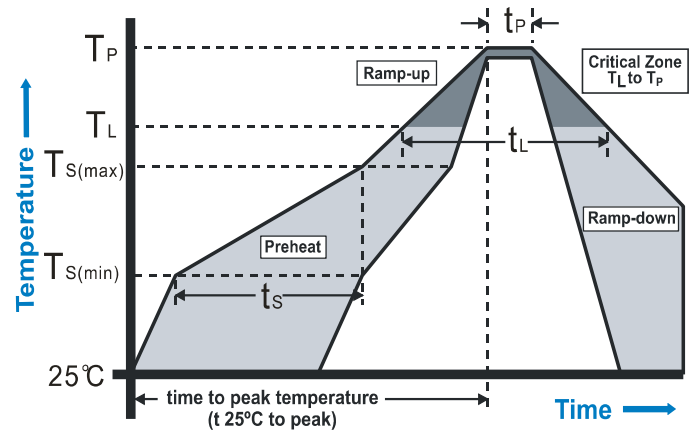
A. 波峰/回流焊参数 / Wave /Reflow Soldering Parameters:

锡膏工艺 / Solder paste process.

锡炉温度 / Solder Pot Temperature: 260°C Max

焊接时间 / Solder Dwell Time: 5 seconds max

Reflow Condition		Pb-Free assembly
Average ramp-up rate (Ts(max)to Tp)		5°C /second max.
Preheat	Temperature Min (Ts(min))	150°C
	Temperature Max (Ts(max))	200°C
	Time (Min to Max) (ts)	60-120 seconds
Reflow	Temperature (TL)	220°C
	Time Max (tL)	60 seconds
Peak Temperature(Tp)		260°C max
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (Tp)		8 minutes max



B. 手工焊参数 / Hand-Solder Parameters:

烙铁温度 / Solder Iron Temperature: 300±5°C

焊接时间 / Heating Time: 1~2 s Max

9. 包装 / Packaging

1000/1500/2000PCS 盘

10. 其他 / Others

11.1 如果在使用中有超出本规格书的要求，须经双方协商确认。

In the event that an impropriety is found beyond this specification, it shall be fixed by mutual agreement between the parties.

附件 I: 安规证书 / Appendix I: Safety approval certificates