

规格承认书

Specification for approval

产品名称: SFE 系列 2410/6125/1808 快断型 表面贴装保险丝 125Vac

Product Type: Bel Fuse SSQ 4 Equivalent 6125 Metric Fast Blow 4 A 125 VAC 125

VDC Surface Mount Fuses SFE1400 With Sliver Plated

Ao littel Technology Co.Ltd.

Bld. 16, Yanhe East Road, Xiangdong Village, Dongguan 523833,
Guangdong, China

H.P.: 1371362419

Fax #: 0769-89390418

QQ #: 3217998702

Email: eric.lye@aolittel.com

<http://www.passivemall.com/>

<http://www.aolittel.com/>

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:

AO LITTEL 6125 series slow-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 (Fast-Acting)
- Wide range of current rating available
- Low temperature de-rating
- Tape and Reel for automatic placement
- Small size(6.1mm*2.5mm)
- 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	50mA ~ 15A	E340427(JDYX2)
cUL	50mA ~ 15A	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	冷阻值 Nominal Cold Resistance (Ohms)	熔化热能 I ² T Melting Integral(A ² .S)	安规认证 Agency Approvals	
SFE0250	250mA	125VAC	50A@300VAC 50A@250VAC 200A@125VAC	0.860	0.145	●	●
SFE0300	300mA			0.620	0.162	●	●
SFE0315	315mA			0.550	0.189	●	●
SFE0375	375mA			0.470	0.200	●	●
SFE0400	400mA			0.380	0.238	●	●
SFE0500	500mA			0.320	0.275	●	●
SFE0600	600mA			0.285	0.470	●	●
SFE0630	630mA			0.256	0.566	●	●
SFE0700	700mA			0.208	0.805	●	●
SFE0750	750mA			0.175	1.240	●	●
SFE0800	800mA			0.155	1.880	●	●
SFE1100	1A			0.148	3.500	●	●
SFE1125	1.25A			0.102	4.760	●	●
SFE1150	1.5A			0.085	6.305	●	●
SFE1200	2A			0.044	8.950	●	●
SFE1250	2.5A			0.043	16.025	●	●
SFE1300	3A			0.033	21.560	●	●
SFE1315	3.15A			0.029	22.750	●	●
SFE1350	3.5A			0.027	27.050	●	●
SFE1400	4A			0.025	31.808	●	●
SFE1500	5A			0.019	40.250	●	●
SFE1600	6A	0.018	67.245	●	●		
SFE1630	6.3A	0.017	73.550	●	●		
SFE1700	7A	0.016	76.280	●	●		
SFE1800	8A	0.015	80.750	●	●		
SFE2100	10A	0.014	110.380	●	●		
SFE2120	12A	0.013	158.080	●	●		
SFE2150	15A	0.012	160.680	●	●		

- *: 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-arching I²t are calculated at 10*I_n Current or 8ms;
- Min Interrupting Rating: 1.35*I_n.

3. 产品标示 / Product Marking

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

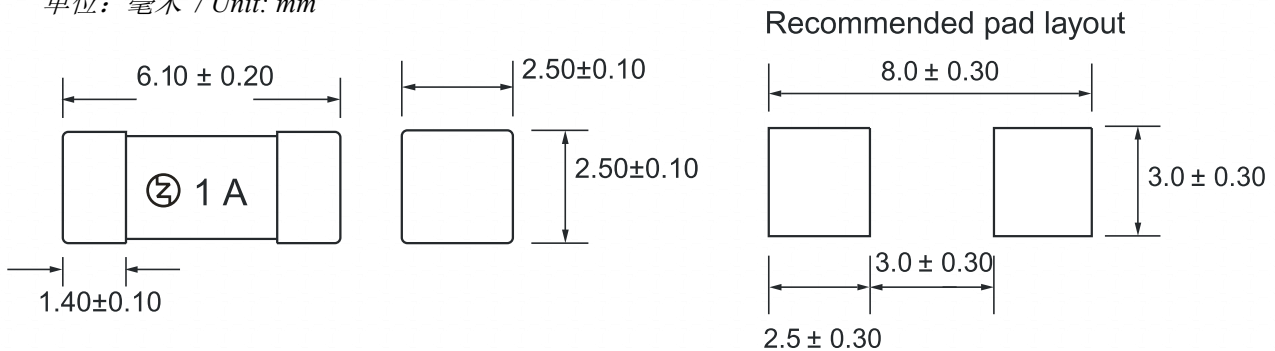
示例 Example:

	1A	①	制造厂商标识/AO LITTEL Trade Mark:
①	②	②	额定电流/Rated Current (A): __A 或 or __mA

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



5. 材料明细 / Material Details

编号 NO.	零件名称 Part Name	材质 Material
①	端帽 End caps	黄铜镀金 Au Plated Brass Cap
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	Ao littel marking standards

2	工作温度 Operating Temperature	-55°C to 125°C	IEC60068-2-1/2
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:

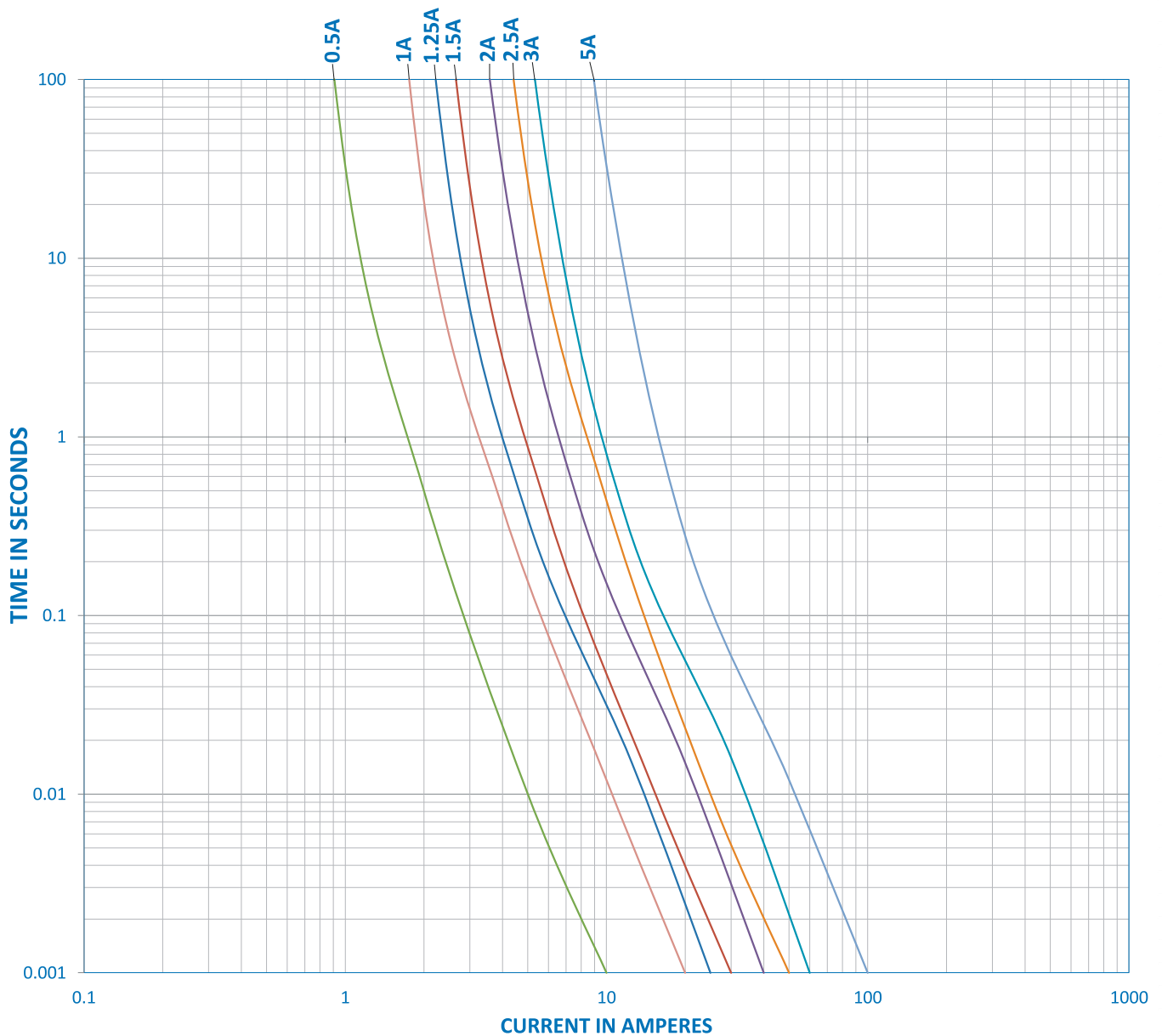
保险丝承受分断能力: 50A@250Vac, 200A@125Vac.

Breaking Capacity: 50A@250Vac, 200A@125Vac.

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)
1000% * In	大于 10 毫秒 (10ms Min)

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

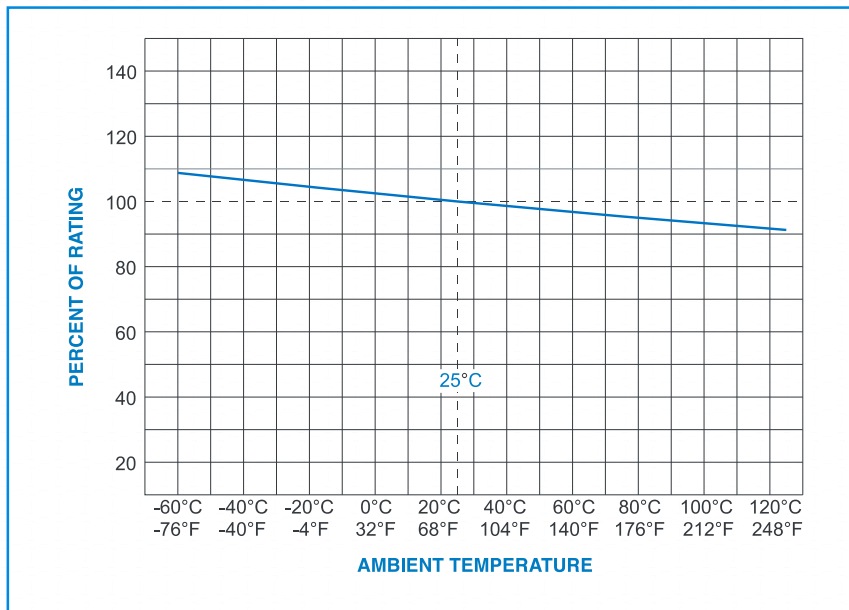


8. 环境特性 / Environmental Characteristic

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:



9. 建议焊接参数 / Recommended Soldering Parameters

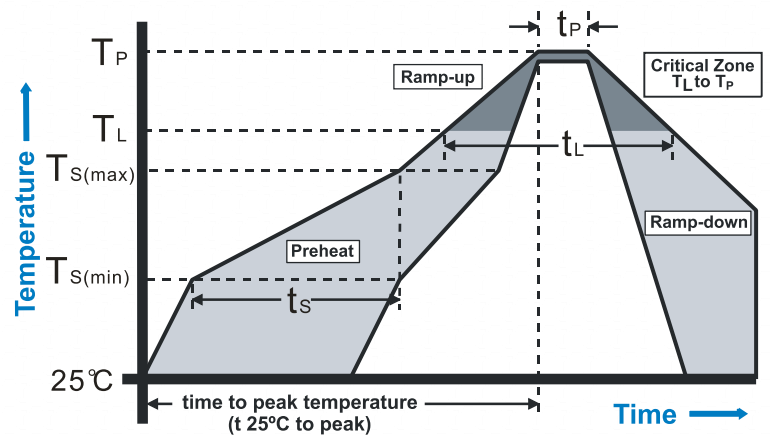
A. 波峰/回流焊参数 / Wave /Reflow Soldering Parameters:

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



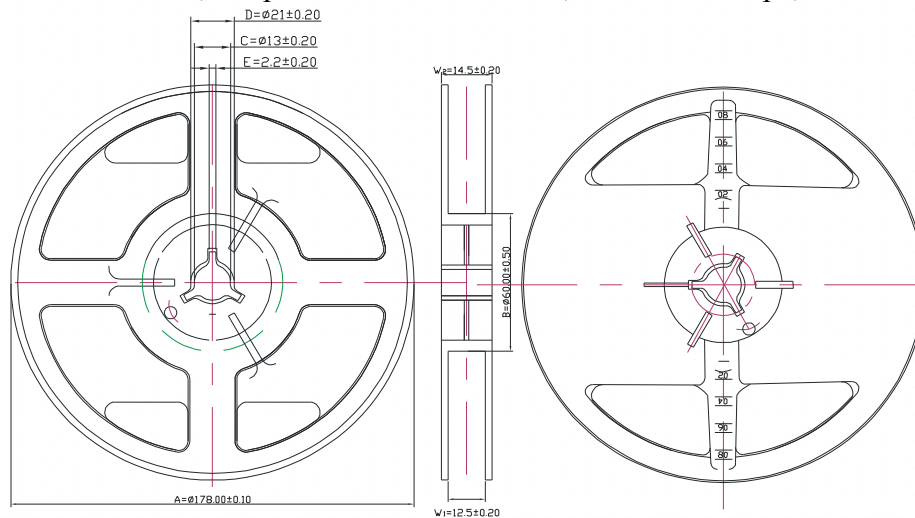
B. 手工焊参数 / Hand-Solder Parameters:

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

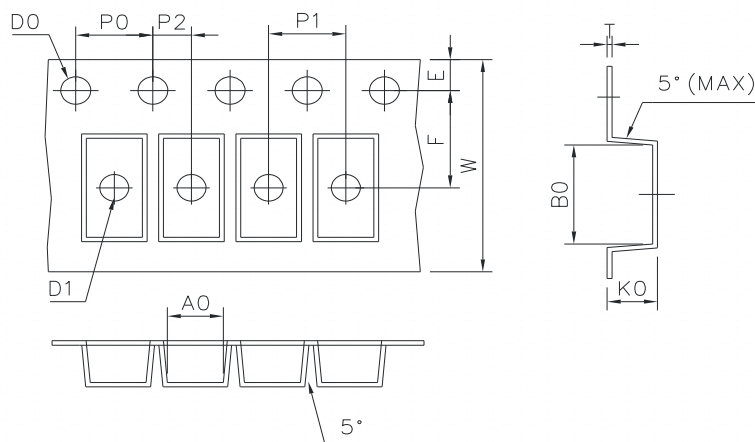
焊接时间 / Heating Time: 1~2 s Max

10. 包装 / Packaging

1000 个每卷/ 1,000 pcs in 7 inches dia. reel, 12mm wide tape, EIA Standard 481



Item	A	B	C	D	E	W1	W2
Spec.(mm)	178±0.10	60±0.50	13±0.20	21±0.20	2.2±0.20	12.5±0.20	14.5±0.20



Item	A ₀	B ₀	D ₀	D ₁	E	F
Spec.(mm)	2.70±0.10	6.40±0.10	1.50±0.10	1.50±0.25	1.75±0.10	5.50±0.10
Item	K ₀	P ₀	P ₁	P ₂	W	t
Spec.(mm)	2.70±0.10	4.00±0.10	4.00±0.10	2.00±0.10	12.00±0.15	0.25±0.05

11. 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