深圳市蓝宝安科电子有限公司
Shenzhen LanbaoAnke Electronics Co.,Ltd.

承　认　书

APPROVAL SHEET

编号 NO.	LB-0603FF-01
版次 Ver.	A/3

客户 Customer	

品名 Product	贴片保险丝 SMD FUSE
系列 Series	0603FF系列　0603FF Series

料号Part No.		规格描述Specification	备注Remark
蓝宝 LB FUSE			
客　户 Customer			

供应商-蓝宝 Supplier-LB fuse		零件承认章 Approval Signet	客户 Customer	零件承认章 Approval Signet
制作 Make				
审查 Check				
批准 Approval				

联络Contact			
业务Sales	电话Telephone	手机Cellphone	邮箱E-mail
			lanbaofuse@163.com
零件承认后敬请回签一份给我司留存。			

History of Change变更记录

NO.	日期 Date	描述 Description	版次 Edition	修改 modified by	审核 Checked by
1	2018.6.6	新制订	A/1		
2	2023.5.31	更改为新封面	A/2		
3	2023.12.15	增加9.2 PN编码规则	A/3		
4					
5					
6					
7					
8					
9					
10					
11					

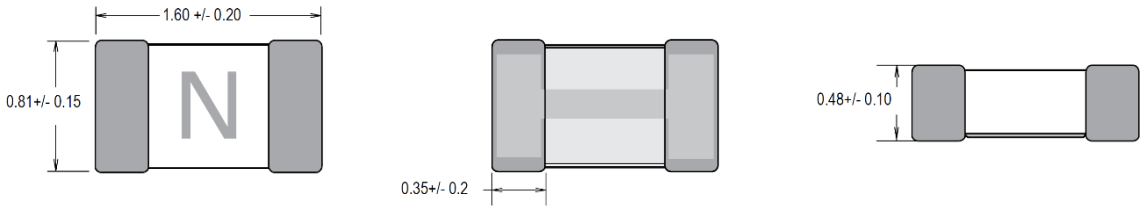
1.适用范围 / SCOPE

本规格书适用于蓝宝公司0603FF系列快熔断型过电流保护贴片保险丝。
This specification is applicable to over-current protection thick film fuse for 0603FF fast acting series produced by LANBAO corporation.

2.产品特点/ Features

兼容回流焊和波峰焊 / Compatible with reflow and wave solder
陶瓷和玻璃结构 / Ceramic and glass construction
工作温度-55℃ to 125℃ / Operating temperature -55℃ to 125℃
无铅无卤素材料 / Lead Free and Halogen free material

3.产品尺寸/ Dimensions（mm）



说明：元件的陶瓷面印标示，保护玻璃与字符颜色均为蓝色。
Notes: The element is marked with ceramic face print, Protective glass and character color are blue.

4.基本信息/ ORDERING INFORMATION

Part NO. 料 号	Voltage Rating 额定电压	Current Rating 额定电流	Breaking Capacity 分断电流	Typical Cold Resistance（mΩ） 标准冷电阻	Typical Pre-Arcing I2T (A^2Sec) 熔化热值	Marking 标记
0603FF250mA	24Vdc 32Vdc 48Vdc 63Vdc	250mA	24Vdc@50A 32Vdc@50A 48Vdc@50A 63Vdc@50A	3250	0.0004	D
0603FF375mA		375 mA		1800	0.0009	E
0603FF500mA		500mA		1070	0.001	F
0603FF750mA		750mA		470	0.009	G
0603FF1A		1A		250	0.01	B
0603FF1.5A		1.5A		150	0.04	H
0603FF2A		2A		75	0.11	K
0603FF2.5A		2.5A		47	0.14	L
0603FF3A		3A		35	0.28	O
0603FF3.5A		3.5A		27	0.50	R
0603FF4A		4A		18	0.60	S
0603FF5A		5A		12	1.9	T
0603FF6A		6A		11	1.7	V
0603FF7A		7A		9.5	2.3	X
0603FF8A		8A		7	3.0	Z

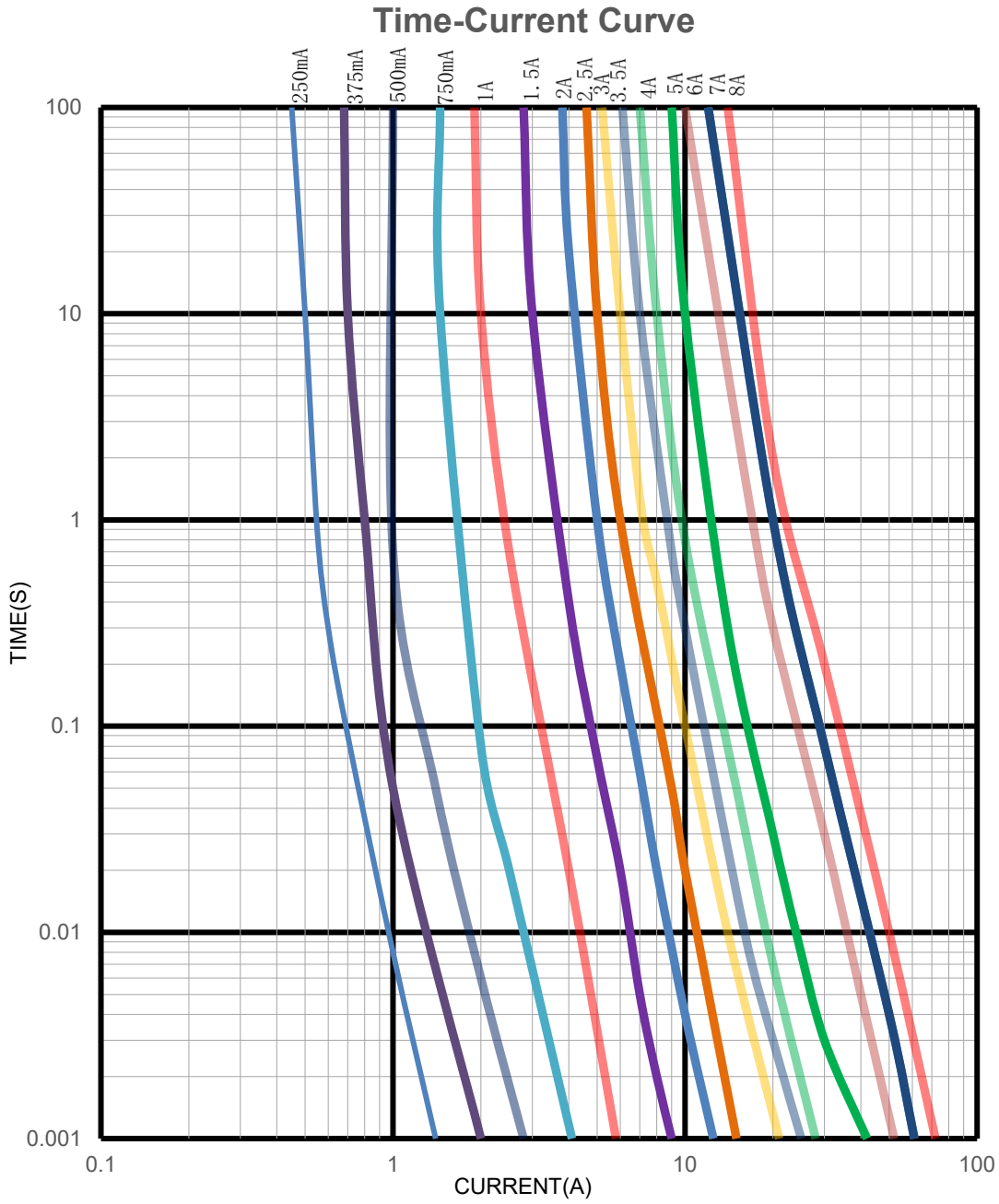
说明/Notes :

a. “典型电阻”是在通以小于额定电流的 10%的弱电流条件下量测的阻抗.
Nominal Resistance measured with < 10% rated current ;

b. “典型 I2t ”基于通电10倍额定电流时的测量.
Typical Pre-arcing I2t are measured at 10In Current

5．时间-电流特性/ Pre-Arcing Time-Current Characteristics（limits）

Rated Current	% of Current Rating	Clearing Time at 25℃	
		Min	Max
250mA-8.0A	100%	4hours	/
250mA -750mA	300%	/	5s
1A-5.0A	200%	/	60s
6.0A-8.0A	300%	/	3s



6. 产品特性及信赖性测试规范
PRODUCT CHARACTERISTICS AND RELIABILITY TEST STANDARD

#	项目 Item	内容 Contain	判断标准 Criteria
1	分断能力测试 Breaking capacity	V =32V/63V DC; I=50A	没有持续电弧、燃烧、爆炸现象 No a permanent arcing, ignition, bursting UL248-1/-14
2	可焊性 Solder ability	锡炉温度245℃±5℃，浸入深度2.0mm±0.5mm，浸锡时间5±0.5s，放在20X放大镜下检查锡覆盖率 T=245℃±5℃，t=5s±0.5s; magnifier: 20X	锡覆盖率≧95% Cover ≧95% MIL-STD-202 Method 208
3	抗焊性测试 Soldering heat resistance	1.将样品焊在对应的PCB板上进行三次回流焊接/N=3 times 2.测试前后记录样品阻值/Record the resistance	无裂纹/损伤，标识清晰可辨；前后阻值偏差≤15%； No crack and damage, Marking is easily legible ▵R<15% MIL-STD-202 Method 210F
4	冷热冲击 Thermal Shock	试验温度设定为 25C~-55C~25C~125C，最高温度和最低温度分别保持15 分钟，高低温转换时间不超过5分钟，5个循环 -55℃ 15min→25℃ 5min→+125℃ 15min ; 5 cycles	外观无裂纹/损伤，前后阻值偏差<10% No crack and damage, ▵R<10% MIL-STD-202G Test condition A
5	振动测试 Vibration	频率范围:10~15~10Hz/min 振动振幅:1.5mm Frequency range:10~15~10Hz/min Vibration amplitude:1.5mm	无明显机械损伤 ▵R<10% No mechanical damages MIL-STD-202, Method 201A
6	盐雾试验 Salt spray test	溶液浓度：5±0.1%；连续放置48小时 5% salt solution,48hr	▵R<10% Legible appearance MIL-STD-202, Method 101
7	弯曲试验 Bending test	以1mm/s的速度将试验板弯曲1mm,保持时间60s Bending:1mm, time:60s	试验前后阻值变化≤15%；保险丝焊盘无明显的裂缝 ▵R<15%,No mechanical damages IEC 60127-4

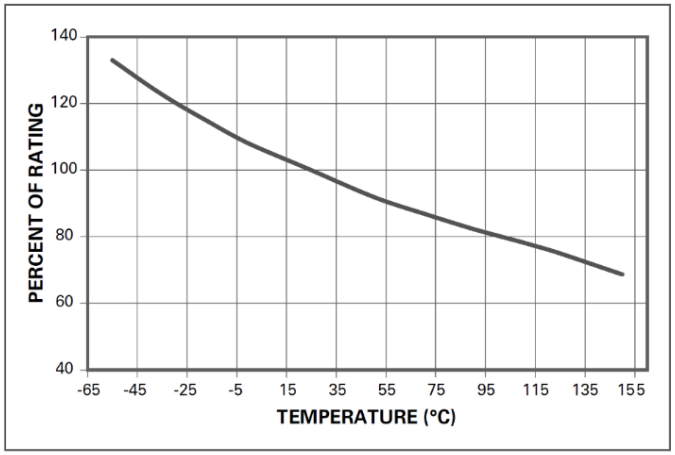
7. 环境特性 / ENVIRONMENTAL CHARACTERISTIC

7-1 工作温度范围: -55℃ ~ 125℃ / Operating Temperature:-55℃ ~ 125℃。

若贵司工作环境温度超出23±3℃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：温度-电流曲线图。

When choosing the fuse's specification, if the operating environmental temperature beyond the scope from 20~26℃, you should consider the environmental temperature's affection to fuses. please refer:

Temperature Re-rating Curve



7-2 存储条件 / Storage Conditions

在温度10℃~40℃、相对湿度≦75%的密闭条件下可存放2年。

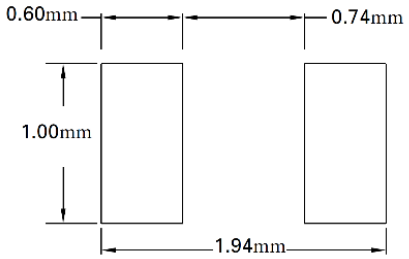
在温度10℃~40℃、相对湿度为95%的非露天下最多可存放30天。

Under airtight in temperature10℃~40℃、relative humidity ≦75% can store 2 years.

Without dew in temperature10℃~40℃、relative humidity be 95% maximum value for 30days.

8. 焊盘尺寸及焊接条件 / SOLDER PAD SIZE AND WELDING CONDITIONS

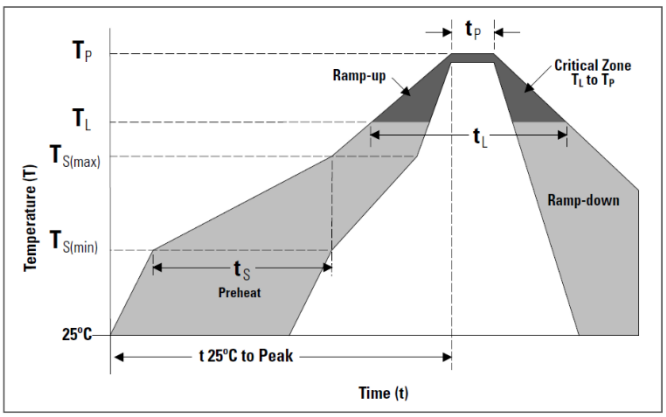
8-1 焊盘尺寸建议 / Recommended Size of the Pad.



8-2 焊接参数/Soldering Parameters

Reflow Condition		Pb – free assembly
Pre Heat	**- Temperature Min ($T_{s(min)}$)**	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (Min to Max) (t_s)	60 – 180 seconds
Average Ramp-up Rate (Liquidus Temp (T_L) to peak)		3°C/second max.
$T_{S(max)}$ to T_L - Ramp-up Rate		5°C/second max.
Reflow	**- Temperature (T_L) (Liquidus)**	217°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		10 – 30 seconds
Ramp-down Rate		6°C/second max.
Time 25°C to peak Temperature (T_P)		8 minutes max.
Do not exceed		260°C

Wave Soldering	260°C, 10 seconds max.



9. 包装规格/PN编码规则/PACKINGSPECIFICATION/PN ENCODING RULES

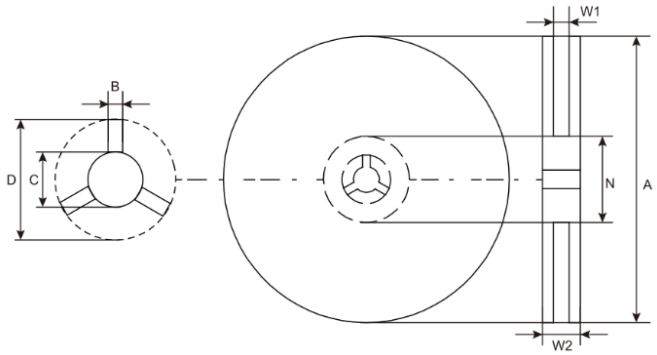
9-1 包装数量、重量 / QUANTITY & WEIGHT

系列 Series	数量Quantity	重量Weight
0603FF	5000pcs/Reel	130±20（g）

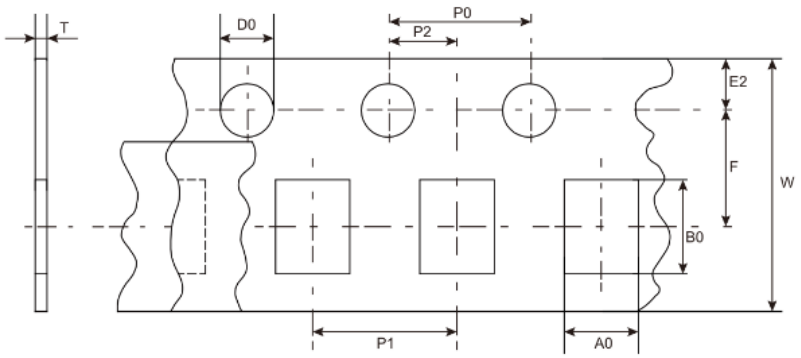
9-2PN编码规则/PNENCODINGRULES

1	Part Numbering System (编码结构)						
2	FULL DESCRIPTION FORMAT (详细内容描述格式)						
	制造商Manufacturer	Series系列	Rated current额定电流	Rated voltage额定电压	Packaging包装	-	补充码
	xx	xxxxx	xxxx	x	xx		XX
	LB	0603FF	0100=100mA	E=24V	00=Tape & Reel 编带+卷盘		01=XX客制化要求
		0603TD	1100=1A	F=32V			02=低阻产品
		1206FF	2100=10A	G=36V			
		1206TD		H=48V			
				I=63V			
				J=72V			
				B=125V			
3	Example例如：	P/N	LB1206TD1100B00				
		规格描述	LB品牌 1206TD 1A125V 编带包装				

9-2 卷轮与载带规格 / Reel & Tape specifications



	Item	A	B	C	D	N	W1	W2
Reel	Spec.(mm)	178±5	1.6 Min.	12.8 Min.	20.8 Min.	58±2	8.4 Min.	12.4 Max.



	Item	A0	B0	D0	E2	F
Tape	Spec.(mm)	1.10±0.05	1.90±0.05	1.55±0.05	1.75±0.10	3.50±0.05
	Item	P0	P1	T	W	
	Spec.(mm)	4.00±0.10	4.00±0.10	0.60±0.05	8.00±0.10	

10. 其他 / OTHERS

10-1 如果在使用中有超出本规格书的要求，必须经由双方协商确认.

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

10-2 如果本规格书有不适当的情况，必须通过双方协商并由本公司修改.

In the event that an impropriety is found in this specification，LANBAO ELECTRICAL shall amend it by mutual agreement between the parties.

Attachment：UL Certification

2023/6/5 09:47 UL Certification: E213695 - Fuses

UL iQ for Fuses

Fuses E213695

Guide Information

ZHONG SHAN LANBAO ELECTRICAL APPLIANCES CO LTD

West Xing Pu Rd, Huang Pu, Zhongshan Guangdong 528429 CN

0603FF, 0603HI or 0603TD

Supplemental micro fuses: surface mount

Size mm(in)	Amps (A)	Volts (V)	Interrupting Rating (A)
1.6 x 0.8 x 0.5 (0.06 x 0.03 x 0.02)	0.25 - 8	24Vdc	50
	0.25 - 8	32Vdc	50
	0.25 - 8	48Vdc	50
	0.25 - 8	63Vdc	50

Report Date: 2022-01-07
Last Revised: 2022-01-07

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