



深圳市蓝宝安科电子有限公司

Shenzhen LanbaoAnke Electronics Co.,Ltd.

承 认 书

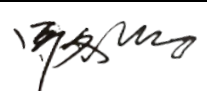
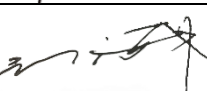
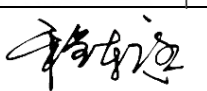
APPROVAL SHEET

编号 NO.	LB-0603TD-01
版次 Ver.	A/2

客户 Customer	
----------------	--

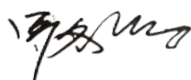
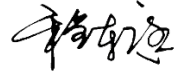
品名 Product	贴片保险丝 SMD FUSE
系列 Series	0603TD系列 0603TD Series

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	2023.5.30	更改为新封面	A/2		
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0603TD系列慢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 0603TD slow blow series produced by LANBAO corporation.

2.产品特点/ Features

高浪涌电流承受能力 / High inrush current withstanding capability

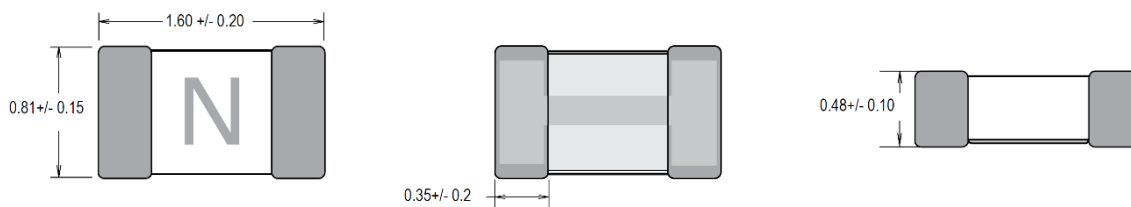
兼容回流焊和波峰焊 / Compatible with reflow and wave solder

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绿色。

Notes: The element is marked with ceramic face print, Protective glass and character color are green.

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 I ² T (A ² Sec) 熔化热值	Marking 标记
0603TD750mA	24Vdc 32Vdc	750mA	24VDC@50A 32VDC@50A	400	0.02	G
0603TD1A		1A		250	0.011	B
0603TD1.5A		1.5		150	0.045	H
0603TD2A		2A		78	0.115	K
0603TD2.5A		2.5A		49	0.14	L
0603TD3A		3A		35	0.28	O
0603TD3.5A		3.5A		28	0.5	R
0603TD4A		4A		18	0.6	S
0603TD5A		5A		14	1.9	T
0603TD6A		6A		11	2.3	V
0603TD7A		7A		9.5	3	X
0603TD8A		8A		7	4.5	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 ;

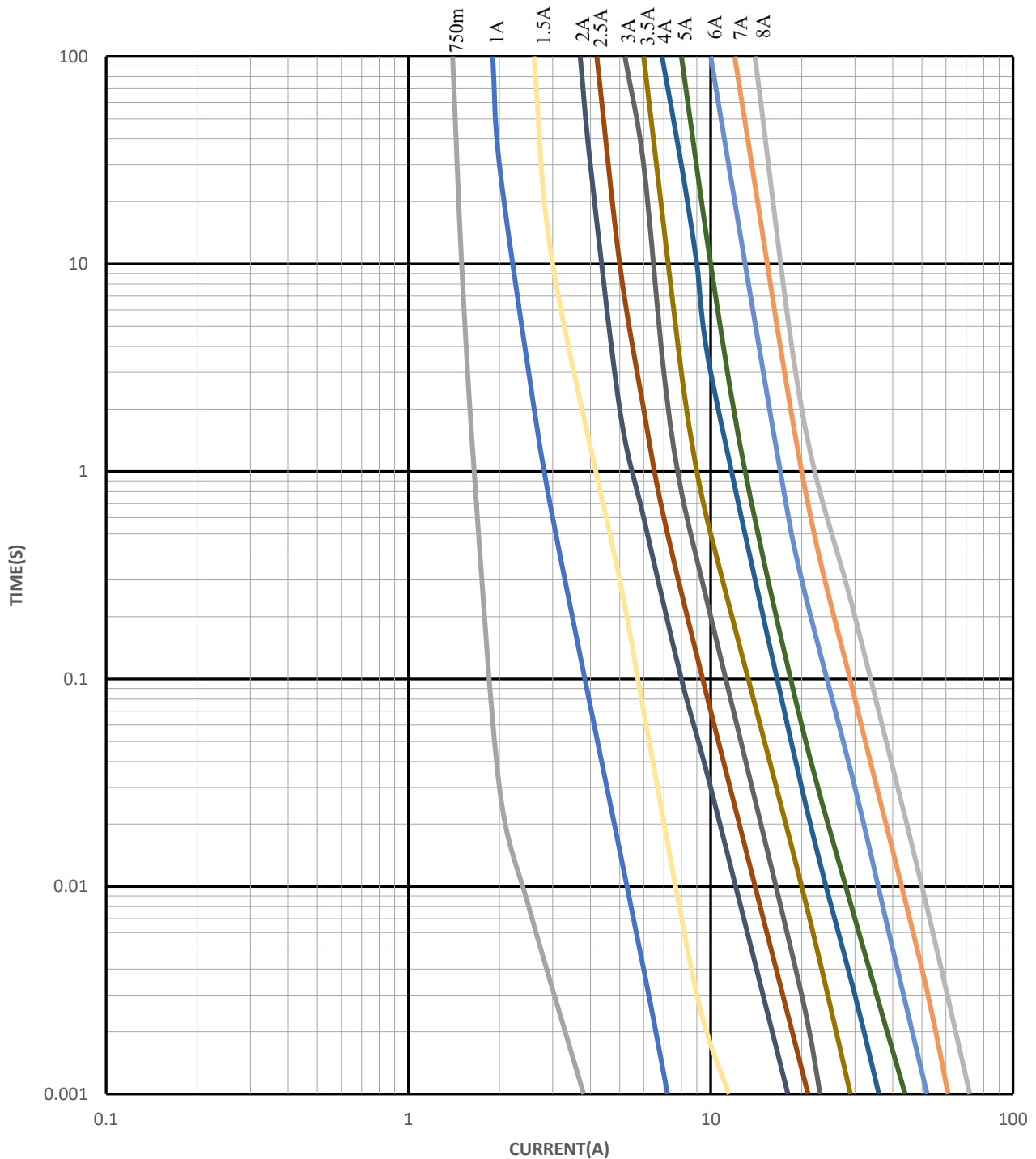
b. “典型 I²t ”基于通电10倍额定电流时的测量.

Typical Pre-arcing I²t are measured at 10I_n Current

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

Rated Current	% of Current Rating	Clearing Time at 25°C	
		Min	Max
750mA-8.0A	100%	4hours	/
	200%	1s	120s
	350%	/	3s

Time-Current Curve



6. 信赖性测试规范 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 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 $245^{\circ}\text{C}\pm 5^{\circ}\text{C}$, 浸入深度 $2.0\text{mm}\pm 0.5\text{mm}$, 浸锡时间 $5\pm 0.5\text{s}$, 放在20X放大镜下检查锡覆盖率 $T=245^{\circ}\text{C}\pm 5^{\circ}\text{C}$, $t=5\text{s}\pm 0.5\text{s}$; magnifier: 20X	锡覆盖率 $\geq 95\%$ Cover $\geq 95\%$ 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 $\leq 15\%$; No crack and damage, Marking is easily legible $\Delta R < 15\%$ MIL-STD-202 Method 210F
4	冷热冲击 Thermal Shock	试验温度设定为 $25^{\circ}\text{C}\sim -55^{\circ}\text{C}\sim 25^{\circ}\text{C}\sim 125^{\circ}\text{C}$, 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°C 15min $\rightarrow 25^{\circ}\text{C}$ 5min $\rightarrow +125^{\circ}\text{C}$ 15min ; 5 cycles	外观无裂纹/损伤, 前后阻值偏差 $< 10\%$ No crack and damage, $\Delta R < 10\%$ 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 $\Delta R < 10\%$ No mechanical damages MIL-STD-202, Method 201A
6	盐雾试验 Salt spray test	溶液浓度: $5\pm 0.1\%$; 连续放置48小时 5% salt solution,48hr	$\Delta R < 10\%$ 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 $\leq 15\%$; 保险丝焊盘无明显的裂缝 $\Delta R < 15\%$, No mechanical damages IEC 60127-4

7. 环境特性 / ENVIRONMENTAL CHARACTERISTIC

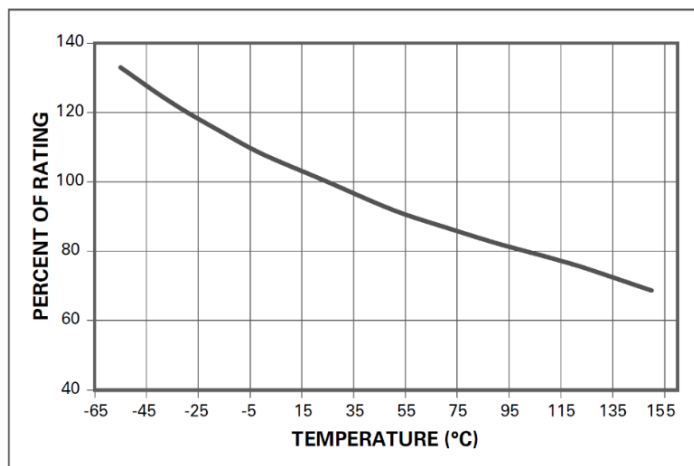
7-1 工作温度范围: $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$ / Operating Temperature: $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$ 。

若贵司工作环境温度超出 $23\pm 3^{\circ}\text{C}$ 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: 温度-电流曲线图。

When choosing the fuse's specification, if the operating environmental temperature beyond the scope from $20\sim 26^{\circ}\text{C}$, 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°C~40°C、相对湿度≤75%的密闭条件下可存放2年。

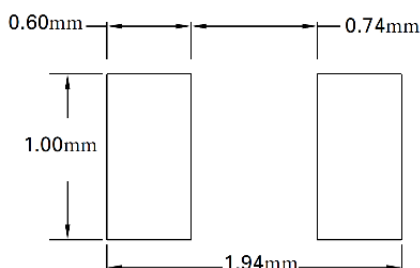
在温度10°C~40°C、相对湿度为95%的非露天下最多可存放30天。

Under airtight in temperature10°C~40°C、relative humidity ≤75% can store 2 years.

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

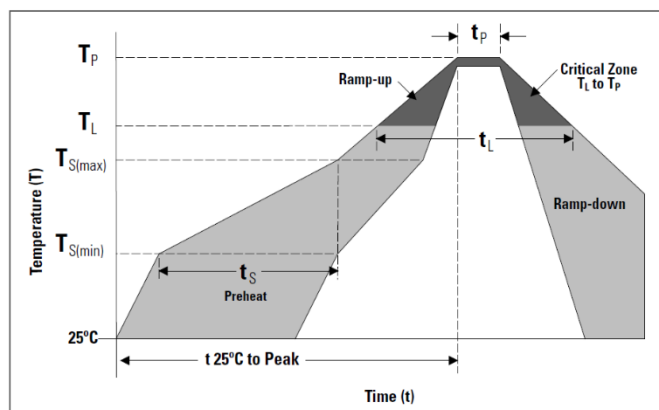
8. 焊盘尺寸及焊接条件 / SOLDER PAD SIZE AND WELDING CONDITIONS

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.

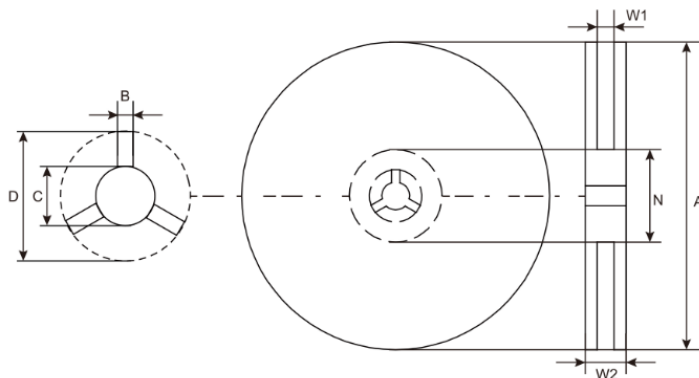


9. 包装规格 / PACKING SPECIFICATION

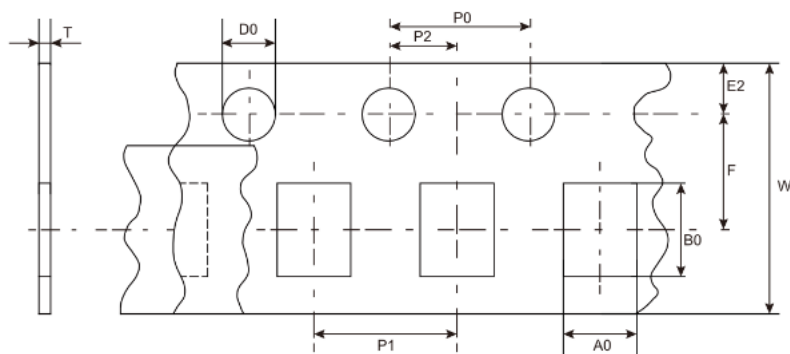
9-1 包装数量、重量 / QUANTITY & WEIGHT

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

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



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



Tape	Item	A0	B0	D0	E2	F
	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

<u>Size</u> <u>mm(in)</u>	<u>Amps</u> <u>(A)</u>	<u>Volts</u> <u>(V)</u>	<u>Interrupting</u> <u>Rating (A)</u>
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

© 2023 UL Solutions

