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-PTC-01
版次 Ver.	A/2

客户 Customer	

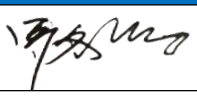
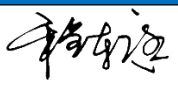
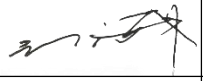
品名 Product	自恢复保险丝
系列 Series	2920L

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	2022.09.18	新制订	A/1		
2	2023.04.03	更改为新封面	A/2		
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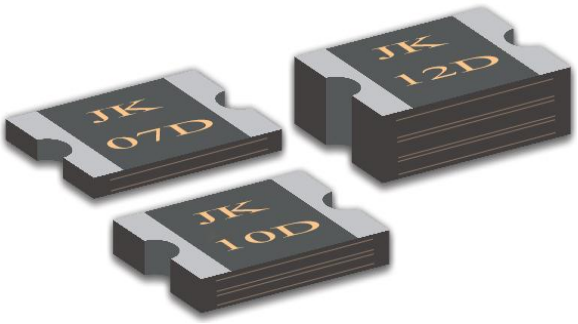
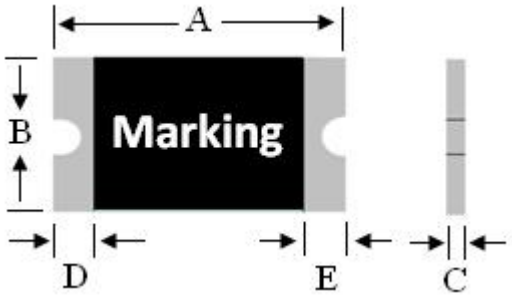
PPTC of LB-SMD 2920（L）Series Surface-mount Devices

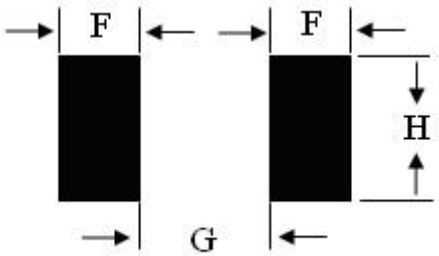
Features：

- ✧ RoHS Compliant & Halogen Free
- ✧ Faster tripping, 2920 Dimension, Surface mountable, Solid state
- ✧ Operating Current: 5.0A~12.0A, @25℃
- ✧ Maximum Voltage: 16V/24V
- ✧ Operating Temperature：-40℃~ 85℃
- ✧ Certification: ROHS



Product Dimensions (mm)





Part number	Marking	A		B		C		D	E
		Min	Max	Min	Max	Min	Max	Min	Min
LB-SMD500D	LB 05D	6.73	7.98	4.80	5.44	0.5	1.4	0.3	0.15
LB-SMD600D	LB 06D	6.73	7.98	4.80	5.44	0.5	1.4	0.3	0.15
LB-SMD700D	LB 07D	6.73	7.98	4.80	5.44	0.5	1.4	0.3	0.15
LB-SMD800D	LB 08D	6.73	7.98	4.80	5.44	0.5	1.4	0.3	0.15
LB-SMD900D	LB 09D	6.73	7.98	4.80	5.44	0.5	1.4	0.3	0.15
LB-SMD1000D	LB 10D	6.73	7.98	4.80	5.44	0.5	1.4	0.3	0.15
LB-SMD1100D	LB 11D	6.73	7.98	4.80	5.44	0.5	1.4	0.3	0.15
LB-SMD1200D	LB 12D	6.73	7.98	4.80	5.44	0.5	1.4	0.3	0.15

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TEL：0755-27505760 FAX：0755-27505750 Web Site：www.lanbaofuse.cn E-mail:fae@lanbaofuse.cn

Recommended Solder Pad Layout Dimensions (mm)

Device	F	G	H
	Normal Value	Normal Value	Normal Value
2920 Series	2.3	5.1	5.6

Electrical Characteristics

Model	V_{MAX} (V)	I_{MAX} (A)	I_H (A)	I_T (A)	P_D (W)	Maximum Time-to-Trip		Resistance	
						Current (A)	Time (Sec)	Ri_{MIN} (Ω)	$R1_{MAX}$ (Ω)
LB-SMD500D-16	16.0	50.0	5.0	10.0	2.2	50.0	2.0	0.001	0.014
LB-SMD500D-24	24.0	50.0	5.0	10.0	2.2	50.0	2.0	0.001	0.014
LB-SMD600D-16	16.0	50.0	6.0	12.0	2.2	50.0	2.0	0.0008	0.012
LB-SMD600D-24	24.0	50.0	6.0	12.0	2.2	50.0	2.0	0.0008	0.012
LB-SMD700D-16	16.0	50.0	7.0	14.0	2.2	50.0	2.0	0.0007	0.010
LB-SMD700D-24	24.0	50.0	7.0	14.0	2.2	50.0	2.0	0.0007	0.010
LB-SMD800D-16	16.0	50.0	8.0	16.0	2.2	50.0	2.0	0.0006	0.008
LB-SMD800D-24	24.0	50.0	8.0	16.0	2.2	50.0	2.0	0.0006	0.008
LB-SMD900D-16	16.0	50.0	9.0	18.0	2.2	50.0	2.0	0.0006	0.007
LB-SMD900D-24	24.0	50.0	9.0	18.0	2.2	50.0	2.0	0.0006	0.007
LB-SMD1000D-16	16.0	50.0	10.0	20.0	2.2	50.0	2.0	0.0005	0.006
LB-SMD1000D-24	24.0	50.0	10.0	20.0	2.2	50.0	2.0	0.0005	0.006
LB-SMD1100D-16	16.0	50.0	11.0	22.0	2.2	50.0	2.0	0.0005	0.005
LB-SMD1100D-24	24.0	50.0	11.0	22.0	2.2	50.0	2.0	0.0005	0.005
LB-SMD1200D-16	16.0	50.0	12.0	24.0	2.2	50.0	2.0	0.0005	0.0004
LB-SMD1200D-24	24.0	50.0	12.0	24.0	2.2	50.0	2.0	0.0005	0.0004

Thermal Derating Chart-I_H(A)

Model	Maximum ambient operating temperature (℃)								
	-40	-20	0	25	40	50	60	70	85
LB-SMD500D	7.00	6.75	5.65	5.00	4.54	4.20	3.85	3.45	2.82
LB-SMD600D	8.58	7.83	7.05	6.00	5.27	4.87	4.48	4.05	3.38
LB-SMD700D	9.48	8.73	7.92	7.00	6.36	5.88	5.41	4.83	3.94
LB-SMD800D	11.20	10.26	9.17	8.00	7.17	6.67	6.16	5.66	4.88
LB-SMD900D	12.60	11.54	10.32	9.00	8.07	7.49	6.93	6.36	5.49

LB-SMD1000D	14.00	12.83	11.47	10.00	8.97	8.33	7.70	7.07	6.10
LB-SMD1100D	15.40	14.11	12.61	11.00	9.86	9.16	8.47	7.77	6.71
LB-SMD1200D	16.80	15.40	13.76	12.00	10.76	10.00	9.24	8.48	7.32

Test Procedures and Requirements

Test Item	Test Conditions	Accept/Reject Criteria
Initial Resistance	In still air at 25±2℃	$Ri_{min} \leq R \leq R1_{max}$
Time to Trip	Specified current，V_{max}，25±2℃	T≤Maximum Time to Trip
Holding Current	60min，at I_H ，@25±2℃	No trip
Trip Endurance	V_{max}，1 hour	No arcing or burning

Physical Characteristics

Terminal Materials	Tin-Plated Nickle-copper
Soldering Zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.
Moisture Sensitivity	Level 2a, per IPC/JEDEC J-STD 020C

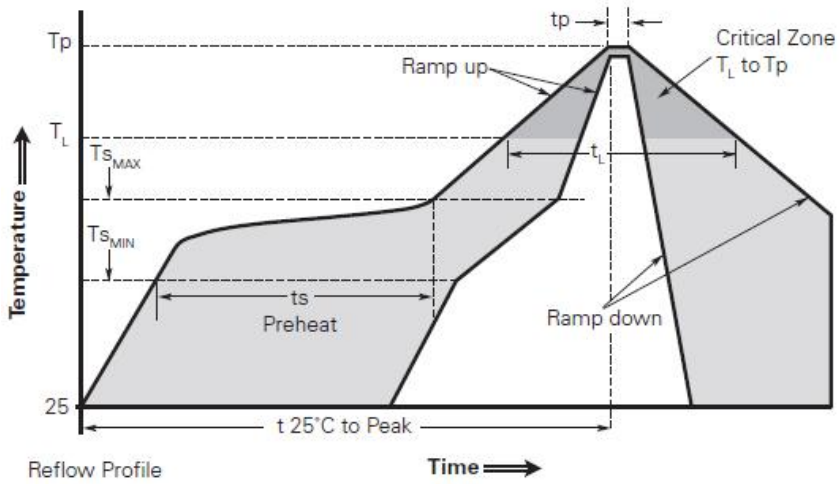
Environmental Specifications

Test Item	Test Conditions	Resistance Change
Passive Aging	85℃,1000 hours	±10% typical
Humidity Aging	85℃/85%RH.100 hours	±5% typical
Thermal Shock	MIL-STD-202,Method 107G +85℃/-40℃,20 times	-30% typical
Solvent Resistance	MIL-STD-202,Method 215	No change
Vibration	ML-STD-883C,Test Condition A	No change

Electrical Specifications

I_H=Hold current: Maximum current at which the device will not interrupt in 25℃ still air.
I_T=Trip current: Minimum current at which the device from low resistance to high resistance in 25℃ still air.
V_{MAX}=Maximum continuous voltage device can withstand without damage at rated current.
I_{MAX}=Maximum fault current device can withstand without damage at rated voltage.
Maximum Time-to-trip: Maximum time to trip at assigned current.
P_D=Typical power dissipation: Typical amount of power dissipated from the device when in 25℃ still air environment.
Ri_{MIN}=Minimum resistance of device at 25℃ prior to tripping.
$R1_{MAX}$ = Maximum device resistance is measured one hour post reflow.

Solder Reflow Profiles



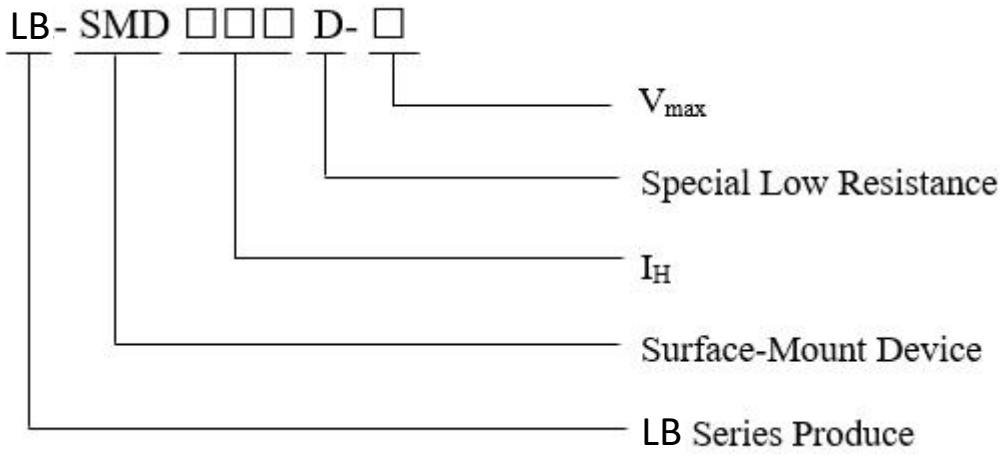
Profile Feature	Pb-Free Assembly
Average ramp up rate(Ts_{MAX} to Tp)	3℃/second max.
Preheat	
●Temperature min.(Ts_{MIN})	150℃
●Temperature max.(Ts_{MAX})	200℃
●Time (Ts_{MIN} to Ts_{MAX})	60-120 seconds
Time maintained above:	
●Temperature (T_L)	217℃
●Time (T_L)	60-150 seconds
Peak/Classification temperature (T_P)	260℃
Time within 5℃ of actual peak temperature	
Time (T_P)	30 seconds max.
Ramp down rate	3℃/second max.
Time 25℃ to peak temperature	8 minutes max.

- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Devices are not designed to be wave soldered to the bottom side of the board.
- Recommended maximum paste thickness is 0.25mm (0.010inch).
- Devices can be cleaned using standard industry methods and solvents.

Note 1: All temperature refer to topside of the package, measured on the package body surface.

Note 2: If reflow temperature exceed the recommended profile, devices may not meet the performance requirements.

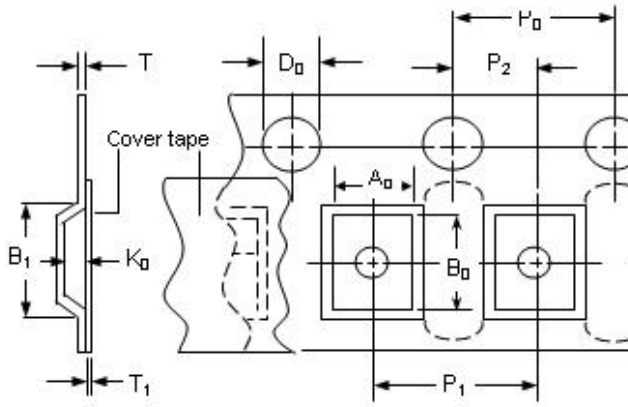
Part Numbering System



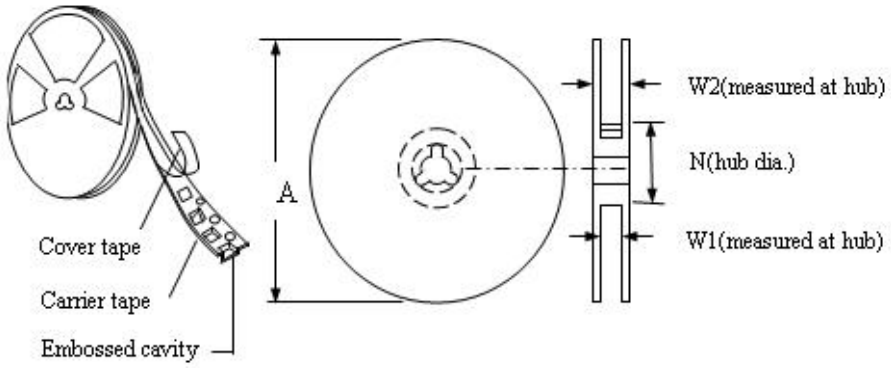
Tape Specifications and Reel Dimensions

Covering Specifications EIA 481-1	
W	16.0+0.3/-0.1
P_0	4.0 ± 0.1
P_1	4.0 ± 0.1
P_2	2.0 ± 0.1
A_0	5.55 ± 0.1
B_0	7.85 ± 0.1
D_0	1.5 ± 0.1
F	7.5 ± 0.1
E_1	1.75 ± 0.1
T	0.3 ± 0.1
Leader min.	390
Trailer min.	160
Reel Dimensions	
A	178 ± 1
N	59 ± 1
W_1	8.5+1.0/-0.2
W_2	12.0±1

EIA Tape Component Dimentions



EIA Reel Dimentions



Packaging Quantity

Model	Quantity	Model	Quantity
LB-SMD500D	2000	LB-SMD900D	1500
LB-SMD600D	2000	LB-SMD1000D	1500
LB-SMD700D	2000	LB-SMD1100D	1500
LB-SMD800D	1500	LB-SMD1200D	1500

Cautions for SMD PTC Use

1、 Please refer to the maximum voltage and current specified in the specification to use the product. Exceeding the rated maximum value may cause arcing, increased resistance, or even breakdown of the PTC

2、 The electrical resistance and electrical performance specified in the specification are all tested on the test board designated by LB after a reflow soldering. If there is a secondary soldering or other thermal processes, the performance may be attenuated

3、 The holding current of PTC varies at different temperatures, please refer to the specifications and the actual ambient temperature for selection

4、 PTC is designed to protect the occasional overcurrent or overheating failure phenomenon. Long-term or frequent failures will reduce the holding current of the product

5、 The PTC soldering process is reflow soldering. The soldering process can refer to the temperature curve recommended in the specification. Manual soldering of PTC is prohibited. The use of hot air gun soldering of adjacent components will also affect the performance of PTC

6、 PTC is a heat-sensitive component, avoid installing heat source components around it, and avoid installing it in an environment that is compressed or affects its thermal expansion

7、 During installation or use, the PTC is forbidden to be mechanically damaged. It is not recommended to use liquid cleaning products containing organic solvents, which may affect the solder ability of PTC

8、 Low resistance SMD PTC moisture sensitivity grade of 2a, storage conditions of less than or equal to 30 °C/ 60% RH, workshop life of 4 weeks, Unopened products stored in the warehouse for more than one year should be sent back to the manufacturer for re-inspection and use