



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

<b>客户</b> Customer	
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<b>品名</b> Product	自恢复保险丝
<b>系列</b> Series	2920

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		
3					
4					
5					
6					
7					
8					
9					
10					
11					

## Surface Mountable PTC Resettable Fuse: LB-SMD2920 Series

### Features:

- ✧ RoHS Compliant & Halogen Free
- ✧ faster tripping, 2920 Dimension, Surface mountable, Solid state
- ✧ Operation Current: 0.30A~3.00A
- ✧ Maximum Voltage: 6V~60Vdc
- ✧ Operating Temperature: -40°C TO 85°C



### Product Dimensions

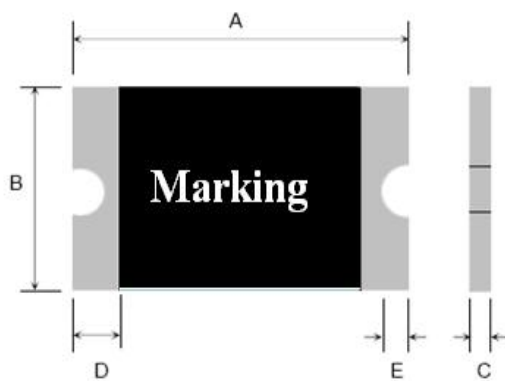


Fig.1

Unit : mm

Part Number	Marking	A		B		C		D	E
		Min	Max	Min	Max	Min	Max	Min	Min
LB-SMD030L	LB030L	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
LB-SMD050L	LB050L	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
LB-SMD075L	LB075L	6.73	7.98	4.80	5.44	0.60	1.15	0.30	0.15
LB-SMD075L-60	LB075L	6.73	7.98	4.80	5.44	0.60	1.30	0.30	0.15
LB-SMD100L	LB100L	6.73	7.98	4.80	5.44	0.60	1.00	0.30	0.15
LB-SMD100L-60	LB100L	6.73	7.98	4.80	5.44	0.70	1.50	0.30	0.15
LB-SMD125L	LB125L	6.73	7.98	4.80	5.44	0.50	1.00	0.30	0.15
LB-SMD150L	LB150L	6.73	7.98	4.80	5.44	0.50	1.20	0.30	0.15
LB-SMD185L	LB185L	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
LB-SMD200L	LB200L	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
LB-SMD200L-24	LB200L	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
LB-SMD250L	LB250L	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
LB-SMD250L-24	LB250L	6.73	7.98	4.80	5.44	0.50	1.20	0.30	0.15
LB-SMD260L	LB260L	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
LB-SMD260L-24	LB260L	6.73	7.98	4.80	5.44	0.40	1.20	0.30	0.15

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LB-SMD300L-6	LB300L	6.73	7.98	4.80	5.44	0.40	0.80	0.30	0.15
LB-SMD300L-16	LB300L	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
LB-SMD300L-24	LB300L	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
LB-SMD400L	LB400L	6.73	7.98	4.80	5.44	0.40	1.00	0.30	0.15
LB-SMD400L-12	LB400L	6.73	7.98	4.80	5.44	0.50	1.20	0.30	0.15
LB-SMD400L-16	LB400L	6.73	7.98	4.80	5.44	0.60	1.20	0.30	0.15
LB-SMD500L	LB500L	6.73	7.98	4.80	5.44	0.70	1.50	0.30	0.15
LB-SMD500L-12	LB500L	6.73	7.98	4.80	5.44	0.70	1.50	0.30	0.15
LB-SMD500L-16	LB500L	6.73	7.98	4.80	5.44	0.70	1.50	0.30	0.15
LB-SMD600L	LB600L	6.73	7.98	4.80	5.44	0.70	1.50	0.30	0.15
LB-SMD600L-12	LB600L	6.73	7.98	4.80	5.44	0.70	1.80	0.30	0.15

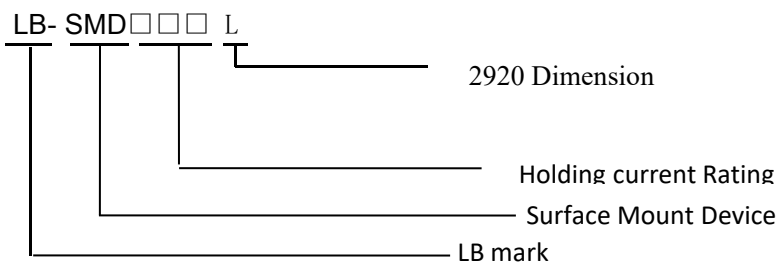
**Thermal Derating Chart-IH (A)**

Part number	Maximum ambient operating temperatures (°C)								
	-40	-20	0	25	40	50	60	70	85
LB-SMD030L	0.44	0.37	0.35	0.30	0.28	0.23	0.20	0.16	0.10
LB-SMD050L	0.73	0.62	0.59	0.50	0.47	0.38	0.34	0.30	0.24
LB-SMD075L	1.09	0.92	0.88	0.75	0.70	0.56	0.50	0.45	0.36
LB-SMD075L-60	1.09	0.92	0.88	0.75	0.70	0.56	0.50	0.45	0.36
LB-SMD100L	1.45	1.23	1.17	1.00	0.93	0.75	0.67	0.60	0.48
LB-SMD100L-60	1.45	1.23	1.17	1.00	0.93	0.75	0.67	0.60	0.48
LB-SMD125L	1.81	1.54	1.46	1.25	1.16	0.94	0.84	0.75	0.60
LB-SMD150L	2.18	1.85	1.76	1.50	1.40	1.13	1.01	0.90	0.72
LB-SMD185L	2.68	2.28	2.16	1.85	1.72	1.39	1.24	1.11	0.89
LB-SMD200L	2.90	2.46	2.34	2.00	1.86	1.50	1.34	1.20	0.96
LB-SMD200L-24	2.90	2.46	2.34	2.00	1.86	1.50	1.34	1.20	0.96
LB-SMD200L-30	2.90	2.46	2.34	2.00	1.86	1.50	1.34	1.20	0.96
LB-SMD250L	3.63	3.08	2.93	2.50	2.33	1.88	1.68	1.50	1.20
LB-SMD250L-24	3.63	3.08	2.93	2.50	2.33	1.88	1.68	1.50	1.20
LB-SMD260L	3.77	3.20	3.04	2.60	2.42	1.95	1.74	1.56	1.25
LB-SMD300L-6	4.35	3.69	3.51	3.00	2.79	2.25	2.01	1.80	1.44
LB-SMD300L-16	4.35	3.69	3.51	3.00	2.79	2.25	2.01	1.80	1.44
LB-SMD300L-24	4.35	3.69	3.51	3.00	2.79	2.25	2.01	1.80	1.44
LB-SMD400L	5.8	4.92	4.68	4.00	3.72	3.00	2.68	2.4	1.92
LB-SMD400L-12/16	5.8	4.92	4.68	4.00	3.72	3.00	2.68	2.4	1.92
LB-SMD500L	7.25	6.15	5.85	5.00	4.65	3.75	3.35	3.0	2.4
LB-SMD500L-12	7.25	6.15	5.85	5.00	4.65	3.75	3.35	3.0	2.4
LB-SMD500L-16	7.25	6.15	5.85	5.00	4.65	3.75	3.35	3.0	2.4
LB-SMD600L	8.7	7.38	7.02	6.00	5.58	4.5	4.02	3.6	2.88
LB-SMD600L-12	8.7	7.38	7.02	6.00	5.58	4.5	4.02	3.6	2.88

### Electrical Characteristic

Part Number	V <sub>max</sub> (Vdc)	I <sub>max</sub> (A)	I <sub>hold</sub> (A)	I <sub>trip</sub> (A)	P <sub>d</sub> Max. (W)	Maximum time to trip		Resistance	
						Current (A)	Time (Sec)	R <sub>i</sub> <sub>min</sub> (Ω)	R <sub>1</sub> <sub>max</sub> (Ω)
SMD030L	60	100	0.30	0.60	1.5	1.5	3.0	0.60	4.80
SMD050L	60	100	0.50	1.00	1.5	2.5	4.0	0.18	1.40
SMD075L	33	100	0.75	1.50	1.5	8.0	0.3	0.10	1.00
SMD075L-60	60	40	0.75	1.50	1.5	8.0	0.3	0.10	1.00
SMD100L	33	100	1.00	2.20	1.5	8.0	0.5	0.065	0.41
SMD100L-60	60	100	1.00	2.20	1.5	8.0	0.5	0.065	0.41
SMD125L	33	100	1.25	2.50	1.5	8.0	2.0	0.05	0.25
SMD150L	33	100	1.50	3.00	1.5	8.0	2.0	0.035	0.23
SMD185L	33	100	1.85	3.70	1.5	8.0	2.5	0.030	0.15
SMD200L	16	100	2.00	4.00	1.5	8.0	4.5	0.020	0.12
SMD200L-24	24	100	2.00	4.00	1.5	8.0	4.5	0.020	0.12
SMD250L	16	100	2.50	5.00	1.5	8.0	16.0	0.020	0.085
SMD250L-24	24	40	2.50	5.00	1.5	8.0	16.0	0.020	0.090
SMD260L	16	100	2.60	5.20	1.5	8.0	10.0	0.014	0.075
SMD260L-24	24	100	2.60	5.20	1.5	8.0	18.0	0.014	0.075
SMD300L-6	6	100	3.00	6.00	1.5	8.0	20.0	0.012	0.048
SMD300L-16	16	100	3.00	6.00	1.5	8.0	20.0	0.012	0.048
SMD400L-12	12	40	4.00	8.00	1.5	20.0	4.0	0.010	0.040
SMD400L-16	16	40	4.00	8.00	1.5	20.0	4.0	0.008	0.040
SMD500L	8	100	5.00	10.00	1.5	25.0	5.0	0.005	0.031
SMD500L-12	12	40	5.00	10.00	1.5	25.0	5.0	0.005	0.031
SMD500L-16	16	40	5.00	10.00	1.5	25.0	5.0	0.005	0.031
SMD600L	6	40	6.00	12.00	1.5	25.0	6.0	0.004	0.020
SMD600L-12	12	40	6.00	12.00	1.5	25.0	6.0	0.004	0.02

### Part Numbering System



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## Test Procedures And Requirements

Test	Test Conditions	Accept/Reject Criteria
Resistance	In still air @ 25°C	$R_{min} \leq R \leq R_{max}$
Time to Trip	Specified current, $V_{max}$ , 25°C	$T \leq$ maximum Time to Trip
Hold Current	30min, at $I_H$	No trip
Trip Cycle Life	$V_{max}$ , $I_{max}$ , 100cycles	No arcing or burning
Trip Endurance	$V_{max}$ , 1 hours	No arcing or burning

## Physical Characteristics and Environmental Specifications

### Physical Characteristics

Terminal materials :	Tin-Plated Nickle-copper	
Soldering zone	Meets EIA specification RS 186-9E and ANSI/J-STD-002 Category 3.	
Environmental Specifications		
Test	Conditions	Resistance Change
Passive aging	85°C,1000hours	±10%
Humidity aging	85°C/85%RH.100hours	±5%
Thermal shock	MIL-STD-202,Method 107G +85°C/-40°C,20times	±33% resistance change
Solvent Resistance	MIL-STD-202,Method 215	no change
Vibration	ML-STD-883C,Test Condition A	No chage

### Electrical Specifications:

$I_{hold}$  = Hold Current. Maximum current device will not trip in 25°C still air.

$I_{trip}$  = Trip Current. Minimum current at which the device will always trip in 25°C still air.

$V_{max}$  = Maximum operating voltage device can withstand without damage at rated current ( $I_{max}$ ).

$I_{max}$  = Maximum fault current device can withstand without damage at rated voltage ( $V_{max}$ ).

$P_d$  = Maximum power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

$R_{i_{min/max}}$  = Minimum/Maximum device resistance prior to tripping at 25°C.

$R_{1_{max}}$  = Maximum device resistance is measured one hour post reflow.

### Recommended pad layout (mm)

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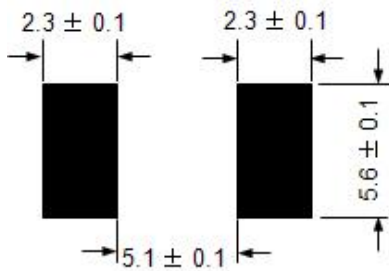
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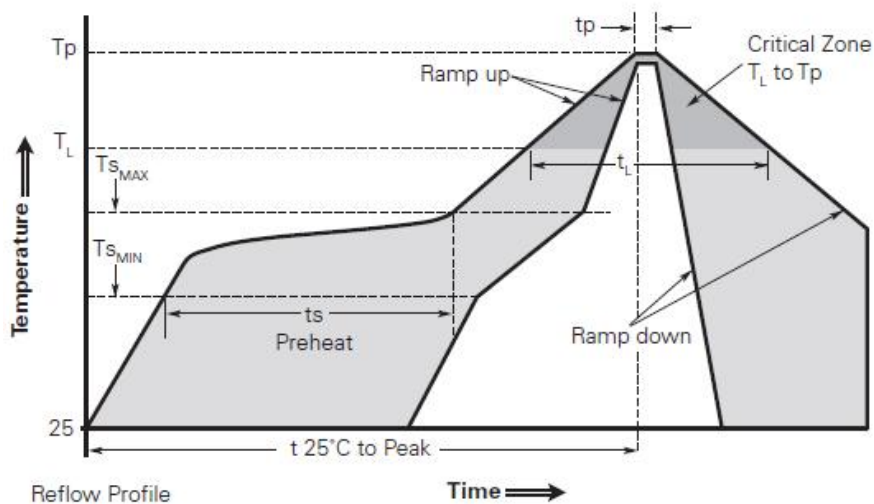
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### Solder reflow conditions



Profile Feature	Pb-Free Assembly
<b>Average ramp up rate (T<sub>S</sub><sub>MAX</sub> to T<sub>p</sub>)</b>	3°C/second max.
<b>Preheat</b>	
• Temperature min. (T <sub>S</sub> <sub>MIN</sub> )	150°C
• Temperature max. (T <sub>S</sub> <sub>MAX</sub> )	200°C
• Time (t <sub>S</sub> <sub>MIN</sub> to t <sub>S</sub> <sub>MAX</sub> )	60-120 seconds
<b>Time maintained above:</b>	
• Temperature (T <sub>L</sub> )	217°C
• Time (t <sub>L</sub> )	60-150 seconds
<b>Peak/Classification temperature (T<sub>p</sub>)</b>	260°C
<b>Time within 5°C of actual peak temperature</b>	
Time (t <sub>p</sub> )	30 seconds max.
<b>Ramp down rate</b>	3°C/second max.
<b>Time 25°C to peak temperature</b>	8 minutes max.

**Note:** All temperatures refer to topside of the package, measured on the package body surface.

- 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.
- Soldering temperature profile meets RoHs leadfree process.

Notes: If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements

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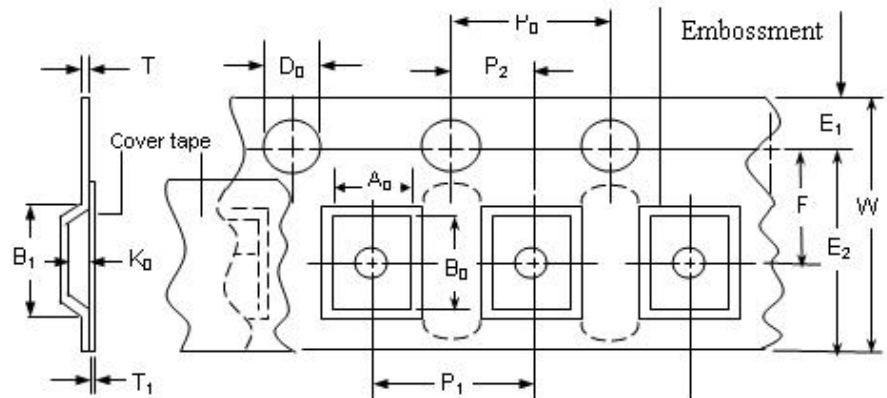
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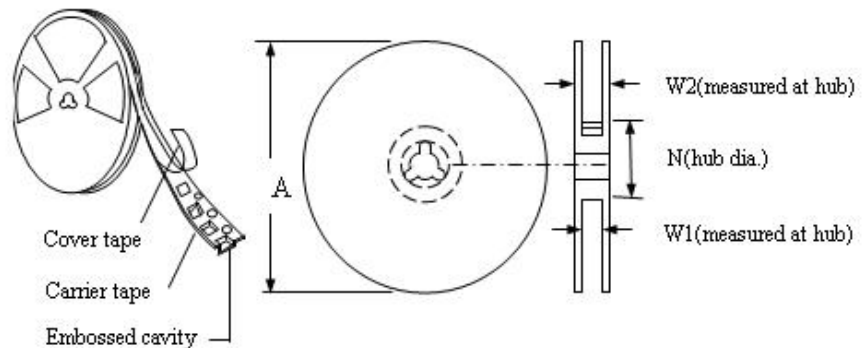
Tape Specification And Reel Dimensions

Covering Specifications	
EIA 481-1(Unit:mm)	
W	16± 0.3
P <sub>0</sub>	4.0 ± 0.10
P <sub>1</sub>	8.0 ± 0.10
P <sub>2</sub>	2.0 ± 0.10
A <sub>0</sub>	5.74 ± 0.10
B <sub>0</sub>	8.02 ± 0.10
D <sub>0</sub>	1.55 ± 0.05
F	7.5± 0.10
E <sub>1</sub>	1.75 ± 0.10
T	0.20± 0.10
Leadermin.	390
Trailer min.	160
Reel Dimensions	
A	178± 1
N	58± 1
W <sub>1</sub>	16.9± 0.80
W <sub>2</sub>	19.3± 0.1

EIA Tape Component Dimentions



EIA Reel Dimentions



Packaging Quantity

Part number	Quantity	Part number	Quantity
LB-SMD030L	2000	LB-SMD200L	2000
LB-SMD050L	2000	LB-SMD200L-24/ LB-SMD250L-24	1500
LB-SMD075L	2000	LB-SMD250L	2000
LB-SMD100L	2000	LB-SMD260L	2000
LB-SMD125L	2000	LB-SMD300L	2000
LB-SMD150L	2000	LB-SMD300L-16/ LB-SMD300L-24	1500
LB-SMD185L	1500	LB-SMD400L-12 /LB-SMD400L-16	1500
LB-SMD075L-60	2000	LB-SMD500L/LB-SMD500L-12/LB-SMD500L-16	1500
LB-SMD100L-60	1500	LB-SMD600L/LB-SMD600L-12	1500



## Storage

The maximum ambient temperature shall not exceed 38°C. Storage temperatures higher than 38°C could result in the deformation of packaging materials. The maximum relative humidity recommended for storage is 60%. High humidity with high temperature can accelerate the oxidation of the solder plating on the termination and reduce the solderability of the components. Sealed plastic bags with desiccant shall be used to reduce the oxidation of the termination and shall only be opened prior to use. The products shall not be stored in areas where harmful gases containing sulfur or chlorine are present

## WARNING

- Use PPTC beyond the maximum ratings or improper use may result in device damage and possible electrical arcing and flame.
- PPTC are intended for protection against occasional over current or over temperature fault conditions and should not be used when repeated fault conditions or prolonged trip events are anticipated.
- Device performance can be impacted negatively if devices are handled in a manner inconsistent with recommended electronic, thermal, and mechanical procedures for electronic components.
- Use PPTC with a large inductance in circuit will generate a circuit voltage ( $L di/dt$ ) above the rated voltage of the PPTC.
- Avoid impact PPTC device its thermal expansion like placed under pressure or installed in limited space.
- Contamination of the PPTC material with certain silicon based oils or some aggressive solvents can adversely impact the performance of the devices. PPTC SMD can be cleaned by standard methods.
- Requests that customers comply with our recommended solder pad layouts and recommended reflow profile. Improper board layouts or reflow profile could negatively impact solderability performance of our devices.

## Notes

The specification is intended to present application, product and technical data to assist the user in selecting PPTC circuit production devices. However, users should independently evaluate and test the suitability of each product. LB makes no warranties as to the accuracy or completeness of the information and disclaims any liability resulting from its use. LB's only obligations are those in the LB Standard Terms and Conditions of Sale and in no case will LB be liable for any incidental, indirect, or consequential damages arising from the sale, resale, or misuse of its products. LB reserves the right to change of update, without notice, any information contained in this specification.