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PRODUCT DATASHEET

Surface Mount PTC Devices

ASMD2920SL Series Surface Mount PTC Devices

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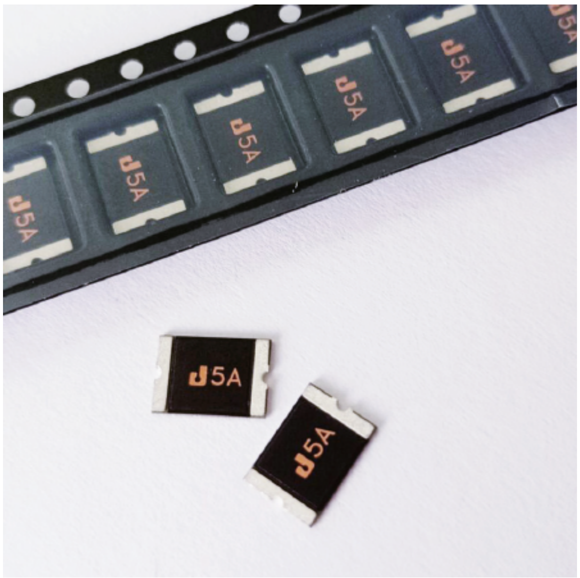


Description

The ASMD2920SL series provides surface mount resettable overcurrent protection, It offers complete portfolio in terms of holding current and working voltage, and is suitable for wide range of applications.

Features

- RoHS compliant
- Halogen-free
- Ultra low resistance
- Fast response to fault current
- Symmetrical design

Agency Approvals

Agency	File Number
cURus	Pending

Regulation	Standard
RoHS	2002/95/EC
Halogen Free	EN14582

Applications

- USB port protection - USB 2.0, 3.0&OTG
- Li-ion/Li-Polymer battery packs
- PDAs / digital cameras
- Computer periperals
- PC motherboards-plug and play protection

Electrical Characteristics

Model	V max (V)	I max (A)	I hold @25°C (A)	I trip @25°C (A)	P d Typ. (W)	Maximum Time To Trip		Resistance	
						Current (A)	Time (Sec)	R i min (Ω)	R1max (Ω)
ASMD2920SL500	16	50	5.0	10.0	1.6	25.0	5.0	0.0015	0.014
ASMD2920SL500-24V	24	50	5.0	10.0	1.6	25.0	5.0	0.0015	0.014
ASMD2920SL600	16	50	6.0	12.0	1.6	30.0	5.0	0.0015	0.012
ASMD2920SL600-24V	24	50	6.0	12.0	1.6	30.0	5.0	0.0015	0.012
ASMD2920SL700	16	50	7.0	14.0	1.6	35.0	5.0	0.0007	0.010
ASMD2920SL700-24V	24	50	7.0	14.0	1.6	35.0	5.0	0.0007	0.010
ASMD2920SL800	16	50	8.0	16.0	1.6	40.0	5.0	0.0006	0.008
ASMD2920SL800-24V	24	50	8.0	16.0	1.6	40.0	5.0	0.0006	0.008
ASMD2920SL900	16	50	9.0	18.0	1.6	45.0	5.0	0.0005	0.007
ASMD2920SL900-24V	24	50	9.0	18.0	1.6	45.0	5.0	0.0005	0.007
ASMD2920SL1000	16	50	10.0	20.0	1.6	50.0	5.0	0.0005	0.006
ASMD2920SL1000-24V	24	50	10.0	20.0	1.6	50.0	5.0	0.0005	0.006
ASMD2920SL1100	16	50	11.0	22.0	1.6	55.0	5.0	0.0003	0.005
ASMD2920SL1100-24V	24	50	11.0	22.0	1.6	55.0	5.0	0.0003	0.005
ASMD2920SL1200	16	50	12.0	24.0	1.6	60.0	5.0	0.0003	0.004
ASMD2920SL1200-24V	24	50	12.0	24.0	1.6	60.0	5.0	0.0003	0.004

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 (Imax).
I_{max} = Maximum fault current device can withstand without damage at rated voltage (V max).
P_d = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.
$R_{i\,min}$ = Minimum/Maximum device resistance prior to tripping at 25°C.
R_{1max} = Maximum device resistance is measured one hour post reflow.
CAUTION : Operation beyond the specified ratings may result in damage and possible arcing and flame.

Test Procedures and Requirements

Test	Conditions	Accept/Reject Criteria
R0 min	Resistance measurement at 25°C	R0min≤R≤R1max
R 1 max	Resistance measurement one hour after post trip	R0min≤R≤R1max
I-hold	Hold rated current 1800 second without trip,@25°C	No trip
I-trip	Device must trip within 900 second under rated current,@25°C	Trip
Max. time to trip	At specified current,@25°C	T≤max. time to Trip(s)
Trip Cycle Life	Vmax, Imax, 100 cycles	No arcing or burning
Trip Endurance	Vmax,Imax 24 hours	No arcing or burning
Solderability	ANSI/J-STD-002	95 % min. coverage

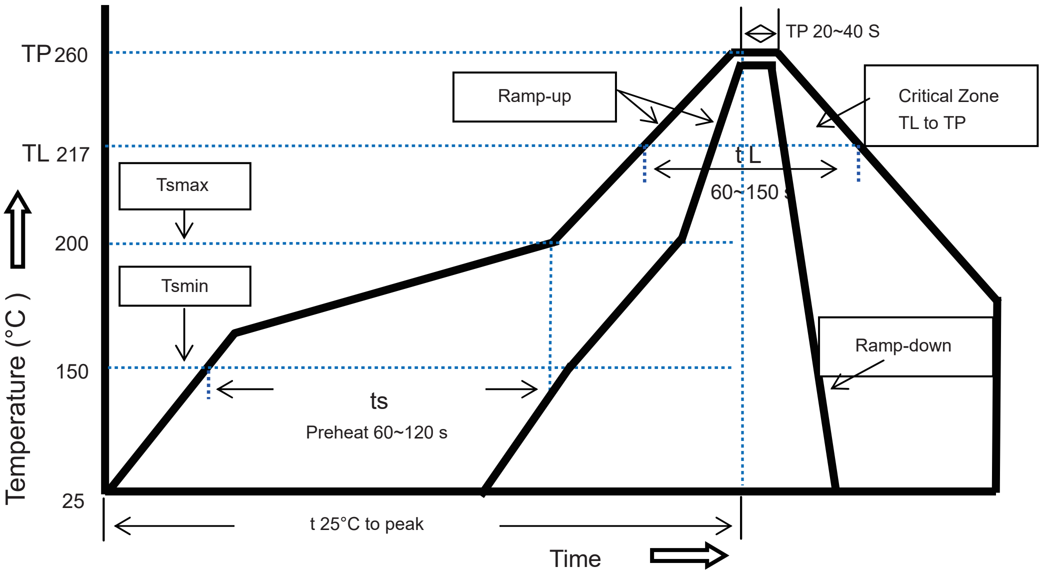
Environmental Specifications

Test	Resistance change
Operating Temperature	-40°C to +85°C
Max Device Surface Temperature in Tripped State	+125°C
Passive Aging	+85°C,1000h;±10% typical resistance change
Humidity Aging	+85°C,85 % R.H. 100 hours; ±15 % typical resistance change
Thermal Shock	MIL–STD–202, Method 107; +85 °C to -40 °C, 20 times; -30 % typical resistance change
Solvent Resistance	MIL–STD–202, Method 215 ; No change
Vibration	MIL–STD–883, Method 2007, Condition A; No change
Moisture Sensivity Level	Level 2, J–STD–020
Storage Conditions	+30 °C Max. 60% RH Max. Packed in original packaging

Thermal Derading Chart

Model	Maximum ambient operating temperature (T_{mao}) vs. hold current (I_{hold})								
	- 40°C	- 20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
ASMD2920SL500	7.30	6.60	5.70	5.00	4.40	3.85	3.50	3.00	2.40
ASMD2920SL500-24V	7.30	6.60	5.70	5.00	4.40	3.85	3.50	3.00	2.40
ASMD2920SL600	8.75	7.95	6.85	6.00	5.25	4.60	4.20	3.65	2.90
ASMD2920SL600-24V	8.75	7.95	6.85	6.00	5.25	4.60	4.20	3.65	2.90
ASMD2920SL700	10.20	9.25	8.00	7.00	6.15	5.40	4.90	4.25	3.35
ASMD2920SL700-24V	10.20	9.25	8.00	7.00	6.15	5.40	4.90	4.25	3.35
ASMD2920SL800	11.70	10.60	9.20	8.00	7.00	6.15	5.60	4.85	3.80
ASMD2920SL800-24V	11.70	10.60	9.20	8.00	7.00	6.15	5.60	4.85	3.80
ASMD2920SL900	13.14	11.89	10.30	9.00	7.86	6.92	6.28	5.45	4.29
ASMD2920SL900-24V	13.14	11.89	10.30	9.00	7.86	6.92	6.28	5.45	4.29
ASMD2920SL1000	14.60	13.21	11.45	10.00	8.74	7.68	6.97	6.05	4.76
ASMD2920SL1000-24V	14.60	13.21	11.45	10.00	8.74	7.68	6.97	6.05	4.76
ASMD2920SL1100	16.06	14.53	12.59	11.00	9.61	8.45	7.67	6.66	5.24
ASMD2920SL1100-24V	16.06	14.53	12.59	11.00	9.61	8.45	7.67	6.66	5.24
ASMD2920SL1200	17.52	15.85	13.74	12.00	10.48	9.22	8.37	7.26	5.72
ASMD2920SL1200-24V	17.52	15.85	13.74	12.00	10.48	9.22	8.37	7.26	5.72

Soldering Parameters



Profile Feature		Pb-Free Assembly
Average Ramp-Up Rate(Ts max to Tp)		3°C/s max.
Preheat	-Temperature Min(Ts min)	150°C
	-Temperature Max(Ts max)	200°C
	-Time(Ts min to Ts max)	60~180 s
Time Maintained Above:	-Temperature(T_L)	217°C
	-Temperature(t_L)	60~150 s
Peak/Classification Temperature(Tp)		$260_{+0/-5}$°C
Time within 5°C of actual peak temperature (t p)		20-40 s
Ramp-down rate		6°C/s max.
Time 25°C to peak temperature(Tp)		8 minutes max.

◆All temperature refer to topside of thepackage, measured on the package body surface.

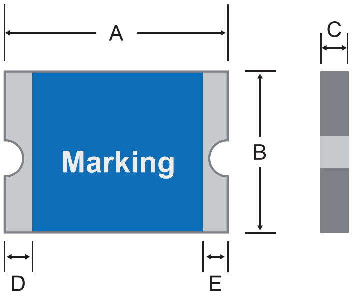
◆If reflow temperature exceeds the recommended profile,devices may not meet the performance requirements.

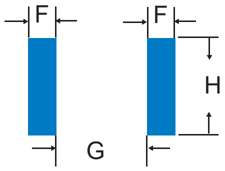
◆Recommended reflow methods: IR,vapor phase oven,hot air oven,N2 environment for lead.

◆Recommended maximum paste thickness is 0.25mm (0.010inch).

◆Devices can be cleaned using standard industry methods and solvents.

Physical Dimensions(mm.)





Model	A		B		C		D		E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
ASMD2920SL500	6.73	7.98	4.80	5.44	0.35	0.85	0.30	2.50	0.25
ASMD2920SL500-24V	6.73	7.98	4.80	5.44	0.35	0.85	0.30	2.50	0.25
ASMD2920SL600	6.73	7.98	4.80	5.44	0.35	0.85	0.30	2.50	0.25
ASMD2920SL600-24V	6.73	7.98	4.80	5.44	0.35	0.85	0.30	2.50	0.25
ASMD2920SL700	6.73	7.98	4.80	5.44	0.60	1.00	0.30	2.50	0.25
ASMD2920SL700-24V	6.73	7.98	4.80	5.44	0.60	1.00	0.30	2.50	0.25
ASMD2920SL800	6.73	7.98	4.80	5.44	0.60	1.00	0.30	2.50	0.25
ASMD2920SL800-24V	6.73	7.98	4.80	5.44	0.60	1.00	0.30	2.50	0.25
ASMD2920SL900	6.73	7.98	4.80	5.44	0.80	1.30	0.30	2.50	0.25
ASMD2920SL900-24V	6.73	7.98	4.80	5.44	0.80	1.30	0.30	2.50	0.25
ASMD2920SL1000	6.73	7.98	4.80	5.44	0.80	1.30	0.30	2.50	0.25
ASMD2920SL1000-24V	6.73	7.98	4.80	5.44	0.80	1.30	0.30	2.50	0.25
ASMD2920SL1100	6.73	7.98	4.80	5.44	1.00	1.50	0.30	2.50	0.25
ASMD2920SL1100-24V	6.73	7.98	4.80	5.44	1.00	1.50	0.30	2.50	0.25
ASMD2920SL1200	6.73	7.98	4.80	5.44	1.00	1.50	0.30	2.50	0.25
ASMD2920SL1200-24V	6.73	7.98	4.80	5.44	1.00	1.50	0.30	2.50	0.25

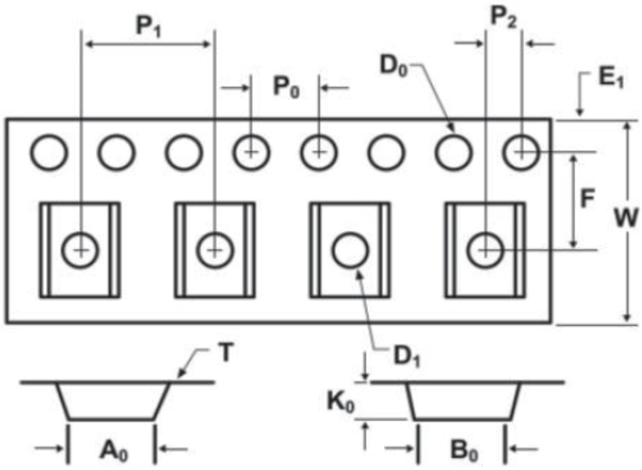
F	G	H
mm	mm	mm
2.00	4.60	5.30

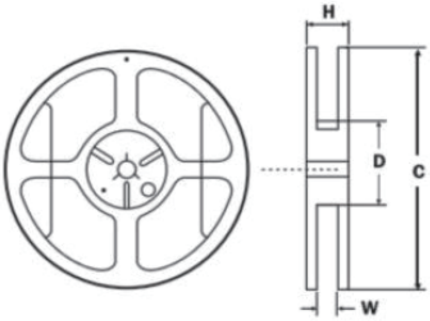
Terminal Material	Tin-Plated Nickle-Copper (Solder Material:Matte Tin (Sn))
Lead Solderability	Meets EIA Specification RS186-9E, ANSI/J-STD-002 Category 3.

Tape And Reel Specifications (mm)

Governing Specifications	
W	16.0 ± 0.3
F	7.50 ± 0.1
E1	1.75 ± 0.1
D0	1.55 ± 0.05
D1	1.50 ± 0.1
P0	4.0 ± 0.1
P1	8.0 ± 0.1
P2	2.0 ± 0.1
A0	5.74 ± 0.1
B0	8.02 ± 0.1
T	0.30 ± 0.1
K0	1.30 ± 0.1
Leader	390mm
Trailer	160mm

Reel Dimensions	
C	φ178 ± 1
D	φ60.2 ± 0.5
W	17.0 ± 0.2
H	19.5 ± 0.1





Packaging Quantity

Model	Quantity
ASMD2920SL	1,500 pcs/reel

Part Number System

ASMD 2920 SL □□□- □□

- □□ — Special Voltage Rating(Optional)
- □□□ — Holding Current Rating
- SL — Super Low resistance
- 2920 — Device Dimensions: Length/width(Unit:1/100 inch) Size 2920 inch
- ASMD — Surface Mount Device

Application Notice

1. Operation of these PPTC devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire；

PPTC 器件在超过规定的最大值额定值运行可能会导致器件损坏以及导致电弧和/或火灾。

2. These PPTC devices are intended to protect against the effects of temporary over-current or over-temperature conditions and shall not be taken for use as switch.

PPTC 的作用是防止临时的过流或过温造成的不良影响，不能当作开关使用。

3. Exposure to lubricants, silicon-based oils, solvents, gels, electrolytes, acids, and other related or similar materials may adversely affect the performance of PPTC devices.

PPTC 接触润滑剂、硅基油、溶剂、凝胶、电解质、酸和其他相关或类似材料可能会对 PPTC 器件的性能有不利影响。

4. Circuits with inductance may generate a voltage above the rated voltage of the PPTC device and should be thoroughly evaluated within the user’s application during the PPTC selection and qualification process.

带有电感的电路可能产生高于 PPTC 额定电压的电压，因此客户在选型和认定过程中应进行彻底的评估。

5. Please do not smash, clamp, pull, dent or twist by tool during assembling process，as they may result in the PPTC damage.

在装配过程中，避免有砸、挤、拉、扭等方式外力作用于 PPTC 本体上，因为它们可能导致 PPTC 损坏。

6. Hand-soldering of PPTC devices on boards is generally not recommended.Users shall define and verify this process if needed.

不推荐使用手工焊接的方式焊接 PPTC。如果需要，用户需要定义和验证此过程。

7. Recommended storage conditions should be followed at all times， The MSL classification of low resistance PPTC is grade 2.

必须始终遵守推荐的保存条件要求， 低阻PPTC 的 MSL 等级为 2级。