

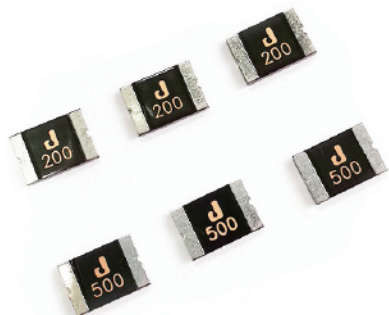


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PRODUCT DATASHEET

Surface Mount PTC Devices

ASMD2920 Series Surface Mount PTC Devices



Description

The ASMD2920 series provides surface mount resettable overcurrent protection with holding current from 0.3A to 7.0A.

This series is suitable for applications with higher holding current and higher working voltage up to 60V.

Agency Approvals

Regulation	Standard
 RoHS	2002/95/EC
 Halogen Free	EN14582

Features

- RoHS compliant and lead-free
- Low profile
- Halogen-free
- Fast response to fault current
- High voltage
- Compatible with high temperature solders

Applications

- Power over Ethernet(POE)
- IEEE 1394 port protection
- Powered USB for POS and IPC
- Low voltage telecom equipment
- Automotive electronics control module protection
- Industrial control
- Security systems

Performance Specification Table I.

Model	V _{max} (V dc)	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)	R _{1max} (Ω)
ASMD2920-030	60	100	0.30	0.60	1.5	1.5	3.0	0.60	4.8
ASMD2920-030-72V	72	10	0.30	0.60	1.5	1.5	3.0	0.60	4.8
ASMD2920-030-90V	90	10	0.30	0.60	1.5	1.5	3.0	0.60	4.8
ASMD2920-035-72V	72	10	0.35	0.70	2.5	2.5	5.0	0.45	4.0
ASMD2920-035-90V	90	10	0.35	0.70	2.5	2.5	5.0	0.45	4.0
ASMD2920-050	60	100	0.50	1.00	1.5	2.5	4.0	0.18	1.4
ASMD2920-050-72V	72	10	0.50	1.00	1.5	2.5	4.0	0.18	1.4
ASMD2920-050-90V	90	10	0.50	1.00	1.5	2.5	4.0	0.18	1.4
ASMD2920-075	33	100	0.75	1.50	1.5	8.0	0.3	0.10	1.0
ASMD2920-075-60V	60	100	0.75	1.50	1.5	8.0	0.3	0.10	1.0
ASMD2920-075-72V	72	10	0.75	1.50	1.5	8.0	0.3	0.10	1.0
ASMD2920-100	33	100	1.10	2.20	1.5	8.0	0.5	0.065	0.41

Performance Specification TABLE II.

Model	V _{max} (V dc)	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)	R _{1max} (Ω)
ASMD2920-100-60V	60	40	1.10	2.20	1.5	8.0	0.5	0.065	0.410
ASMD2920-100-72V	72	10	1.00	2.00	1.5	8.0	1.0	0.060	0.390
ASMD2920-110-72V	72	10	1.10	2.20	1.5	8.0	0.5	0.065	0.410
ASMD2920-125	33	100	1.25	2.50	1.5	8.0	2.0	0.050	0.250
ASMD2920-150	33	100	1.50	3.00	1.5	8.0	2.0	0.035	0.230
ASMD2920-150-60V	60	40	1.50	3.00	1.5	8.0	2.0	0.035	0.230
ASMD2920-185	33	100	1.85	3.70	1.5	8.0	2.5	0.030	0.150
ASMD2920-185-48V	48	40	1.85	3.70	1.5	8.0	2.5	0.030	0.150
ASMD2920-200	16	100	2.00	4.00	1.5	8.0	4.5	0.020	0.120
ASMD2920-200-24V	24	100	2.00	4.00	1.5	8.0	4.5	0.020	0.120
ASMD2920-200-33V	33	100	2.00	4.00	1.5	8.0	4.5	0.020	0.120
ASMD2920-250	16	100	2.50	5.00	1.5	8.0	16.0	0.020	0.085
ASMD2920-250-24V	24	100	2.50	5.00	1.5	8.0	16.0	0.020	0.085
ASMD2920-260	6	100	2.60	5.20	1.5	8.0	10.0	0.014	0.075
ASMD2920-260-16V	16	100	2.60	5.20	1.5	8.0	10.0	0.014	0.075
ASMD2920-260-24V	24	100	2.60	5.20	1.5	8.0	10.0	0.014	0.075
ASMD2920-260-33V	33	40	2.60	5.20	1.5	8.0	20.0	0.014	0.075
ASMD2920-300	6	40	3.00	6.00	1.5	8.0	20.0	0.012	0.048
ASMD2920-300-16V	16	40	3.00	6.00	1.5	8.0	20.0	0.012	0.048
ASMD2920-300-30V	30	40	3.00	6.00	1.5	8.0	20.0	0.012	0.048
ASMD2920-300-33V	33	40	3.00	6.00	1.5	8.0	25.0	0.010	0.055
ASMD2920-300-36V	36	40	3.00	5.00	1.5	8.0	20.0	0.010	0.055
ASMD2920-330	24	40	3.30	6.60	1.5	8.0	5.0	0.010	0.050
ASMD2920-400	16	40	4.00	8.00	1.5	20.0	4.0	0.008	0.040
ASMD2920-400-24V	24	40	4.00	8.00	1.5	20.0	4.0	0.008	0.040
ASMD2920-400-40V	40	40	4.00	8.00	2.5	20.0	4.0	0.008	0.040
ASMD2920-500	6	40	5.00	10.00	1.5	25.0	5.0	0.005	0.031
ASMD2920-500-12V	12	40	5.00	10.00	1.5	25.0	5.0	0.005	0.031
ASMD2920-500-16V	16	40	5.00	10.00	1.5	25.0	5.0	0.005	0.031
ASMD2920-600	6	40	6.00	12.00	1.5	25.0	6.0	0.003	0.020
ASMD2920-600-12V	12	40	6.00	12.00	1.5	25.0	6.0	0.003	0.020
ASMD2920-600-24V	24	40	6.00	12.00	2.0	30.0	2.0	0.003	0.020
ASMD2920-700	6	40	7.00	14.00	1.5	25.0	6.0	0.0025	0.010
ASMD2920-700-12V	12	40	7.00	14.00	1.5	25.0	6.0	0.0025	0.010
ASMD2920-700-16V	16	40	7.00	14.00	2.0	35.0	2.0	0.0025	0.018

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

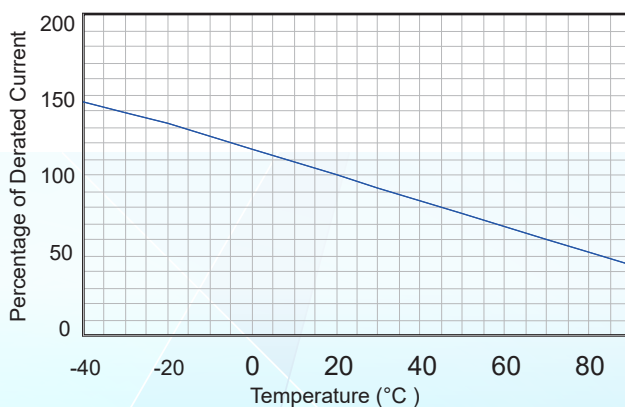
CAUTION : Operation beyond the specified ratings may result in damage and possible arcing and flame

Environmental Specifications

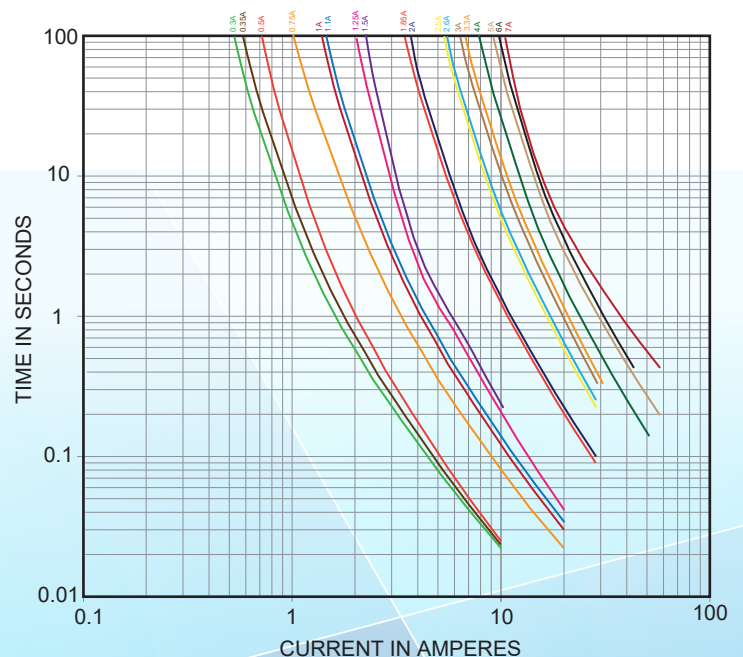
	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-202,Method 201	No change
Ambient operating conditions : - 40 °C to +85 °C		
Maximum surface temperature of the device in the tripped state is 125 °C		

Environmental Characteristic

Thermal Derating Curve



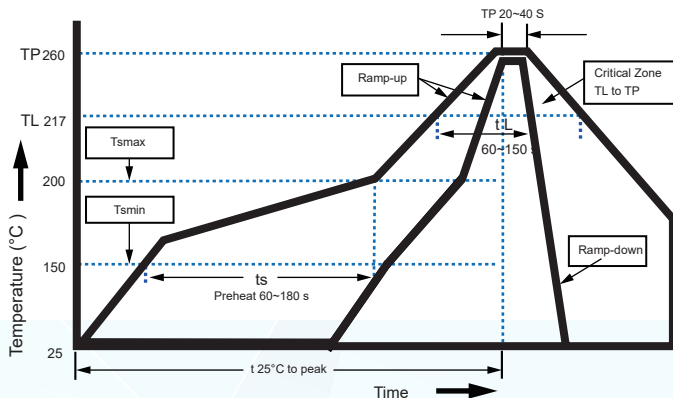
Average Time-Current Curve



Thermal Derating 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
ASMD2920-030	0.45	0.40	0.35	0.30	0.25	0.23	0.20	0.17	0.14
ASMD2920-050	0.76	0.67	0.59	0.50	0.42	0.38	0.33	0.29	0.23
ASMD2920-075	1.13	1.01	0.88	0.75	0.62	0.56	0.50	0.44	0.34
ASMD2920-100	1.66	1.47	1.29	1.10	0.91	0.83	0.73	0.64	0.50
ASMD2920-125	1.89	1.68	1.46	1.25	1.04	0.94	0.83	0.73	0.56
ASMD2920-150	2.27	2.01	1.76	1.50	1.25	1.13	1.00	0.87	0.74
ASMD2920-185	2.80	2.47	2.17	1.85	1.54	1.39	1.22	1.07	0.85
ASMD2920-200	3.02	2.68	2.34	2.00	1.66	1.50	1.32	1.16	0.90
ASMD2920-250	3.78	3.35	2.93	2.50	2.08	1.88	1.65	1.45	1.13
ASMD2920-260	3.64	3.25	2.91	2.60	2.26	2.08	1.95	1.74	1.13
ASMD2920-300	4.53	4.02	3.51	3.00	2.52	2.26	1.99	1.75	1.34
ASMD2920-400	6.04	5.36	4.68	4.00	3.36	3.01	2.65	2.33	1.79
ASMD2920-500	7.55	6.70	5.85	5.00	4.20	3.77	3.32	2.92	2.23
ASMD2920-600	8.60	7.70	6.80	6.00	4.95	4.60	4.06	3.65	3.15
ASMD2920-700	10.03	8.98	7.93	7.00	5.77	5.36	4.73	4.26	3.68

Soldering Parameters



- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 environment for lead-free.
- Recommended maximum paste thickness is 0.25mm. 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 temperatures exceed the recommended profile, devices may not meet the performance requirements.

Profile Feature

Pb-Free Assembly

Average Ramp-Up Rate
(T_s max to T_p)

3°C/second max.

Preheat

-Temperature Min(T_s min)	150°C
-Temperature Max(T_s max)	200°C
-Time(T_s min to T_s max)	60~180 seconds

Time maintained above:

-Temperature(TL)	217°C
-Time(tL)	60~150 seconds

Peak Temperature(T_p)

260°C

Ramp-Down Rate

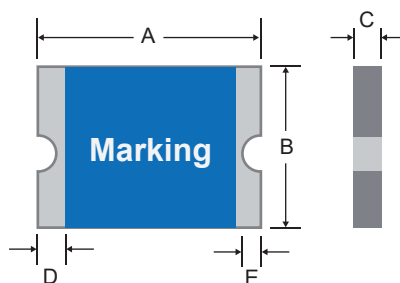
6°C/second max.

Time 25°C to Peak Temperature

8 minutes max

Storage And Handling:

Storage conditions	0°C~ 35°C, 30% ~60% R.H.
Devices may not meet specified performance if storage conditions are exceeded.	

Physical Dimensions(mm.)


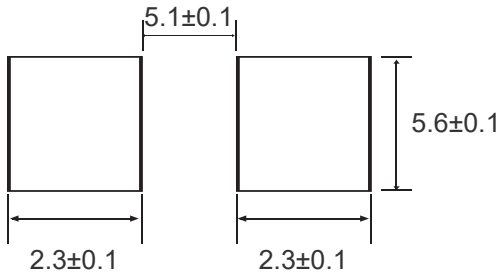
Model	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
ASMD2920-030	6.73	7.98	4.80	5.44	0.6	1.2	0.30	0.25
ASMD2920-035-72V	6.73	7.98	4.80	5.44	0.6	1.2	0.30	0.25
ASMD2920-035-90V	6.73	7.98	4.80	5.44	0.6	1.2	0.30	0.25
ASMD2920-050	6.73	7.98	4.80	5.44	0.6	1.2	0.30	0.25
ASMD2920-050-90V	6.73	7.98	4.80	5.44	0.6	1.3	0.30	0.25
ASMD2920-075	6.73	7.98	4.80	5.44	0.6	1.3	0.30	0.25
ASMD2920-100	6.73	7.98	4.80	5.44	0.4	1.0	0.30	0.25
ASMD2920-100-60V	6.73	7.98	4.80	5.44	0.8	1.6	0.30	0.25
ASMD2920-100-72V	6.73	7.98	4.80	5.44	0.8	1.6	0.30	0.25
ASMD2920-110-72V	6.73	7.98	4.80	5.44	0.8	1.6	0.30	0.25
ASMD2920-125	6.73	7.98	4.80	5.44	0.4	1.0	0.30	0.25
ASMD2920-150	6.73	7.98	4.80	5.44	0.5	1.3	0.30	0.25
ASMD2920-150-60V	6.73	7.98	4.80	5.44	1.0	1.5	0.30	0.25
ASMD2920-185	6.73	7.98	4.80	5.44	0.6	1.4	0.30	0.25
ASMD2920-200	6.73	7.98	4.80	5.44	0.6	1.4	0.30	0.25
ASMD2920-250	6.73	7.98	4.80	5.44	0.6	1.4	0.30	0.25
ASMD2920-260	6.73	7.98	4.80	5.44	0.6	1.4	0.30	0.25
ASMD2920-300	6.73	7.98	4.80	5.44	0.6	1.4	0.30	0.25
ASMD2920-300-36V	6.73	7.98	4.80	5.44	1.2	2.0	0.30	0.25
ASMD2920-330	6.73	7.98	4.80	5.44	0.6	1.4	0.30	0.25
ASMD2920-400	6.73	7.98	4.80	5.44	0.6	1.6	0.30	0.25
ASMD2920-500	6.73	7.98	4.80	5.44	0.6	1.6	0.30	0.25
ASMD2920-600	6.73	7.98	4.80	5.44	0.6	1.6	0.30	0.25
ASMD2920-700	6.73	7.98	4.80	5.44	0.6	1.6	0.30	0.25
ASMD2920-700-16V	6.73	7.98	4.80	5.44	1.2	1.6	0.30	0.25

Termination Pad Characteristics

Terminal pad materials: Tin-plated Nickel-Copper

Terminal pad solder ability: Meets EIA specification RS186-9E and ANSI/J-STD-002 Category 3.

Recommended Pad Layout and Packaging Quantity

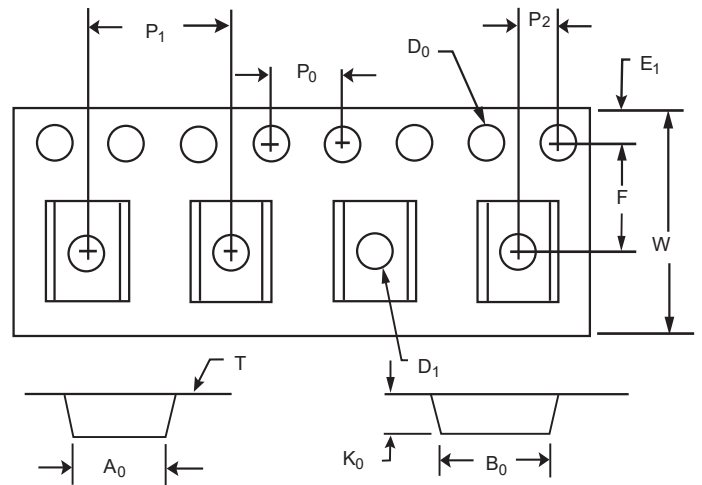


Recommended Pad Layout (mm)

Part Number	Quantity
ASMD2920 Series	1,500 pcs/reel
ASMD2920-300-36V	1,000 pcs/reel
ASMD2920-600-16V~700-16V	1,000 pcs/reel
Tape & reel packaging per EIA481-1	

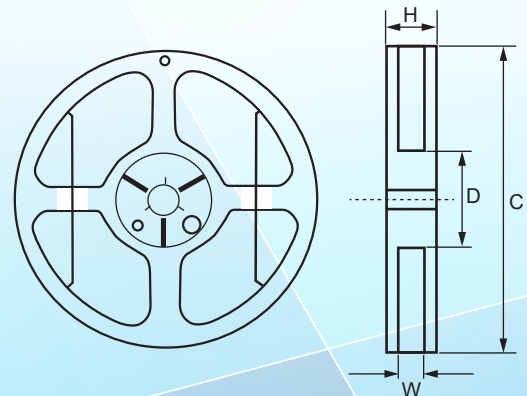
Tape And Reel Specifications (mm)

Governing Specifications	EIA 481-1
W	16.0 ± 0.30
F	7.50 ± 0.10
E1	1.75 ± 0.10
D0	1.55 ± 0.05
D1	1.50 ± 0.10
P0	4.00 ± 0.10
P1	8.00 ± 0.10
P2	2.00 ± 0.10
A0	5.74 ± 0.10
B0	8.02 ± 0.10
T	0.30 ± 0.10
K0	0.9/1.3/1.7 ± 0.10
Leader	390 mm
Trailer	160 mm



REEL DIMENSIONS: EIA-481-1(mm)

C	φ 178 ± 1.0
D	φ 60.2 ± 0.5
W	17.0 ± 0.2
H	19.5 ± 1.0



Part Number System

ASMD 2920 - □□□ - □□

Special Voltage Rating(Optional)

Holding Current Rating

Device Dimensions:
Length/width(Unit: 1/100 inch) Size 7555 mm / 2920 inch

Surface Mount Device

Cross Reference

Model	Cross Reference		
	Tyco / PolySwitch®	Littelfuse / POLY-FUSE®	Polytronics / EVERFUSE®
ASMD2920-030	SMD030F	2920L030	SMD2920P030TF
ASMD2920-050	SMD050F	2920L050	SMD2920P050TF
ASMD2920-075	SMD075F	2920L075	SMD2920P075TF
ASMD2920-100	SMD100F/33	2920L100	SMD2920P110TF
ASMD2920-125	SMD125F	2920L125	SMD2920P125TF
ASMD2920-150	SMD150F/33(3425)	2920L150	SMD2920P150TF
ASMD2920-185	SMD185F(3425)	2920L185	SMD2920P185TF
ASMD2920-200	SMD200F(3425)	2920L200	SMD2920P200TF
ASMD2920-250	SMD250F(3425)	2920L250	SMD2920P250TF
ASMD2920-260	SMD260F	2920L260	SMD2920P260TF
ASMD2920-300	SMD300F	2920L300	SMD2920P300TF
ASMD2920-300-16	-	2920L300/15	SMD2920P300TF/15
ASMD2920-400	-	-	-
ASMD2920-500	-	-	-
ASMD2920-500-12V	-	-	-
ASMD2920-500-16V	-	-	-
ASMD2920-600	-	-	-
ASMD2920-700	-	-	-

"PolySwitch" is a registered trademark of Tyco Electronics.

"POLY-FUSE" is a registered trademark of Littelfuse, Inc.

"EVERFUSE" is a registered trademark of Polytronics Technology Corp.

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 PPTC is grade 2a.

必须始终遵守推荐的保存条件要求，PPTC 的 MSL 等级为 2 a 级。