



PRODUCT DATASHEET

Surface Mount PTC Devices

ASMD2018 Series Surface Mount PTC Devices

Description

The ASMD2018 series provides surface mount resettable overcurrent protection with holding current from 0.3A to 2.0A.

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



Features

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

Agency Approvals

Agency	File Number
	pending
	pending

Regulation	Standard
	2002/95/EC
	EN14582

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

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)
ASMD2018-030	60	100	0.30	0.60	0.9	1.5	3.00	0.500	2.300
ASMD2018-050	60	100	0.55	1.20	1.0	2.5	3.00	0.200	1.000
ASMD2018-100	15	100	1.10	2.20	1.1	8.0	0.40	0.060	0.360
ASMD2018-100-33	33	100	1.10	2.20	1.1	8.0	0.40	0.060	0.360
ASMD2018-150	15	100	1.50	3.00	1.1	8.0	0.80	0.050	0.170
ASMD2018-200	10	100	2.00	4.00	1.1	8.0	2.40	0.030	0.100

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}/R_{1max} = 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

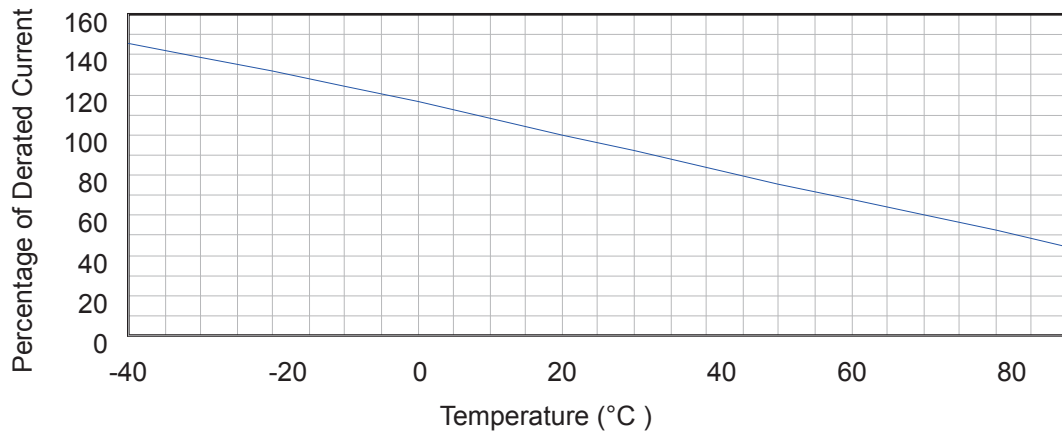
	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±5% typical
Humidity aging	+85°C, 85% R.H. , 168 hours	±5% typical
Thermal shock	+85°C to -40°C, 20 times	±33% typical
Resistance to solvent	MIL-STD-202, Method 215	No change
Vibration	MIL-STD-202, Method 201	No change

Ambient operating conditions : - 40 °C to +85 °C

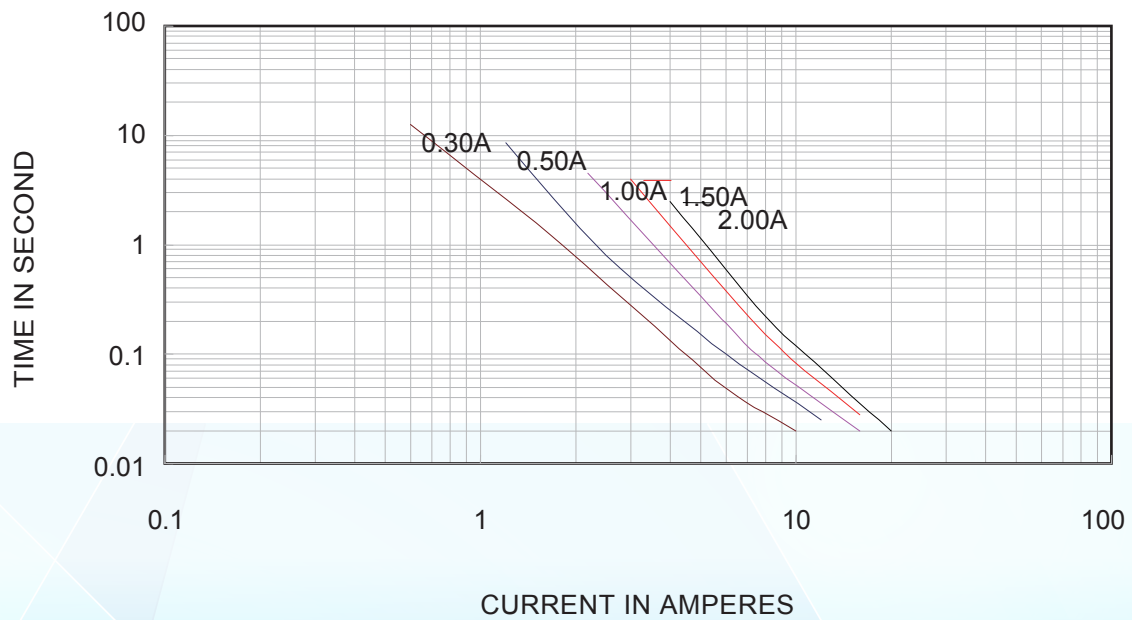
Maximum surface temperature of the device in the tripped state is 125 °C

Thermal Derating Curve

Derating Curves for SMD2018 Series



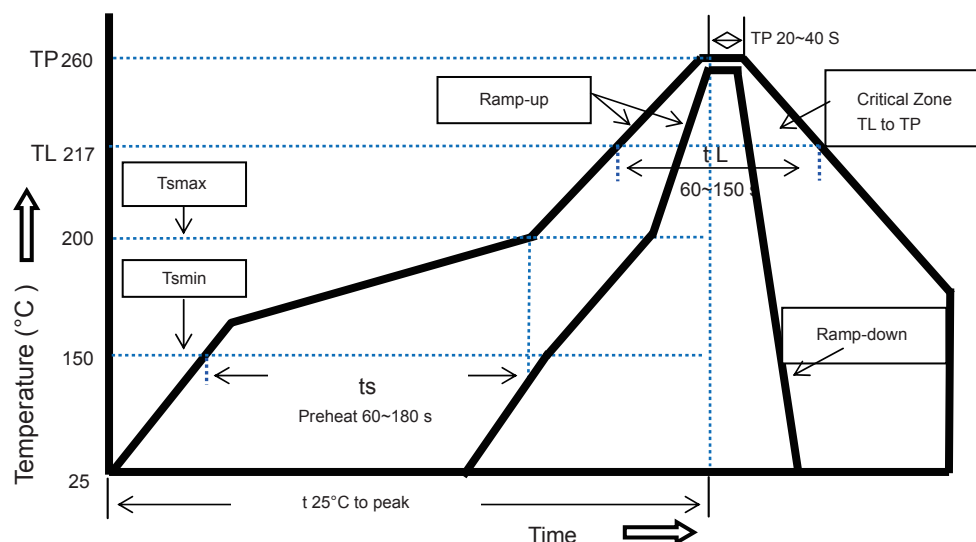
Average Time-Current Curve



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
ASMD2018-030	0.48	0.42	0.35	0.30	0.24	0.21	0.17	0.15	0.10
ASMD2018-050	0.87	0.77	0.67	0.55	0.46	0.41	0.36	0.31	0.23
ASMD2018-100	1.71	1.52	1.32	1.10	0.94	0.84	0.74	0.64	0.50
ASMD2018-100-33V	1.71	1.52	1.32	1.10	0.94	0.84	0.74	0.64	0.50
ASMD2018-150	2.38	2.10	1.82	1.50	1.27	1.13	0.99	0.85	0.64
ASMD2018-200	2.95	2.65	2.35	2.00	1.74	1.59	1.44	1.29	1.06

Soldering Parameters



Profile Feature

Pb-Free Assembly

Average Ramp-Up Rate 3 °C/second max.
(Ts max to T p)

Preheat

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

Time maintained above:

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

Peak Temperature(Tp) 260 °C

Ramp-Down Rate 6 °C/second max.

Time 25 °C to Peak Temperature 8 minutes max

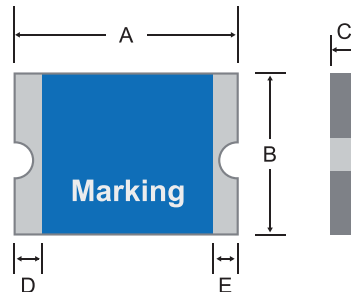
Storage Condition 0 °C~35 °C, ≤70%RH

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.

Physical Dimensions(mm.)



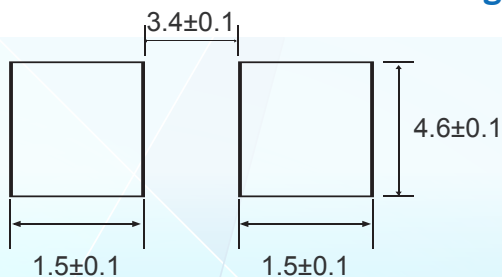
Model	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
ASMD2018-030	4.72	5.44	4.22	4.93	0.60	1.10	0.30	4.72
ASMD2018-050	4.72	5.44	4.22	4.93	0.70	1.30	0.30	4.72
ASMD2018-100	4.72	5.44	4.22	4.93	0.45	0.80	0.30	4.72
ASMD2018-100-33V	4.72	5.44	4.22	4.93	0.45	0.80	0.30	4.72
ASMD2018-150	4.72	5.44	4.22	4.93	0.45	0.80	0.30	4.72
ASMD2018-200	4.72	5.44	4.22	4.93	0.40	0.80	0.30	4.72

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.

Packaging Quantity and Marking



Part Number	Quantity
ASMD2018-030.050	1500 pcs/reel
The others	2500 pcs/reel

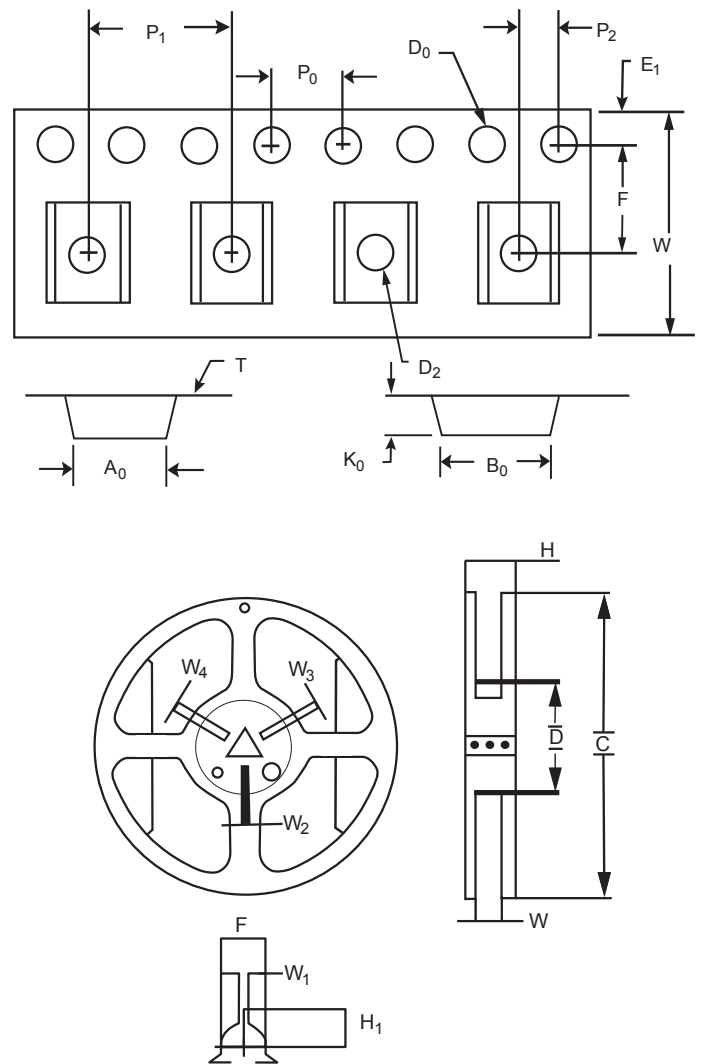
Tape & reel packaging per EIA481-1

Tape And Reel Specifications (mm)

Governing Specifications	EIA 481-1
W	12.0 ± 0.2
P0	4.0 ± 0.10
P1	8.0 ± 0.10
P2	2.0 ± 0.05
A0	4.40 ± 0.10
B0	5.50 ± 0.10
B1max.	8.20
D0	$1.50 + 0.1, -0$
F	5.5 ± 0.05
E1	1.75 ± 0.10
E2min.	10.25
T	0.6
T1max.	0.1
K0	1.36 ± 0.1
Leader min.	390
Trailer min.	160
Reel Dimensions	
A max.	178
N min.	50
W1	12.4 ± 0.5
W2	18.4 ± 0.5

Storage And Handling

- Storage conditions: 40°C max, 70% R.H.
- Devices may not meet specified performance if storage conditions are exceeded. Technology Corp.



Part Number System

ASMD 2018 - □□□ - □□

Special Voltage Rating(Optional)

Holding Current Rating

Device Dimensions:
Length/width(Unit:1/100 inch) Size 5045 mm / 2018 inch

Surface Mount Device

Cross Reference

Model	Cross Reference		
	Tyco / PolySwitch®	Littelfuse / POLY-FUSE®	Polytronics / EVERFUSE®
ASMD2018-030	SMD030F-2018	2016L030	SMD2016P030TF
ASMD2018-050	decaSMDC050F/60	2016L050	SMD2016P050TF
ASMD2018-100	SMD100F-2018	2016L100	SMD2016P100TF
ASMD2018-100-33V	-	2016L100/33	SMD2016P100TF/33
ASMD2018-150	SMD150F-2018	2016L150	SMD2016P150TF
ASMD2018-200	SMD200F-2018	2016L200	SMD2016P200TF

"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.