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PRODUCT DATASHEET

Surface Mount PTC Devices

ASMD0603SL Series Surface Mount PTC Devices

Description

The ASMD0603SL series provides miniature surface mount resettable overcurrent protection with holding current from 0.35mA to 2.0A.

This world's smallest PTC is suitable for ultra portable applications where space is at a premium and the device current is low.

Features

- RoHS compliant
- Halogen-free
- Faster tripping
- 0603 Dimension
- Surface mountable
- Solid state
- Operating Current: 0.35A~2.0A, @25℃
- Maximum Voltage: 6V
- Operating Temperature: -40℃ ~ 85℃
- Certification: ROHS,UL

Agency Approvals

Agency	File Number
	Pending

Regulation	Standard
	2002/95/EC
	EN14582

Applications

- Mobile phones and PDAs
- USB peripherals
- Portable MP3 and media player
- IC VCC protection
- Mobile Internet Device (MID)

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)	R _{1max} (Ω)
ASMD0603SL035	6.0	50.0	0.35	0.7	0.5	8.0	0.1	0.150	1.00
ASMD0603SL050	6.0	50.0	0.50	1.0	0.5	8.0	0.6	0.070	0.40
ASMD0603SL075	6.0	50.0	0.75	1.5	0.5	8.0	1.0	0.055	0.25
ASMD0603SL100	6.0	50.0	1.00	2.0	0.5	8.0	2.0	0.045	0.12
ASMD0603SL125	6.0	50.0	1.25	2.5	0.5	8.0	3.0	0.035	0.10
ASMD0603SL150	6.0	50.0	1.50	3.0	0.5	8.0	4.0	0.025	0.08
ASMD0603SL175	6.0	50.0	1.75	3.5	0.5	8.0	5.0	0.015	0.07
ASMD0603SL200	6.0	50.0	2.00	4.0	0.5	8.0	5.0	0.012	0.06

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.

Test Procedures and Requirements

Test	Conditions	Accept/Reject Criteria
Initial Resistance	In still air at 25±2°C	R _{imin} ≤ R ≤ R _{1max}
Time to Trip	Specified current, V _{max} , 25±2°C	T ≤ Maximum Time to Trip
Holding Current	30min, at I _H , @25±2°C	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

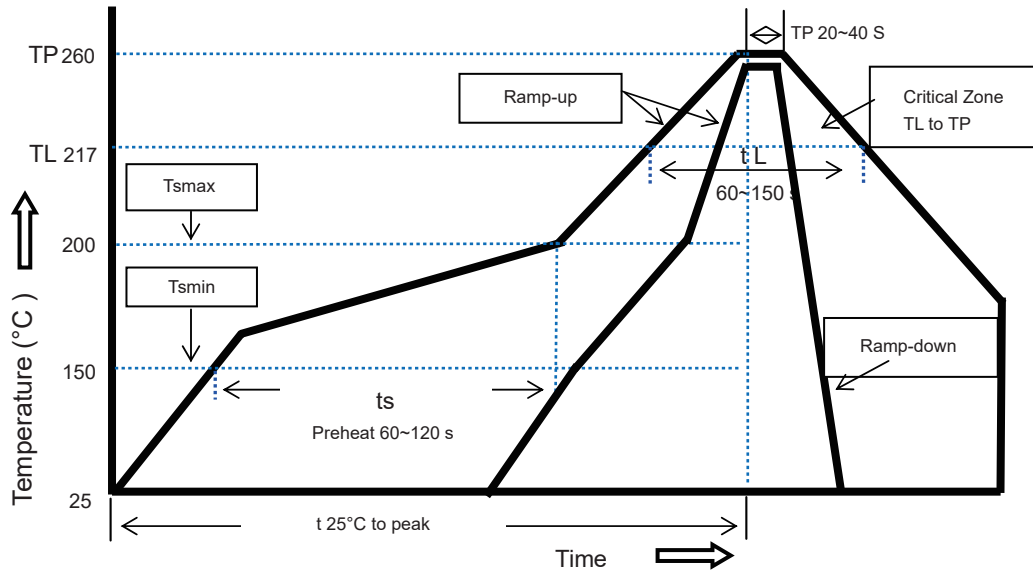
Environmental Specifications

Test	Conditions	Resistance change
Passive aging	+85°C, 1000 hrs.	±10% typical
Humidity aging	+85°C, 85% R.H. , 100 hours	±5% typical
Thermal shock	MIL-STD-202,Method 107G+85°C to -40°C, 20 times	-30% typical
Resistance to solvent	MIL-STD-202,Method 215	No change
Vibration	MIL-STD-833C,Test Condition A	No change

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
ASMD0603SL035	0.46	0.40	0.37	0.35	0.29	0.25	0.24	0.20	0.14
ASMD0603SL050	0.66	0.57	0.53	0.50	0.41	0.36	0.34	0.29	0.20
ASMD0603SL075	0.99	0.86	0.79	0.75	0.62	0.54	0.51	0.43	0.30
ASMD0603SL100	1.31	1.14	1.06	1.00	0.83	0.71	0.69	0.57	0.40
ASMD0603SL125	1.64	1.43	1.32	1.25	1.04	0.89	0.86	0.71	0.50
ASMD0603SL150	1.97	1.71	1.59	1.50	1.24	1.07	1.03	0.86	0.60
ASMD0603SL175	2.30	2.00	1.85	1.75	1.45	1.25	1.20	1.00	0.70
ASMD0603SL200	2.63	2.29	2.11	2.00	1.66	1.43	1.37	1.14	0.80

Soldering Parameters

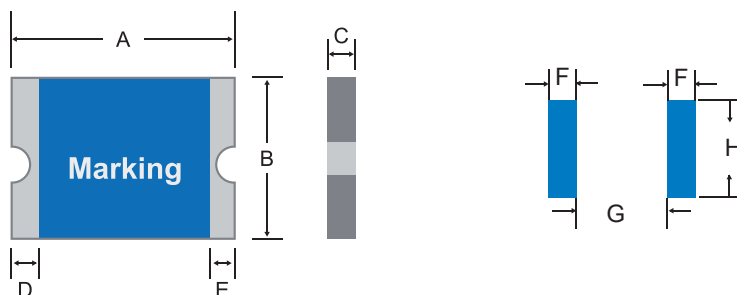


Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts max to T p)	3 °C/second max.
Preheat	
-Temperature Min(Ts min)	150 °C
-Temperature Max(Ts max)	200 °C
-Time(Ts min to Ts max)	60~120 seconds
Time maintained above:	
-Temperature(TL)	217 °C
-Time(tL)	60~150 seconds
Peak/Classification Temperature(Tp)	260 °C
Time within 5 °C of actual peak temperature	
Time (TP)	30 seconds max.
Ramp down rate	3 °C/seconds max.
Time 25 °C 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.

Physical Dimensions(mm.)


Model	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
ASMD0603SL035	1.45	1.85	0.65	1.05	0.3	0.7	0.15	0.1
ASMD0603SL050	1.45	1.85	0.65	1.05	0.3	0.7	0.15	0.1
ASMD0603SL075	1.45	1.85	0.65	1.05	0.3	0.7	0.15	0.1
ASMD0603SL100	1.45	1.85	0.65	1.05	0.4	1.0	0.15	0.1
ASMD0603SL125	1.45	1.85	0.65	1.05	0.4	1.0	0.15	0.1
ASMD0603SL150	1.45	1.85	0.65	1.05	0.5	1.2	0.15	0.1
ASMD0603SL175	1.45	1.85	0.65	1.05	0.5	1.2	0.15	0.1
ASMD0603SL200	1.45	1.85	0.65	1.05	0.7	1.4	0.15	0.1

Recommended Solder Pad Layout Dimensions (mm.)

Device	F	G	H
	Normal Value	Normal Value	Normal Value
0603 Series	1.0	0.8	1.0

Packaging Quantity

Model	Quantity
ASMD0603SL035~125	5,000 pcs/reel
ASMD0603SL150~200	4,000 pcs/reel

Tape And Reel Specifications (mm)

Governing Specifications

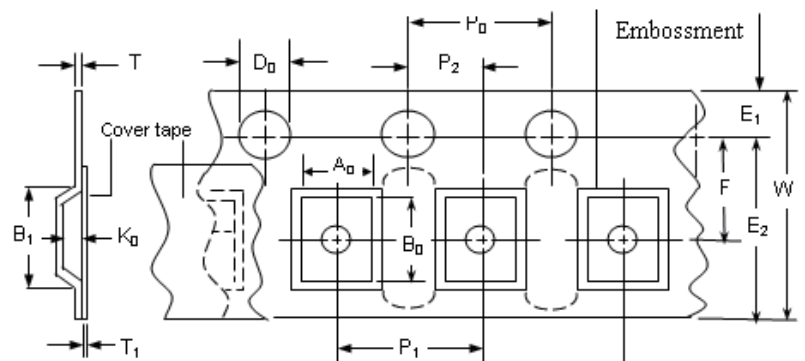
W	8.0 ± 0.1
P0	4.0 ± 0.1
P1	4.0 ± 0.10
P2	2.0 ± 0.05
A0	0.95 ± 0.10
B0	1.85 ± 0.05
D0	1.55 ± 0.05
F	3.5 ± 0.05
E1	1.75 ± 0.10
T	0.20 ± 0.02

Leader min.	390
Trailer min.	160

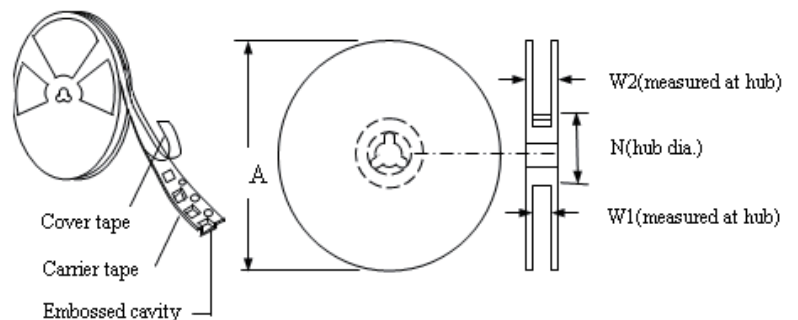
Reel Dimensions

A	178 ± 1
N	59 ± 1
W1	$8.5 \pm 1.0/-0.2$
W2	12.0 ± 1

EIA Tape Component Dimensions



EIA Reel Dimensions



Part Number System

ASMD 0603 SL □□□ - □□

