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PRODUCT DATASHEET

Surface Mount PTC Devices

ASMD1206SL Series Surface Mount PTC Devices

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Description

The ASMD1206SL series provides miniature surface mount overcurrent protection with holding current from 1.1A to 7.0A.

This series is suitable for wide range of applications in modern electronics where space is limited.

Features

- RoHS compliant
- Halogen-free
- Faster tripping
- 1206 Dimension
- Surface mountable
- Solid state
- Operating Current:1.1A~7.0A, @25℃
- Maximum Voltage: 6V/12V
- Operating Temperature: -40℃~ 85℃
- Certification: ROHS,UL

Agency Approvals

Agency	File Number
c UL us	E472196

Regulation	Standard
RoHS	2002/95/EC
Halogen Free	EN14582

Applications

- Battery PCM
- Game console port protection
- USB hubs, ports and peripherals
- Optical disk drives
- Set-top-box and HDMI
- General electronics

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)
ASMD1206SL110	6	50	1.10	2.20	0.8	8.0	5.0	0.015	0.100
ASMD1206SL110-12V	12	50	1.10	2.20	0.8	8.0	5.0	0.015	0.100
ASMD1206SL150	6	50	1.50	3.0	0.8	8.0	5.0	0.010	0.065
ASMD1206SL150-12V	12	50	1.50	3.0	0.8	8.0	5.0	0.010	0.065
ASMD1206SL175	6	50	1.75	3.5	0.8	8.0	5.0	0.010	0.060
ASMD1206SL175-12V	12	50	1.75	3.5	0.8	8.0	5.0	0.010	0.060
ASMD1206SL200	6	50	2.00	4.0	0.8	8.0	5.0	0.008	0.040
ASMD1206SL200-12V	12	50	2.00	4.0	0.8	8.0	5.0	0.008	0.040
ASMD1206SL260	6	50	2.60	5.2	0.8	8.0	5.0	0.004	0.026
ASMD1206SL260-12V	12	50	2.60	5.2	0.8	8.0	5.0	0.004	0.026
ASMD1206SL300	6	50	3.00	6.0	0.8	15.0	2.0	0.004	0.020
ASMD1206SL300-12V	12	50	3.00	6.0	0.8	15.0	2.0	0.004	0.020
ASMD1206SL350	6	50	3.50	7.0	1.0	17.5	2.0	0.004	0.018
ASMD1206SL350-12V	12	50	3.50	7.0	1.0	17.5	2.0	0.004	0.018
ASMD1206SL380	6	50	3.80	7.6	1.0	19.0	2.0	0.004	0.016
ASMD1206SL380-12V	12	50	3.80	7.6	1.0	19.0	2.0	0.004	0.016
ASMD1206SL400	6	50	4.00	8.0	1.0	20.0	2.0	0.004	0.014
ASMD1206SL400-12V	12	50	4.00	8.0	1.0	20.0	2.0	0.004	0.014
ASMD1206SL450	6	50	4.50	9.0	1.0	22.5	2.0	0.002	0.012
ASMD1206SL450-12V	12	50	4.50	9.0	1.0	22.5	2.0	0.002	0.012
ASMD1206SL500	6	50	5.00	10.0	1.0	25.0	2.0	0.002	0.011
ASMD1206SL500-12V	12	50	5.00	10.0	1.0	25.0	2.0	0.002	0.011
ASMD1206SL550	6	50	5.50	11.0	1.2	27.5	2.0	0.002	0.010
ASMD1206SL550-12V	12	50	5.50	11.0	1.2	27.5	2.0	0.002	0.010
ASMD1206SL600	6	50	6.00	12.0	1.2	30.0	2.0	0.002	0.009
ASMD1206SL600-12V	12	50	6.00	12.0	1.2	30.0	2.0	0.002	0.009
ASMD1206SL650	6	50	6.50	13.0	1.5	32.5	2.0	0.001	0.009
ASMD1206SL650-12V	12	50	6.50	13.0	1.5	32.5	2.0	0.001	0.009
ASMD1206SL700	6	50	7.00	14.0	1.5	35.0	2.0	0.001	0.008
ASMD1206SL700-12V	12	50	7.00	14.0	1.5	35.0	2.0	0.001	0.008

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.
$R_{i\ min/max}$ = 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°C	Rimin≤R≤R1max
Time to Trip	Specified current，Vmax，25°C	T≤Maximum Time to Trip
Holding Current	30min，at IH ，@25°C	No trip
Trip Endurance	Vmax，Imax,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

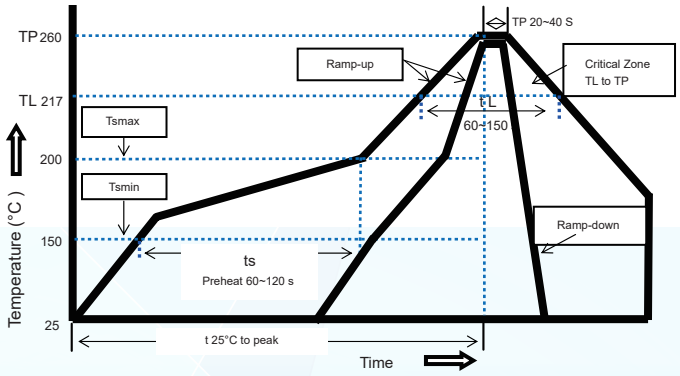
Environmental Specifications

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 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
ASMD1206SL110	1.61	1.45	1.26	1.10	0.96	0.85	0.77	0.67	0.52
ASMD1206SL150	2.01	1.77	1.62	1.50	1.22	1.12	.04	0.87	0.61
ASMD1206SL175	2.34	2.05	1.89	1.75	1.44	1.31	1.20	1.00	0.72
ASMD1206SL200	2.68	2.33	2.15	2.00	1.66	1.49	1.37	1.15	0.80
ASMD1206SL260	3.49	3.05	2.82	2.60	2.15	1.93	1.78	1.49	1.04
ASMD1206SL300	4.03	3.51	3.26	3.00	2.49	2.23	2.06	1.71	1.20
ASMD1206SL350	4.70	4.10	3.80	3.50	2.90	2.60	2.40	2.00	1.40
ASMD1206SL380	6.40	4.85	4.25	3.80	3.20	2.80	2.49	2.05	1.43
ASMD1206SL400	6.74	5.11	4.47	4.00	3.37	2.95	2.62	2.16	1.51
ASMD1206SL450	6.85	5.92	5.47	4.50	3.73	3.34	3.00	2.35	1.55
ASMD1206SL500	7.30	6.34	5.66	5.00	4.42	3.85	3.47	3.12	2.38
ASMD1206SL550	8.03	6.97	6.32	5.50	4.86	4.24	3.82	3.43	2.62
ASMD1206SL600	8.46	7.60	6.75	6.00	5.15	4.35	4.00	3.55	2.86
ASMD1206SL650	9.49	8.59	7.44	6.50	5.68	4.99	4.53	3.93	3.10
ASMD1206SL700	10.22	9.25	8.01	7.00	6.12	5.38	4.88	4.24	3.33

Soldering Parameters



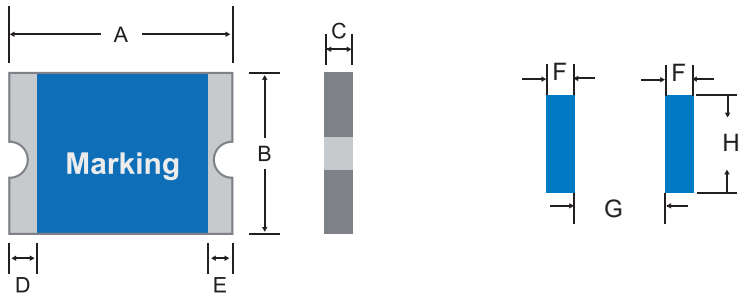
Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Ts max to T p)	3℃/second max.
Preheat	
-Temperature Min(Ts min)	150℃
-Temperature Max(Ts max)	200℃
-Time(Ts min to Ts max)	60~120 seconds
Time maintained above:	
-Temperature(TL)	217℃
-Time(tL)	60~150 seconds
Peak/Classification Temperature(Tp)	260℃
Time within 5℃ of actual peak temperature	
Time (TP)	30 seconds max.
Ramp down rate	3℃/seconds max.
Time 25℃ 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.
ASMD1206SL110	3.0	3.5	1.5	1.8	0.3	0.7	0.15	0.1
ASMD1206SL150	3.0	3.5	1.5	1.8	0.3	0.7	0.15	0.1
ASMD1206SL175	3.0	3.5	1.5	1.8	0.3	0.7	0.15	0.1
ASMD1206SL200	3.0	3.5	1.5	1.8	0.3	0.7	0.15	0.1
ASMD1206SL260	3.0	3.5	1.5	1.8	0.4	1.0	0.15	0.1
ASMD1206SL300	3.0	3.5	1.5	1.8	0.4	1.2	0.15	0.1
ASMD1206SL350	3.0	3.5	1.5	1.8	0.4	1.2	0.15	0.1
ASMD1206SL380	3.0	3.5	1.5	1.8	0.4	1.2	0.15	0.1
ASMD1206SL400	3.0	3.5	1.5	1.8	0.5	1.2	0.15	0.1
ASMD1206SL450	3.0	3.5	1.5	1.8	0.5	1.4	0.15	0.1
ASMD1206SL500	3.0	3.5	1.5	1.8	0.5	1.4	0.15	0.1
ASMD1206SL550	3.0	3.5	1.5	1.8	0.6	1.6	0.15	0.1
ASMD1206SL600	3.0	3.5	1.5	1.8	0.6	1.6	0.15	0.1
ASMD1206SL650	3.0	3.5	1.5	1.8	0.8	1.6	0.15	0.1
ASMD1206SL700	3.0	3.5	1.5	1.8	0.8	1.6	0.15	0.1

Recommended Solder Pad Layout Dimensions (mm.)

Device	F	G	H
	Normal Value	Normal Value	Normal Value
1206SL Series	1.0	1.8	1.8

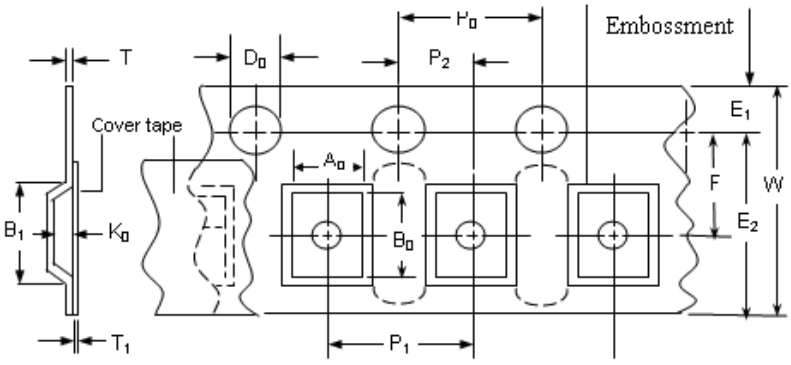
Packaging Quantity

Model	Quantity
ASMD1206SL110~350	5,000 pcs/reel
ASMD1206SL380~600	3,500 pcs/reel
Others	3,000 pcs/reel

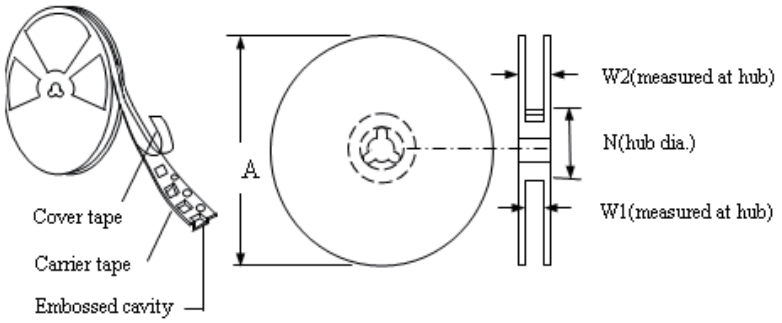
Tape And Reel Specifications (mm)

Governing Specifications	
W	8.15 ± 0.15/-0.3
P0	4.0 ± 0.10
P1	4.0 ± 0.10
P2	2.0 ± 0.05
A0	1.95 ± 0.10
B0	3.65 ± 0.10
D0	1.55 + 0.05
F	3.5 ± 0.05
E1	1.75 ± 0.10
T	0.20± 0.10
Leader min.	390
Trailer min.	160
Reel Dimensions	
A	178± 1
N	59± 1
W1	8.5 ± 1.0/-0.2
W2	12.0 ± 1

EIA Tape Component Dimentions



EIA Reel Dimentions



Part Number System

ASMD 1206 SL □□□- □□

- Special Voltage Rating(Optional)
- Holding Current Rating
- Super Low resistance
- Device Dimensions: Length/width(Unit:1/100 inch) Size 3216 mm /1206 inch
- Surface Mount Device