

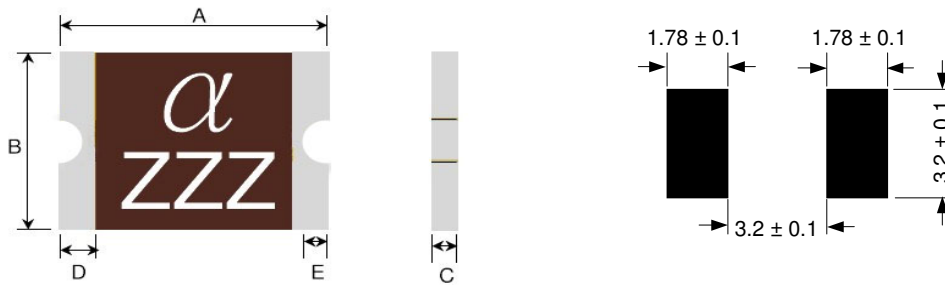
**Features**

- Surface Mount Devices
- Lead free device
  - Size 4532mm/1812 mils
  - Surface Mount packaging for automated assembly
- Agency recognition:UL

**Applications**

- Almost anywhere there is a low voltage power supply, up to DC33V and a load to be protected, including:
- Computer mother board,Modem,USB hub
  - PDAs & Charger,Analog & digital line card
  - Digital cameras,Dish drivers, CD-ROMs

**Dimensions (mm)**



**Product dimensions (mm)**

Model	A		B		C		D	E
	min	max	min	max	min	max	min	min
MSM010	4.37	4.73	3.07	3.41	0.50	1.00	0.30	0.25
MSM014	4.37	4.73	3.07	3.41	0.50	1.00	0.30	0.25
MSM020/60	4.37	4.73	3.07	3.41	0.50	1.30	0.30	0.25
MSM030	4.37	4.73	3.07	3.41	0.50	1.00	0.30	0.25
MSM050/24/30	4.37	4.73	3.07	3.41	0.40	1.80	0.30	0.25
MSM075/16/24/33	4.37	4.73	3.07	3.41	0.40	0.90	0.30	0.25
MSM110/16/24/33	4.37	4.73	3.07	3.41	0.40	1.30	0.30	0.25
MSM125	4.37	4.73	3.07	3.41	0.60	1.30	0.30	0.25
MSM150/16/24	4.37	4.73	3.07	3.41	0.40	1.20	0.30	0.25
MSM160	4.37	4.73	3.07	3.41	0.40	1.20	0.30	0.25
MSM200/12	4.37	4.73	3.07	3.41	0.50	1.30	0.30	0.25
MSM260/13.2/16	4.37	4.73	3.07	3.41	0.50	1.50	0.30	0.25
MSM300	4.37	4.73	3.07	3.41	0.50	1.50	0.30	0.25
MSM350	4.37	4.73	3.07	3.41	0.50	1.50	0.30	0.25

**Environmental Specifications**

Test	Conditions	Resistance change
Passive aging	85°C,1000hrs	±5% typical
Humidity aging	85°C,85%CR.H.,168hrs	±5% typical
Thermal shock	85°C,to-40°C,13times	±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 of the device in the tripped state is 125°C**

**Electrical characteristics(25°C)**

Model	Ihold	Itrip	Vmax	I <sub>max</sub>	Pd max	Maximum Time To Trip		Resistance	
	(A)	(A)	(Vdc)	(A)	(w)	Current (A)	Time (S)	Rmin (Ω)	Rmax (Ω)
MSM010	0.10	0.30	30	100	0.8	0.5	1.5	0.750	15.000
MSM014	0.14	0.34	60	100	0.8	1.5	0.15	0.650	6.000
MSM020	0.20	0.40	30	100	0.8	8.0	0.02	0.350	5.000
MSM020/60	0.20	0.40	60	100	0.8	8.0	0.02	0.350	5.000
MSM030	0.30	0.60	30	100	0.8	8.0	0.1	0.250	3.000
MSM050	0.50	1.00	15	100	0.8	8.0	0.15	0.150	1.000
MSM050/24	0.50	1.00	24	100	0.8	8.0	0.15	0.150	1.000
MSM050/30	0.50	1.00	30	100	0.8	8.0	0.15	0.150	1.000
MSM075	0.75	1.50	13.2	100	0.8	8.0	0.2	0.090	0.450
MSM075/16	0.75	1.50	16	100	0.8	8.0	0.2	0.090	0.450
MSM075/24	0.75	1.50	24	100	0.8	8.0	0.2	0.090	0.450
MSM075/33	1.10	2.20	33	100	0.8	8.0	0.3	0.090	0.450
MSM110	1.10	2.20	8	100	0.8	8.0	0.3	0.050	0.250
MSM110/16	1.10	2.20	16	100	0.8	8.0	0.3	0.050	0.250
MSM110/24	1.10	2.20	24	100	0.8	8.0	0.3	0.050	0.250
MSM110/33	1.10	2.20	33	100	0.8	8.0	0.3	0.050	0.250
MSM125	1.25	2.50	16	100	0.8	8.0	0.4	0.050	0.140
MSM150	1.50	3.00	8	100	0.8	8.0	0.5	0.040	0.160
MSM150/16	1.50	3.00	16	100	0.8	8.0	0.5	0.040	0.160
MSM150/24	1.50	3.00	24	100	0.8	8.0	0.5	0.040	0.160
MSM160	1.60	2.80	8	100	0.8	8.0	1.0	0.030	0.130
MSM200	2.00	4.00	8	100	0.8	8.0	2.0	0.020	0.100
MSM200/12	2.00	4.00	12	100	0.8	8.0	2.0	0.020	0.100
MSM260	2.60	5.00	8	100	0.8	8.0	2.5	0.015	0.050
MSM260/13.2	2.60	5.00	13.2	100	0.8	8.0	2.5	0.015	0.050
MSM260/16	2.60	5.00	16	100	0.8	8.0	2.5	0.015	0.050
MSM300	3.00	5.00	8	100	0.8	8.0	4.0	0.012	0.040
MSM350	3.50	6.00	6	100	0.8	8.0	4.0	0.008	0.030

Ihold Hold Current:Maximum current device will not trip in 25°C still air.  
 Itrip Trip current:Minimum current at which the device will always trip in 25°C still air  
 Vmax Maximum operating volatge device can withstand without damage at ratde current(imax).  
 I<sub>max</sub> Maximum fault current device can withstand without damage at rated voltage(Vmax).  
 Pd Typical power dissipatde from device when in the tripped state in 25°C still air.  
 Rmin/max Minimum/Maximum device resistance prior to tripping at 25°C.  
 R1max Maximum resistance of device at 25°C measured one hour after trippde tripping.  
 \*CAUTION Operation beyond the specified rating may result in damage and possible arcing.

**Ihold versus tempetature**

Model	maximun ambient operating temperature(Tmao)vs.hold current(Ihold)									
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C	
MSM010	0.160	0.14	0.120	0.10	0.080	0.07	0.06	0.05	0.030	
MSM014	0.23	0.19	0.17	0.14	0.120	0.10	0.09	0.08	0.06	
MSM020	0.29	0.26	0.23	0.20	0.170	0.15	0.14	0.12	0.10	
MSM030	0.44	0.39	0.35	0.30	0.260	0.23	0.21	0.18	0.15	
MSM050	0.59	0.57	0.55	0.50	0.450	0.43	0.35	0.30	0.23	
MSM075	1.10	0.99	0.87	0.75	0.630	0.57	0.49	0.45	0.35	
MSM110	1.60	1.45	1.28	1.10	0.920	0.83	0.71	0.66	0.52	
MSM125	2.00	1.75	1.52	1.25	1.000	0.95	0.90	0.75	0.53	
MSM150	2.30	2.05	1.77	1.50	1.230	1.09	0.95	0.82	0.61	
MSM160	2.10	1.96	1.88	1.60	1.260	1.12	0.98	0.84	0.63	
MSM200	2.88	2.61	2.25	2.00	1.800	1.66	1.45	1.09	0.80	
MSM260	3.90	3.42	2.96	2.60	2.330	2.07	1.94	1.35	1.00	
MSM300	4.15	3.76	3.46	3.00	2.550	2.28	2.01	1.61	1.33	
MSM350	4.84	4.39	4.04	3.50	2.980	2.66	2.35	1.88	1.55	

Termination pad characteristics

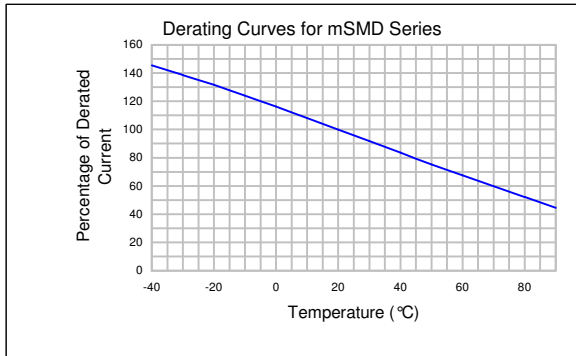
Terminal pad materials

Tin-Plated Nickle-Copper or Gold-Plated Nickle-Copper

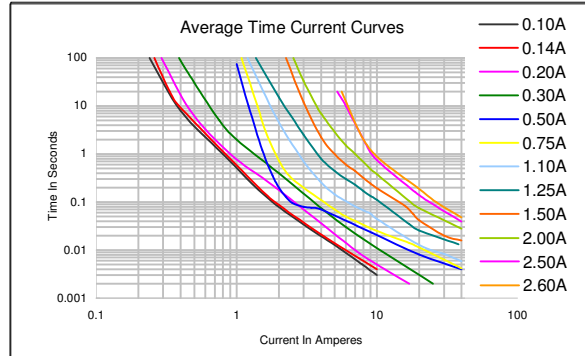
Terminal pad solderability

Meets EIA specification RS186-9E and ANSI/J-STD-002 Category 3.

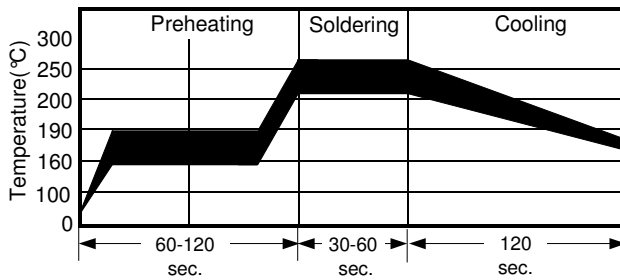
Thermal Derating Curve



Typical Time-To-Trip At 25 °C



Recommended Solder Reflow Conditions



- Recommended reflow methods : IR, vapor phase oven, hot air oven.
  - Devices are not designed to be wave soldered to the bottom side of the board.
  - Recommended maximum paste thickness is 0.25 mm (0.010 inch).
  - Devices can be cleaned using standard method and solvents.
- Note : If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Package Information

Reel:

MSM010~350

1500pcs/reel