Polyer Positive Temperature Coefficient
NSM(1206) Series

Features

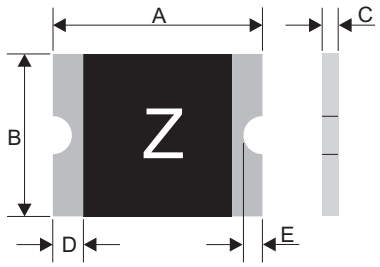
- Surface Mount Devices
- Lead free device
- Size 3216mm/1206mils
- Surface Mount packaging for automated assembly
- Agency Approval:UL、ROHS

Applications

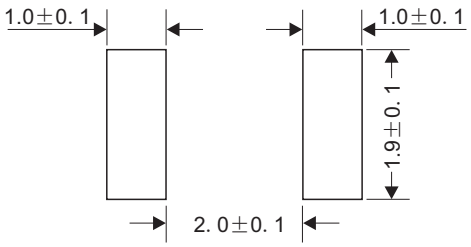
Almost anywhere there is a low voltage power supply, up to 60V and a load to be protected, including:

- Computer mother board 、Modem、USB hub
- PDAs & Charger、Analog & digital line card
- Digital cameras、Disk drivers、CD-ROMs

Dimensions(1206)



Recommended Mounting Pad Layout



Dimensions in millimerters

Part Number	A		B		C		D	E
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Min.
NSM005	3	3.5	1.5	1.8	0.60	1.10	0.15	0.1
NSM010	3	3.5	1.5	1.8	0.60	1.10	0.15	0.1
NSM012	3	3.5	1.5	1.8	0.60	1.10	0.15	0.1
NSM020	3	3.5	1.5	1.8	0.40	0.90	0.15	0.1
NSM025	3	3.5	1.5	1.8	0.40	0.90	0.15	0.1
NSM025/24	3	3.5	1.5	1.8	0.40	0.90	0.15	0.1
NSM035	3	3.5	1.5	1.8	0.40	0.90	0.15	0.1
NSM035/16	3	3.5	1.5	1.8	0.40	0.90	0.15	0.1
NSM050	3	3.5	1.5	1.8	0.35	0.85	0.15	0.1
NSM050/13.2	3	3.5	1.5	1.8	0.35	0.85	0.15	0.1
NSM075	3	3.5	1.5	1.8	0.35	0.80	0.15	0.1
NSM075/13.2	3	3.5	1.5	1.8	0.40	1.00	0.15	0.1
NSM100	3	3.5	1.5	1.8	0.40	1.20	0.15	0.1
NSM100/16	3	3.5	1.5	1.8	0.60	1.50	0.15	0.1
NSM150	3	3.5	1.5	1.8	0.60	1.50	0.15	0.1
NSM200	3	3.5	1.5	1.8	0.70	1.70	0.15	0.1

Electrical Characteristics(25℃)

Part Number	I_{hold} (A)	I_{trip} (A)	$V_{max.}$ (Vdc)	$I_{max.}$ (A)	$P_{d\,typ.}$ (W)	Maximum Time To Trip		Resistance	
						Current (A)	Time (Sec.)	Rmin (Ω)	R1max. (Ω)
NSM005	0.05	0.15	60.0	100	0.4	0.25	1.50	3.600	50.00
NSM010	0.10	0.25	60.0	100	0.4	0.50	1.00	1.600	15.00
NSM012	0.12	0.29	30.0	100	0.4	1.00	0.20	1.350	10.00
NSM020	0.20	0.46	24.0	100	0.6	8.00	0.08	0.350	3.50
NSM025	0.25	0.46	16.0	100	0.6	8.00	0.08	0.350	2.70
NSM025/24	0.25	0.46	24.0	100	0.6	8.00	0.08	0.350	2.70
NSM035	0.35	0.75	6.0	100	0.6	8.00	0.10	0.250	1.30
NSM035/16	0.35	0.75	16.0	100	0.6	8.00	0.10	0.250	1.50
NSM050	0.50	1.00	6.0	100	0.6	8.00	0.10	0.150	0.70
NSM050/13.2	0.50	1.00	13.2	100	0.6	8.00	0.10	0.150	0.70
NSM075	0.75	1.50	6.0	100	0.6	8.00	0.20	0.090	0.50
NSM075/13.2	0.75	1.50	13.2	100	0.6	8.00	0.20	0.090	0.50
NSM100	1.00	1.80	6.0	100	0.6	8.00	0.30	0.055	0.27
NSM100/16	1.00	1.80	16.0	100	0.6	8.00	0.30	0.055	0.27
NSM150	1.50	3.00	6.0	100	0.6	8.00	1.00	0.040	0.13
NSM200	2.00	3.50	6.0	100	0.8	8.00	1.50	0.018	0.08

Notes :

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 (Vmax).

P_d = Power dissipation when device is in the tripped state in 25°C still air environment at rated voltage.

R_{min} = Minimum device resistance prior to tripping at 25°C.

$R1_{max}$ = Maximum device resistance is measured one hour post reflow.

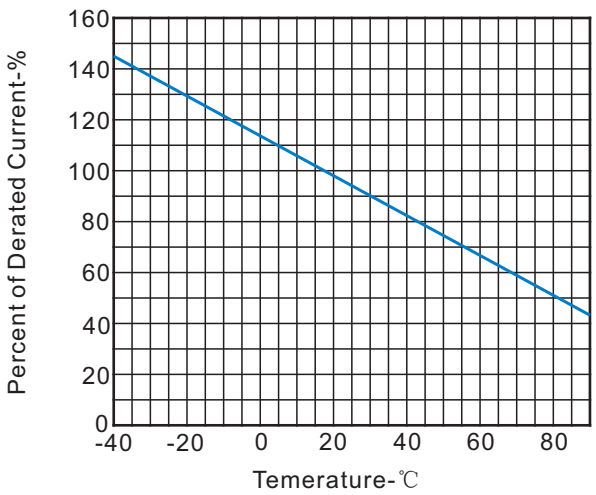
CAUTION : Operation beyond the specified ratings may result in damage and possible arcing and flame.

Thermal Derating Chart-Ihold(A)

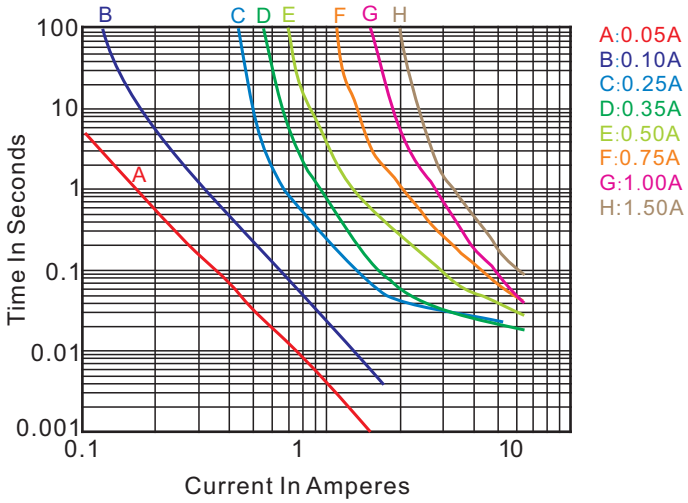
Maximum ambient operating temperature (T_{mao})vs.hold current (I_{hold})									
Part Number	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
NSM005	0.09	0.08	0.06	0.05	0.04	0.036	0.033	0.029	0.02
NSM010	0.15	0.14	0.12	0.10	0.08	0.072	0.066	0.058	0.04
NSM012	0.18	0.16	0.14	0.12	0.10	0.09	0.08	0.07	0.07
NSM020	0.31	0.26	0.22	0.20	0.18	0.16	0.15	0.12	0.11
NSM025	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
NSM025/24	0.37	0.33	0.29	0.25	0.22	0.20	0.17	0.15	0.12
NSM035	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
NSM035/16	0.50	0.45	0.40	0.35	0.30	0.27	0.24	0.21	0.15
NSM050	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
NSM050/13.2	0.71	0.64	0.57	0.50	0.42	0.39	0.35	0.31	0.25
NSM075	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
NSM075/13.2	1.14	1.01	0.88	0.75	0.65	0.59	0.54	0.49	0.41
NSM100	1.45	1.31	1.15	1.00	0.84	0.77	0.69	0.61	0.48
NSM100/16	1.45	1.31	1.15	1.00	0.84	0.77	0.69	0.61	0.48
NSM150	2.18	1.94	1.72	1.50	1.28	1.17	1.06	0.96	0.77
NSM200	2.60	2.44	2.35	2.00	1.78	1.67	1.50	1.45	1.10

Characteristic Curve

Thermal Derating Curve



Typical Time To Trip At 25°C



Environmental Specifications

Test	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		

Termination Pad Characteristics

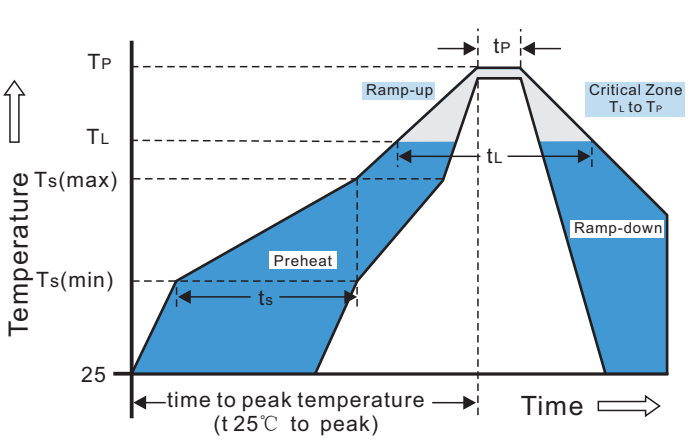
Terminal pad materials	Tin-Plated Nickle-Copper or Gold-Plated Nickle-Copper
Terminal pad solderability	Meets EIA specification RS186-9E and ANSI/J-STD-002 Category 3.

Recommended Soldering Conditions

Recommended Conditions

Profile Feature		Pb-Free assembly
Pre Heat	-Temperature Min($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time(Min to Max)(t_s)	60-180seconds
Average ramp up rate ($T_{s(max)}$ to T_P)		3℃/second Max.
Time maintained above:	-Temperature(T_L)	+217℃
	-Time(t_L)	60-150seconds
Peak Temp(T_P)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp(t_p)		20-40seconds
Ramp-down Rate		6℃/second Max.
Time 25℃ to Peak Temp(T_P)		8 minutes Max.

Reflow Soldering



- Recommended reflow methods: IR, vapor phase oven, hot air oven, N_2 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.

Notes:

If reflow temperatures exceed the recommended profile, devices may not meet the performance requirements.

Packageing Information

Part Number	Packaging Option	Quantity
NSM005-012;NSM100/16;NSM150-200	Reel	3500pcs/reel
NSM020-050/13.2;NSM075-100	Reel	5000pcs/reel