

SMD2018 Series

SMD2018 Polymer PPTC

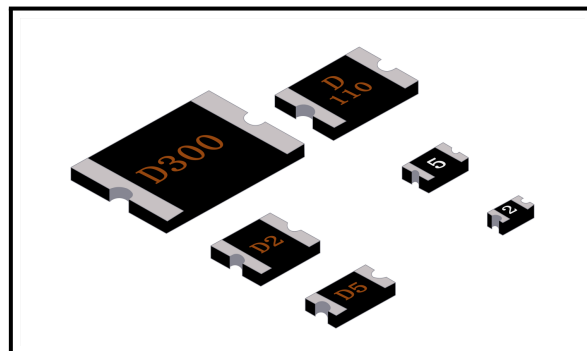
Features

- RoHS compliant and lead-free
- Halogen-free
- Fast reponse to fault current
- Symmetrical design

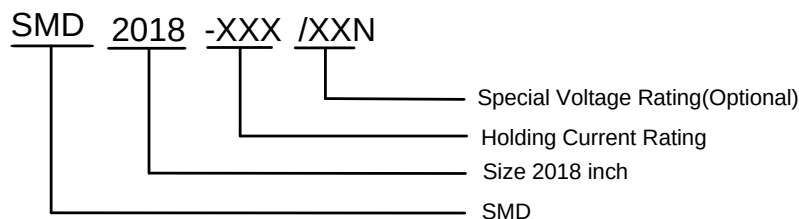
Applications

- Li-ion/Li-Polymer battery packs
- PDA'S / digital cameras
- Computer peripherals
- PC motherboards-plug and play protection

Package



Part Numbering



Environmental Specifications

Operating Temperature	-40°C to +85°C
Maximum Device Surface Temperature in Tripped State	125°C
Passive Aging	+85°C, 1000 hours; ±5% typical resistance change
Humidity Aging	+85°C, 85% R.H.100 hours; ±5% typical resistance change
Thermal Shock	MIL-STD-202, Method 107; +85°C to -40°C, 20 times; -30% typical resistance change
Solvent Resistance	MIL-STD-202, Method 215; No change
Vibration	MIL-STD-883, Method 2007, Condition A; No change
Moisture Sensivity Level	Level 1, J-STD-020
Storage Conditions	+40°C Max.70% RH Max. Packed in original packaging.



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Electrical Characteristics

Part Number	Marking	I_{hold}	I_{trip}	V_{max}	I_{max}	$P_{dtyp.}$	Maximum Time To Trip		R_{0min}	R_{1max}
		(A)	(A)	(V _{dc})	(A)	(W)	Current(A)	Time(Sec.)	(ohm)	(ohm)
SMD2018-030/60N	D030	0.30	0.60	60.00	40.00	1.40	1.50	3.00	0.50	2.30
SMD2018-050/60N	D050	0.50	1.00	60.00	40.00	1.40	2.50	5.00	0.20	1.00
SMD2018-075/33N	D075	0.75	1.50	33.00	40.00	1.40	8.00	0.50	0.11	0.63
SMD2018-075/60N	D075/60	0.75	1.50	60.00	40.00	1.40	8.00	0.50	0.11	0.63
SMD2018-100/15N	D100	1.00	2.00	15.00	40.00	1.40	8.00	0.50	0.06	0.36
SMD2018-100/33N	D100	1.00	2.00	33.00	40.00	1.40	8.00	0.50	0.06	0.36
SMD2018-150/15N	D150	1.50	3.00	15.00	40.00	1.40	8.00	1.00	0.05	0.17
SMD2018-150/33N	D150/33	1.50	3.00	33.00	40.00	1.40	8.00	1.00	0.05	0.17
SMD2018-200/12N	D200	2.00	4.00	12.00	40.00	1.40	8.00	3.00	0.03	0.10
SMD2018-200/16N	D200	2.00	4.00	16.00	40.00	1.40	8.00	3.00	0.03	0.10
SMD2018-200/24N	D20	2.00	4.00	24.00	40.00	1.40	8.00	3.00	0.03	0.10
SMD2018-260/24N	D260	2.60	5.20	24.00	40.00	1.60	8.00	5.00	0.020	0.075
SMD2018-300/16N	D300	3.00	6.00	16.00	40.00	1.60	8.00	10.00	0.015	0.050
SMD2018-350/12N	D350	3.50	7.00	12.00	40.00	1.60	8.00	10.00	0.010	0.040
SMD2018-400/12N	D400	4.00	8.00	12.00	40.00	1.60	10.00	4.00	0.008	0.035
SMD2018-500/8N	D500	5.00	10.00	8.00	40.00	1.60	10.00	4.00	0.006	0.030
SMD2018-500/12N	D500	5.00	10.00	12.00	40.00	1.60	10.00	4.00	0.006	0.030

I_{hold} : Holding Current: maximum current at which the device will not trip in 25°C still air.

I_{trip} : Tripping Current: minimum current at which the device will trip in 25° still air.

V_{max} : Maximum 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}).

$P_{dtyp.}$: Typical power dissipated from device when in the tripped state at 25°C still air.

R_{0min} : Minimum resistance of device in initial (un-soldered) state.

R_{1max} : Maximum resistance of device at 25°C measured one hour after tripping or reflow soldering of 260°C for 20 sec.



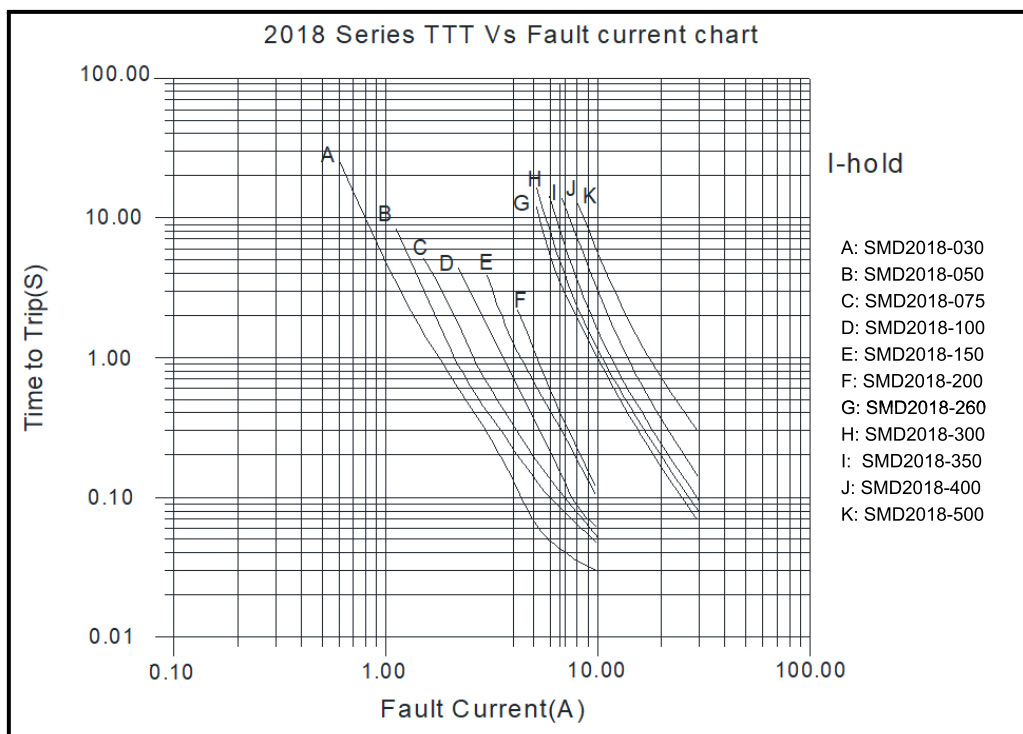
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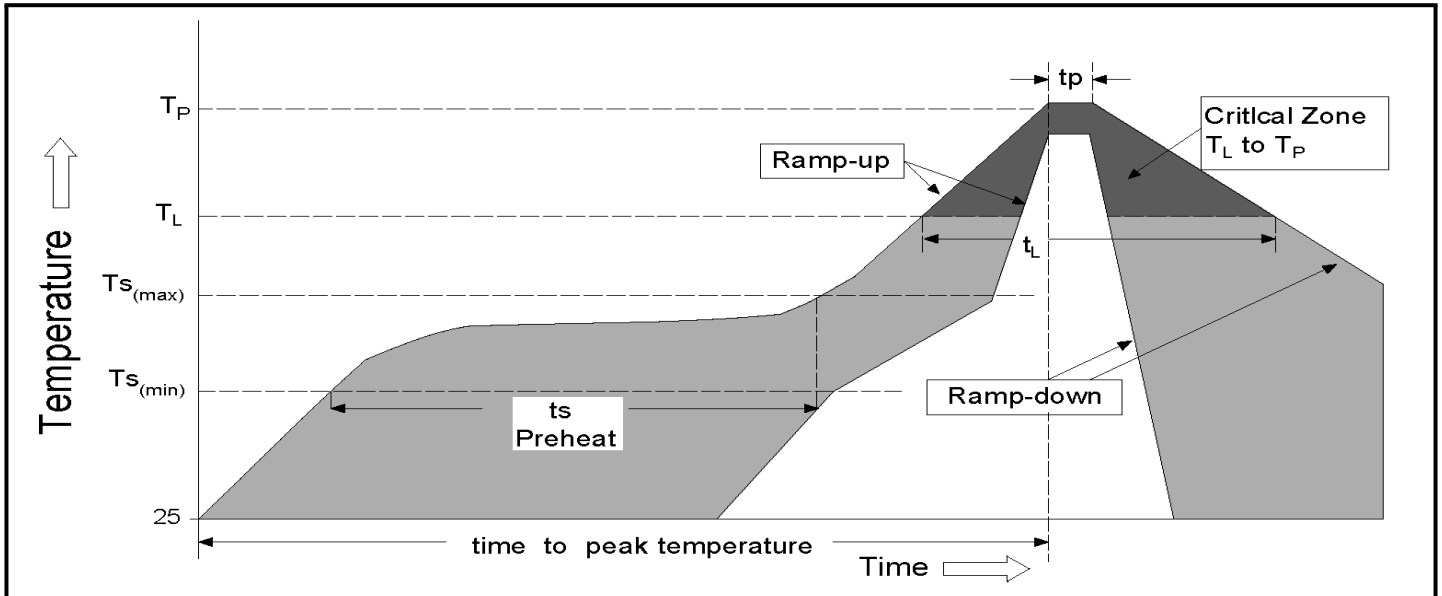
Thermal Derating Chart

Part Number	Ambient Operating Temperature								
	-40°C	-20°C	0°C	25°C	40°C	50°C	60°C	70°C	85°C
SMD2018-030	0.45	0.40	0.35	0.30	0.25	0.23	0.20	0.18	0.14
SMD2018-050	0.93	0.80	0.65	0.50	0.42	0.38	0.33	0.30	0.23
SMD2018-075	1.05	0.95	0.85	0.75	0.60	0.55	0.45	0.40	0.30
SMD2018-100	1.66	1.47	1.29	1.00	0.91	0.83	0.73	0.64	0.50
SMD2018-150	2.26	2.00	1.76	1.50	1.24	1.13	1.00	0.87	0.68
SMD2018-200	2.80	2.50	2.19	2.00	1.84	1.74	1.50	1.34	1.14
SMD2018-260	3.82	3.46	3.06	2.60	2.24	2.03	1.82	1.60	1.26
SMD2018-300	4.40	3.96	3.52	3.00	2.65	2.43	2.20	1.96	1.59
SMD2018-350	5.13	4.62	4.11	3.50	3.09	2.84	2.57	2.29	1.86
SMD2018-400	5.80	5.20	4.60	4.00	3.35	3.12	2.75	2.45	2.10
SMD2018-500	7.25	6.50	5.75	5.00	4.19	3.90	3.44	3.06	2.63

2108 Series TTT Vs Fault current chart(Typical time to trip at 25°C)



Soldering Parameters



Profile Feature		Pb-Free Assembly
Average Ramp-Up Rate ($T_{S(max)}$ to T_P)		3°C/second max
Pre Heat	Temperature Min ($T_{S(min)}$)	150°C
	Temperature Max ($T_{S(max)}$)	200°C
	Time (min to max) (t_s)	60 - 180 secs
Time Maintained Above	Temperature (T_L)	217°C
	Temperature (t_L)	60 - 150 secs
Peak/Classification Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20-40 second
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.

- All temperature refer to topside of thepackage, measured on the pack- age body surface
- If reflow temperature exceeds the rec- ommended profile, devices may not meet the performance requirements
- Recommended reflow methods: IR, vapor phase oven, hot air oven, N2 en- vironment for lead
- Recommended maximum paste thick- ness is 0.25mm (0.010inch)
- Devices can be cleaned using stan- dard industry methods and solvents

Test Procedures And Requirements

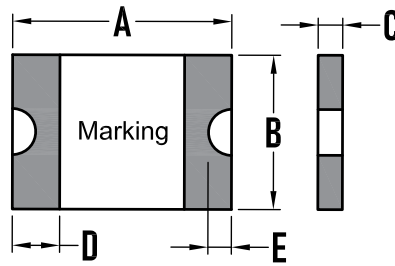
Test	Test Conditions	Accept/Reject Criteria
R0 min	Resistance measurement at 25°C	$R_{0min} \leq R \leq R_{1max}$
R1 max	Resistance measurement one hour after post trip	$R_{0min} \leq R \leq R_{1max}$
I-hold	Hold rated current 1800 second without trip, @25°C	No trip
I-trip	Device must trip within 900 second under rated current, @25°C	Trip
Max. time to trip	At specified current, 25°C	$T \leq \text{max. time to trip (seconds)}$
Trip Cycle Life	V_{max} , I_{max} , 100 cycles	No arcing or burning
Trip Endurance	V_{max} , I_{max} 24 hours	No arcing or burning
Solderability	ANSI/J-STD-002	95 % min. coverage



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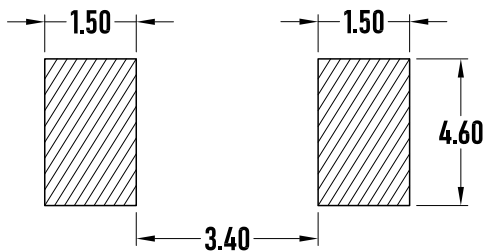
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Product Dimensions(mm)



Model	A		B		C		D		E	Quantity
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	PCS/R
SMD2018-030/60N	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	1500
SMD2018-050/60N	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	1500
SMD2018-075/33N	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	2500
SMD2018-075/60N	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	1500
SMD2018-100/15N	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	2500
SMD2018-100/33N	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	2500
SMD2018-150/15N	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	2500
SMD2018-150/33N	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	1500
SMD2018-200/12N	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	2500
SMD2018-200/16N	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	2500
SMD2018-200/24N	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	1500
SMD2018-260/24N	5.05	5.45	4.05	4.45	0.85	1.35	0.30	1.50	0.25	1500
SMD2018-300/16N	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	1500
SMD2018-350/12N	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	1500
SMD2018-400/12N	5.05	5.45	4.05	4.45	0.85	1.35	0.30	1.50	0.25	1500
SMD2018-500/8N	5.05	5.45	4.05	4.45	0.85	1.35	0.30	1.50	0.25	1500
SMD2018-500/12N	5.05	5.45	4.05	4.45	0.85	1.35	0.30	1.50	0.25	1500

Recommended Pad Layout(mm)&Physical Specifications



Terminal Material	Tin-Plated Nickle-Copper (Solder Material: Matte Tin (Sn))
Lead Solderability	T Meets EIA Specification RS186-9E, ANSI/J-STD-002 Category 3.

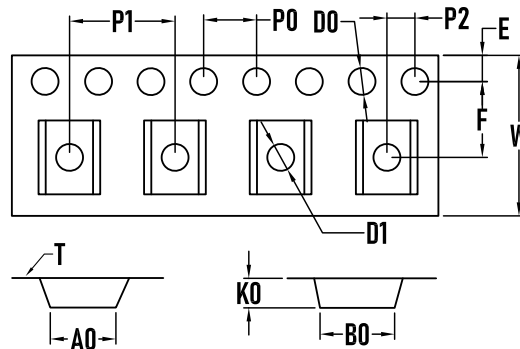


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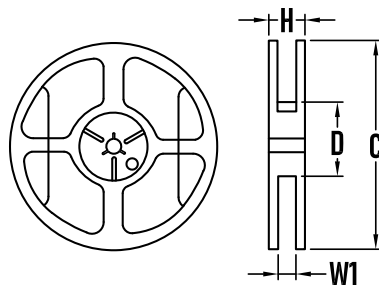
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Tape And Reel Specifications (mm)&Packaging quantity

item	TAPE SPECIFICATIONS: EIA-481-1 (mm)	
W	12.0±0.10	12.0±0.10
F	5.50±0.05	5.50±0.05
E	1.75±0.10	1.75±0.10
D0	1.55±0.05	1.55±0.05
D1	1.50 min	1.50 min
P0	4.0±0.10	4.0±0.10
P1	8.0±0.10	8.0±0.10
P2	2.0±0.05	2.0±0.05
A0	4.61±0.10	4.61±0.10
B0	5.62±0.10	5.62±0.10
T	0.25±0.05	0.25±0.05
K0	0.78±0.10	1.35±0.10
Leader	390 mm	390 mm
Trailer	160 mm	160 mm
Quantity	2500pcs/Reel	1500pcs/Reel



Packaging quantity per Reel



REEL DIMENSIONS: EIA-481-1 (mm)	
C	178±1.0
D	60.2±0.5
W1	9.0±1.5
H	11.0±0.5

