JSMD-2018 Series Surface Mount PPTC Devices

Features

- compact design saves board space
- RoHS compliant and lead-free
- Halogen-free
- Fast response to fault current
- Symmetrical design

Applications

- USB port protection - USB 2.0, 3.0&OTG
- HDMI 1.4 Source protection
- PDAs / digital cameras
- Game console port protection
- PC motherboards-plug and play protection

1.Electrical Characteristics

Model	Vmax	Imax	I-hold	I-trip	Pd typ	Max. Time to trip		R0 min	R1 max	Agency Approval
						Current	Time			
	(Vdc)	(A)	(A)	(A)	(W)	(A)	(Sec.)	(Ohm)	(Ohm)	c UL us
JSMD2018-030	60.00	40.00	0.30	0.60	1.40	1.50	3.00	0.50	2.30	×
JSMD2018-050	60.00	40.00	0.50	1.00	1.40	2.50	5.00	0.20	1.00	×
JSMD2018-075	33.00	40.00	0.75	1.50	1.40	8.00	0.50	0.11	0.63	×
JSMD2018-075/60	60.00	40.00	0.75	1.50	1.40	8.00	0.50	0.11	0.63	×
JSMD2018- 100	15.00	40.00	1.00	2.00	1.40	8.00	0.50	0.06	0.36	×
JSMD2018- 100/33	33.00	40.00	1.00	2.00	1.40	8.00	0.50	0.06	0.36	×
JSMD2018- 150	15.00	40.00	1.50	3.00	1.40	8.00	1.00	0.05	0. 17	×
JSMD2018- 150/33	33.00	40.00	1.50	3.00	1.40	8.00	1.00	0.05	0. 17	×
JSMD2018-200	12.00	40.00	2.00	4.00	1.40	8.00	3.00	0.03	0. 10	×
JSMD2018-200/16	16.00	40.00	2.00	4.00	1.40	8.00	3.00	0.03	0. 10	×
JSMD2018-200/24	24.00	40.00	2.00	4.00	1.40	8.00	3.00	0.03	0. 10	×
JSMD2018-260	24.00	40.00	2.60	5.20	1.60	8.00	5.00	0.020	0.075	×
JSMD2018-300	16.00	40.00	3.00	6.00	1.60	8.00	10.00	0.015	0.050	×
JSMD2018-350	12.00	40.00	3.50	7.00	1.60	8.00	10.00	0.010	0.040	×

I-hold: Holding Current: maximum current at which the device will not trip in 25℃ still air.

I-trip: Tripping Current: minimum current at which the device will trip in 25℃ still air.

Vmax: Maximum voltage device can withstand without damage at rated current(Imax).

I max: Maximum fault current device can withstand without damage at rated voltage(Vmax).

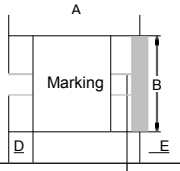
Pd typ:Typical power dissipated from device when in the tripped state at 25℃ still air.

R0 min:Minimum resistance of device in initial (un-soldered) state.

R1 max:Maximum resistance of device at 25℃ measured one hour after tripping or reflow soldering of 260℃ for 20 sec.

HF RoHS REACH PbFREE

2.Product Dimensions(mm)&Marking



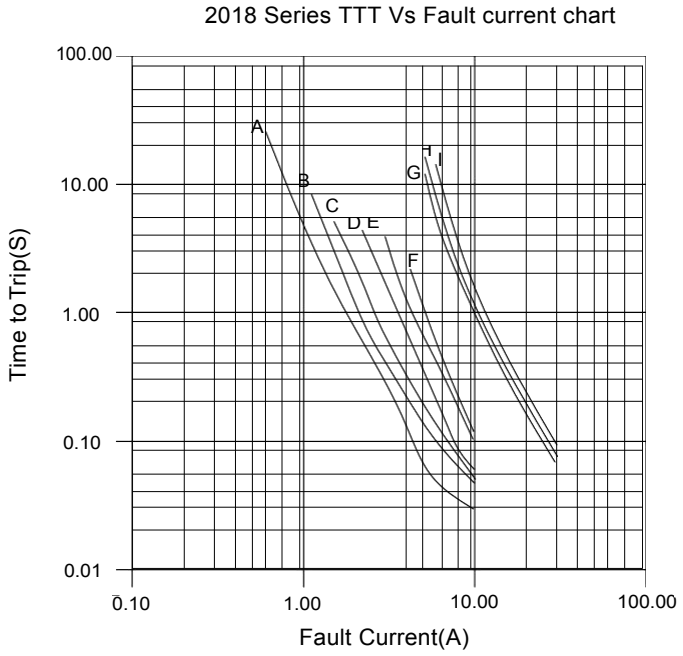
Model	A		B		C		D		E	Marking
	Min	Max	Min	Max	Min	Max	Min	Max	Min	
JSMD2018-030	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	XX 030
JSMD2018-050	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	XX 050
JSMD2018-075	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	XX 075
JSMD2018-075/60	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	XX 60
JSMD2018-100	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	XX 100
JSMD2018-100/33	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	XX 100
JSMD2018-150	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	XX 150
JSMD2018-150/33	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	XX 33
JSMD2018-200	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	XX 200
JSMD2018-200/16	5.05	5.45	4.05	4.45	0.35	0.85	0.30	1.50	0.25	XX 200
JSMD2018-200/24	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	XX 200
JSMD2018-260	5.05	5.45	4.05	4.45	0.85	1.35	0.30	1.50	0.25	XX 260
JSMD2018-300	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	XX 300
JSMD2018-350	5.05	5.45	4.05	4.45	0.65	1.15	0.30	1.50	0.25	XX 350

3.Thermal Derating Chart

Recommended hold current(A) at ambient Temperature(℃)

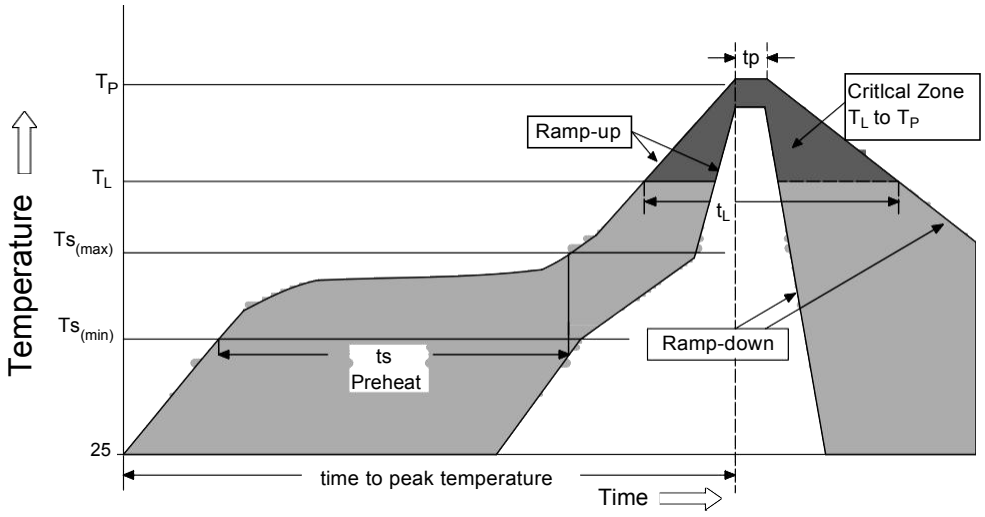
Model	Ambient Operating Temperature								
	-40℃	-20℃	0℃	25℃	40℃	50℃	60℃	70℃	85℃
JSMD2018-030	0.45	0.40	0.35	0.30	0.25	0.23	0.20	0.18	0.14
JSMD2018-050	0.93	0.80	0.65	0.50	0.42	0.38	0.33	0.30	0.23
JSMD2018-075	1.05	0.95	0.85	0.75	0.60	0.55	0.45	0.40	0.30
JSMD2018-075/60	1.05	0.95	0.85	0.75	0.60	0.55	0.45	0.40	0.30
JSMD2018-100	1.66	1.47	1.29	1.00	0.91	0.83	0.73	0.64	0.50
JSMD2018-100/33	1.66	1.47	1.29	1.00	0.91	0.83	0.73	0.64	0.50
JSMD2018-150	2.26	2.00	1.76	1.50	1.24	1.13	1.00	0.87	0.68
JSMD2018-150/33	2.26	2.00	1.76	1.50	1.24	1.13	1.00	0.87	0.68
JSMD2018-200	2.80	2.50	2.19	2.00	1.84	1.74	1.50	1.34	1.14
JSMD2018-200/16	2.80	2.50	2.19	2.00	1.84	1.74	1.50	1.34	1.14
JSMD2018-200/24	2.80	2.50	2.19	2.00	1.84	1.74	1.50	1.34	1.14
JSMD2018-260	3.82	3.46	3.06	2.60	2.24	2.03	1.82	1.60	1.26
JSMD2018-300	4.40	3.96	3.52	3.00	2.65	2.43	2.20	1.96	1.59
JSMD2018-350	5.13	4.62	4.11	3.50	3.09	2.84	2.57	2.29	1.86

4. Typical time to trip at 25℃



A : JSMD2018-030
B : JSMD2018-050
C: JSMD2018-075
JSMD2018-075/60
D : JSMD2018-100
JSMD2018-100/33
E: JSMD2018-150
JSMD2018-150/33
F JSMD2018-200
JSMD2018-200/16
JSMD2018-200/24
G: JSMD2018-260
H: JSMD2018-300
I: JSMD2018-350

5.Soldering parameters



Profile Feature		Pb-Free Assembly
Average Ramp-Up Rate ($Ts_{(max)}$ to T_P)		3°C/second max
Pre Heat:	Temperature Min ($Ts_{(min)}$)	150°C
	Temperature Max ($Ts_{(max)}$)	200°C
	Time (Min to Max) (t_s)	60 – 180 secs
Time Maintained Above:	Temperature (T_L)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak / Classification Temperature (T_P)		$260^{+0/-5}$ °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
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 package body surface

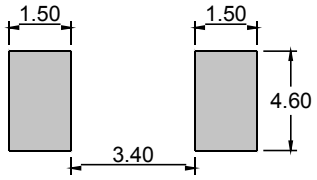
◆If reflow temperature exceeds the recommended profile,devices may not meet the performance requirements

◆Recommended reflow methods: IR,vapor phase oven,hot air oven,N2 environment for lead

◆Recommended maximum paste thickness is 0.25mm (0.010inch)

◆Devices can be cleaned using standard industry methods and solvents

6.Recommended Pad Layout(mm) & Physical Specifications



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

7.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. 1000 hours; ±5 % typical resistance change
Thermal Shock	MIL–SJSMD–202, Method 107; +85 °C to -40 °C, 20 times;-30 % typical resistance change
Solvent Resistance	MIL–SJSMD–202, Method 215 ; No change
Vibration	MIL–SJSMD–883, Method 2007, Condition A; No change
Moisture Sensivity Level	Level 1, J–SJSMD–020
Storage Conditions	+40 °C Max. 70% RH Max. Packed in original packaging.

8.Test Procedures And Requirements

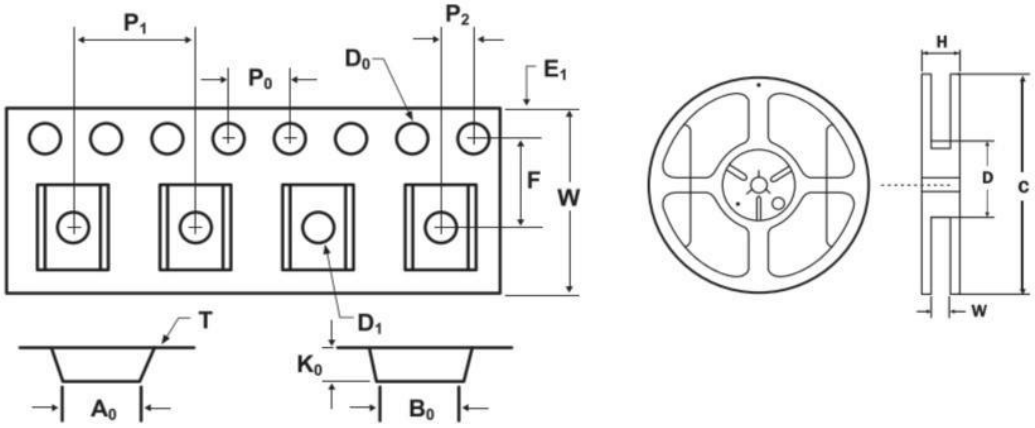
No.	Test	Test Conditions	Accept/Reject Criteria
1	R0 min	Resistance measurement at 25℃	R0min ≤ R ≤ R1max
2	R1 max	Resistance measurement one hour after post trip	R0min ≤ R ≤ R1max
3	I-hold	Hold rated current 1800 second without trip, @ 25℃	No trip
4	I-trip	Device must trip within 900 second under rated current, @25℃	Trip
5	Max. time to trip	At specified current, 25 °C	T ≤ max. time to trip (seconds)
6	Trip Cycle Life	Vmax, Imax, 100 cycles	No arcing or burning
7	Trip Endurance	Vmax,Imax 24 hours	No arcing or burning
8	Solderability	ANSI/J-SJSMD-002	95 % min. coverage

9.Tape and Reel Specifications&Packaging quantity per Reel

TAPE SPECIFICATIONS: EIA-481-1 (mm)		
Item	JSMD-2018-075 JSMD-2018-100 JSMD-2018-100/33 JSMD-2018-150 JSMD-2018-200 JSMD-2018-200/16	JSMD-2018-030 JSMD-2018-050 JSMD-2018-075/60 JSMD-2018-150/33 JSMD-2018-200/24 JSMD-2018-260 JSMD-2018-300 JSMD-2018-350
W	12.0±0.10	12.0±0.10
F	5.50±0.05	5.50±0.05
E1	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

REEL DIMENSIONS: EIA-481-1 (mm)	
C	Ø178±1.0
D	Ø60.2±0.5
W	9.0±1.5
H	11.0±0.5

T	0.25±0.05	0.25±0.05
K0	0.78±0.10	1.35±0.10
Leader	390mm	390mm
Trailer	160mm	160mm
Q'ty	2500pcs/Reel	1500pcs/Reel



10. Part Ordering Number System

JSMD 2018- □□□/ □□

- □□ — Special voltage rating (Optional)
- □□□ — Holding current rating
- 2018- — PPTC size
- JSMD — DUNTE symbol

Warning:

- ☛Users shall independently assess the suitability of these devices for each of their applications
- ☛Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire
- ☛These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration
- ☛Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the performance of these PPTC devices
- ☛These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses
- ☛Circuits with inductance may generate a voltage (L di/JSMD) above the rated voltage of the PPTC device.

Document Record							
No.	Date	Modified Content	Page	Edition	Prepared by	Checked by	Remark
1	2019.8.1	Draft	8	A/0	hope	Stephe Huang	
2	2020.6.20	Packaging	8	A/1	hope	Stephen Huang	
3	2022.7.3	Tape Specifications	8	A/2	hope	Stephen Huang	