瑞隆源电子
RuilongYuan Electronics

Transient Voltage Suppressors Diodes

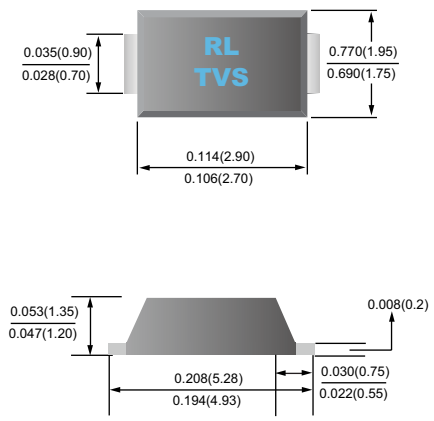
Surface Mount - 200W > SMFJ3.0~170A Series

The SMFJ Series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Features

- For surface mounted applications
- Low-profile package
- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 1000-4-2 (IEC801-2)
- Ideal for EFT protection of data lines in
- accordance with IEC 1000-4-4 (IEC801-4)
- Low incremental surge resistance
- IEC 1000-4-2 (ESD) 15 kV (air) 8 kV (contact)
  IEC 1000-4-4 (EFT) 40 A (tp = 5/ 50 ns)
  IEC 1000-4-5 (Lightning) 24 A (tp = 8/ 20 μs
- Low incremental surge resistance, excellent clamping capability
- 200 W peak pulse power capability with a 10/1000 μs waveform, repetition rate (duty cycle): 0.01 %
- Very fast response time
- High temperature soldering guaranteed: 260°C/ 10 seconds at terminals

SOD-123 unit:inch(mm)



Applications

TVS devices are ideal for the protection of I/O interfaces, V_{CC} bus and other vulnerable circuits used in telecom,computer, industrial and consumer electronic applications.

Maximum Ratings And Characteristics (TA=25°C unless otherwise noted)

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation at TA=25ºC by 10x1000μs waveform (Fig.1)(Note 1), (Note 2)	P_{PPM}	200	Watts
Power Dissipation on infinite heat sink at TA=50^{O}C	P_D	2	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	20	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional only (Note 4)	V_F	3.5V/6.5	V
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to 150	°C
Typical Thermal Resistance Junction to Lead	R_{uJL}	30	°C/W
Typical Thermal Resistance Junction to Ambient	R_{uJA}	120	°C/W

Notes:
1. Non-repetitive current pulse , per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 per minute maximum.
3. V_F<3.5V for devices of V_{BR} _< 200V and V_F<5.0V for devices of V_{BR} _> 201V.

Electriacl Characteristics

Type Number	Reverse Stand-Off Voltage	Breakdown Voltage@I_T		Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
(UNI)	V_{RWM}(V)	$V_{BR\ MIN.}$(V)	$V_{BR\ MAX.}$(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)
SMFJ3.0A	3.0	4.10	4.50	10	8.0	25.0	400
SMFJ5.0A	5.0	6.40	7.25	10	9.2	21.7	400
SMFJ6.0A	6.0	6.67	7.67	10	10.3	19.4	400
SMFJ6.5A	6.5	7.22	8.30	10	11.2	17.9	400
SMFJ7.0A	7.0	7.78	8.95	10	12.0	16.7	250
SMFJ7.5A	7.5	8.33	9.58	1	12.9	15.5	100
SMFJ8.0A	8.0	8.89	10.23	1	13.6	14.7	50
SMFJ8.5A	8.5	9.44	10.82	1	14.4	13.9	10
SMFJ9.0A	9.0	10.00	11.50	1	15.4	13.5	5.0
SMFJ10A	10.0	11.10	12.80	1	17.0	11.8	2.5
SMFJ11A	11.0	12.20	14.00	1	18.2	11.0	2.5
SMFJ12A	12.0	13.30	15.30	1	19.9	10.1	2.5
SMFJ13A	13.0	14.40	16.50	1	21.5	9.30	2.5
SMFJ14A	14.0	15.60	17.90	1	23.2	8.60	2.5
SMFJ15A	15.0	16.70	19.20	1	24.4	8.20	2.5
SMFJ16A	16.0	17.80	20.50	1	26.0	7.70	2.5
SMFJ17A	17.0	18.90	21.70	1	27.6	7.20	2.5
SMFJ18A	18.0	20.00	23.30	1	29.2	5.80	2.5
SMFJ20A	20.0	22.20	25.50	1	32.4	6.20	2.5
SMFJ22A	22.0	24.40	28.00	1	35.5	5.60	2.5
SMFJ24A	24.0	26.70	30.70	1	38.9	5.10	2.5
SMFJ26A	26.0	28.90	33.20	1	42.1	4.80	2.5
SMFJ28A	28.0	31.10	35.80	1	45.4	4.40	2.5
SMFJ30A	30.0	33.30	38.30	1	48.4	4.10	2.5
SMFJ33A	33.0	36.70	42.20	1	53.3	3.80	2.5
SMFJ36A	36.0	40.00	46.00	1	58.1	3.40	2.5
SMFJ40A	40.0	44.40	51.10	1	64.5	3.10	2.5
SMFJ43A	43.0	47.80	54.90	1	69.4	2.90	2.5
SMFJ45A	45.0	50.00	57.50	1	72.7	2.80	2.5
SMFJ48A	48.0	53.30	61.30	1	77.4	2.60	2.5
SMFJ51A	51.0	56.70	65.20	1	82.4	2.40	2.5
SMFJ54A	54.0	60.00	69.00	1	87.1	2.30	2.5
SMFJ58A	58.0	64.40	74.10	1	93.6	2.10	2.5
SMFJ60A	60.0	66.70	76.70	1	96.8	1.80	2.5
SMFJ64A	64.0	71.10	81.80	1	103.0	1.70	2.5
SMFJ70A	70.0	77.80	89.50	1	113.0	1.50	2.5
SMFJ75A	75.0	83.30	95.80	1	121.0	1.40	2.5
SMFJ78A	78.0	86.70	99.70	1	126.0	1.40	2.5
SMFJ85A	85.0	94.40	108.20	1	137.0	1.30	2.5
SMFJ90A	90.0	100.00	115.50	1	146.0	1.20	2.5
SMFJ100A	100.0	111.00	128.00	1	162.0	1.10	2.5
SMFJ110A	110.0	122.00	140.50	1	177.0	1.00	2.5
SMFJ120A	120.0	133.00	153.00	1	193.0	0.90	2.5
SMFJ130A	130.0	144.00	165.50	1	209.0	0.80	2.5
SMFJ150A	150.0	167.00	192.60	1	243.0	0.70	2.5
SMFJ160A	160.0	178.00	205.00	1	259.0	0.70	2.5
SMFJ170A	170.0	189.00	217.50	1	275.0	0.60	2.5

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

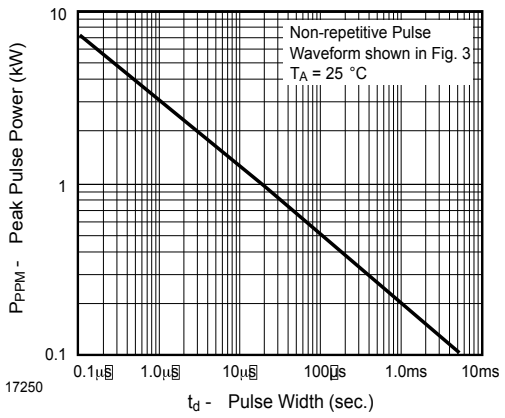


Figure 2 - Pulse Derating Curve

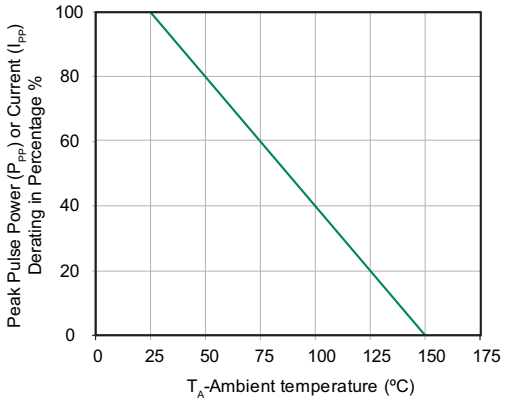
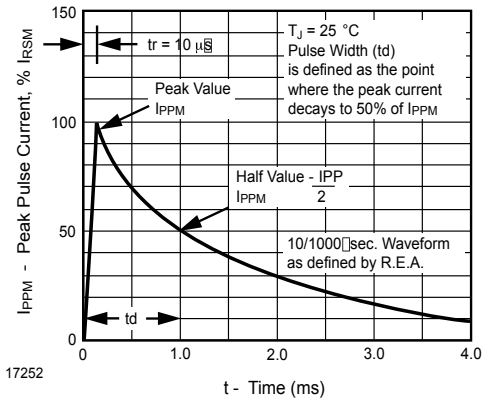
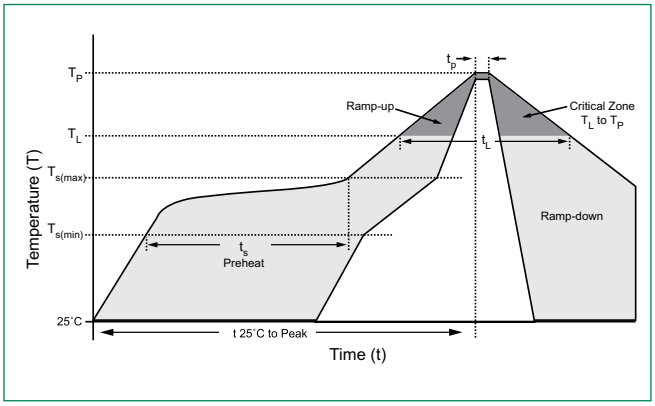


Figure 3 - Pulse Waveform



Soldering Parameters

Reflow Condition		Lead–free assembly
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
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	-Temperature (T_L) (Liquidus)	217°C
	-Time (min to max) (t_s)	60 – 150 seconds
Peak 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.
Do not exceed		280°C



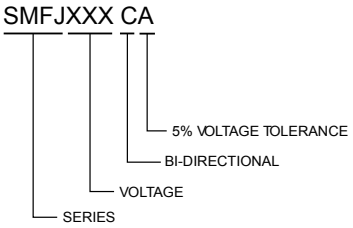
Physical Specifications

Weight	0.002 ounce, 0.061 gram
Case	JEDEC DO-214AC Molded Plastic over glass passivated junction
Polarity	Color band denotes cathode except Bipolar
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102D

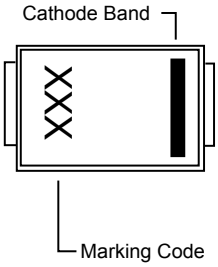
Environmental Specifications

Temperature Cycle	JESD22-A104
Pressure Cooker	JESD22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Part Numbering System



Part Marking System



Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
SMFJXXX CA	SOD-123	2000	Tape&Reel - 7' tape	EIA RS-481

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