

**RSMD Seires
Transient Voltage Suppressors (TVS) Sheet**

Features

For surface mounted applications in order to optimize board space
 Low profile package
 Built-in strain relief
 Glass passivated junction
 Low inductance
 Excellent clamping capability
 3000W peak pulse power capability at 10/1000µs waveform,
 repetition rate (duty cycle): 0.01%
 Fast response time
 Typical I_R less than 1µA above 10V
 High Temperature soldering: 260°C/10 seconds at terminals
 Plastic package has underwriters laboratory flammability 94V-0
 Meets MSL level 1, per J-STD-020
 Safety certification: UL: E244458

Mechanical Data

Case: JEDEC DO-214AB. Molded plastic over glass passivated junction
 Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
 Polarity: Color band denotes cathode except bi-directional models
 Standard Packaging: 16mm tape (EIA STD RS-481)
 Weight: 0.28g

Applications

I/O interface AC/DC power supply
 Low frequency signal transmission line (RS232, RS485, etc.)

Maximum Ratings and Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000µs waveform (Note1, Note2, Fig.1)	P_{PPM}	Minimum 3000	Watts
Peak pulse current of at 10/1000µs waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Steady state power dissipation at $T_A=50^\circ\text{C}$ (Fig.5)	$P_{M(AV)}$	6.5	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6)	I_{FSM}	300	Amps
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-65 to +150	°C
Typical thermal resistance junction to lead	$R_{\theta JL}$	15	°C/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	°C/W

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ\text{C}$ per Fig.2.

2. Mounted on 8.0mm×8.0mm copper pads to each terminal.

3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Dimensions (SMC/DO-214AB)

	Symbol	Millimeters		Inches	
		Min.	Max.	Min.	Max.
	L	6.60	7.11	0.260	0.280
	D	5.59	6.22	0.220	0.245
	D1	2.90	3.20	0.114	0.126
	T	7.75	8.13	0.305	0.320
	T1	0.76	1.52	0.030	0.060
	d	-	0.203	-	0.008
	H	2.20	2.80	0.087	0.110
	H1	2.06	2.62	0.079	0.103

Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @ I_T	Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
Unidirectional	Bidirectional	$V_{RWM}(V)$	$V_{BR}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
RSMDJ5.0A	RSMDJ5.0CA	5.0	6.40~7.00	10	9.2	326.1	800
RSMDJ6.0A	RSMDJ6.0CA	6.0	6.67~7.37	10	10.3	291.3	800
RSMDJ6.5A	RSMDJ6.5CA	6.5	7.22~7.98	10	11.2	267.9	500
RSMDJ7.0A	RSMDJ7.0CA	7.0	7.78~8.60	10	12.0	250.0	200
RSMDJ7.5A	RSMDJ7.5CA	7.5	8.33~9.21	1	12.9	232.6	100
RSMDJ8.0A	RSMDJ8.0CA	8.0	8.89~9.83	1	13.6	220.6	50
RSMDJ8.5A	RSMDJ8.5CA	8.5	9.44~10.40	1	14.4	208.3	20
RSMDJ9.0A	RSMDJ9.0CA	9.0	10.00~11.10	1	15.4	194.8	10
RSMDJ10A	RSMDJ10CA	10.0	11.10~12.30	1	17.0	176.5	5
RSMDJ11A	RSMDJ11CA	11.0	12.20~13.50	1	18.2	164.8	2
RSMDJ12A	RSMDJ12CA	12.0	13.30~14.70	1	19.9	150.8	2
RSMDJ13A	RSMDJ13CA	13.0	14.40~15.90	1	21.5	139.5	2
RSMDJ14A	RSMDJ14CA	14.0	15.60~17.20	1	23.2	129.3	2
RSMDJ15A	RSMDJ15CA	15.0	16.70~18.50	1	24.4	123.0	2
RSMDJ16A	RSMDJ16CA	16.0	17.80~19.70	1	26.0	115.4	2
RSMDJ17A	RSMDJ17CA	17.0	18.90~20.90	1	27.6	108.7	2
RSMDJ18A	RSMDJ18CA	18.0	20.00~22.10	1	29.2	102.7	2
RSMDJ20A	RSMDJ20CA	20.0	22.20~24.50	1	32.4	92.6	2

Electrical Characteristics (T_A=25°C)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Peak Pulse Current	Reverse Leakage @V _{RWM}
Unidirectional	Bidirectional	V _{RWM} (V)	V _{BR} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
RSMDJ22A	RSMDJ22CA	22.0	24.40~26.90	1	35.5	84.5	2
RSMDJ24A	RSMDJ24CA	24.0	26.70~29.50	1	38.9	77.1	2
RSMDJ26A	RSMDJ26CA	26.0	28.90~31.90	1	42.1	71.3	2
RSMDJ28A	RSMDJ28CA	28.0	31.10~34.40	1	45.4	66.1	2
RSMDJ30A	RSMDJ30CA	30.0	33.30~36.80	1	48.4	62.0	2
RSMDJ33A	RSMDJ33CA	33.0	36.70~40.60	1	53.3	56.3	2
RSMDJ36A	RSMDJ36CA	36.0	40.00~44.20	1	58.1	51.6	2
RSMDJ40A	RSMDJ40CA	40.0	44.40~49.10	1	64.5	46.5	2
RSMDJ43A	RSMDJ43CA	43.0	47.80~52.80	1	69.4	43.2	2
RSMDJ45A	RSMDJ45CA	45.0	50.00~55.30	1	72.7	41.3	2
RSMDJ48A	RSMDJ48CA	48.0	53.30~58.90	1	77.4	38.8	2
RSMDJ51A	RSMDJ51CA	51.0	56.70~62.70	1	82.4	36.4	2
RSMDJ54A	RSMDJ54CA	54.0	60.00~66.30	1	87.1	34.4	2
RSMDJ58A	RSMDJ58CA	58.0	64.40~71.20	1	93.6	32.1	2
RSMDJ60A	RSMDJ60CA	60.0	66.70~73.70	1	96.8	31.0	2
RSMDJ64A	RSMDJ64CA	64.0	71.10~78.60	1	103.0	29.1	2
RSMDJ70A	RSMDJ70CA	70.0	77.80~86.00	1	113.0	26.5	2
RSMDJ75A	RSMDJ75CA	75.0	83.30~92.10	1	121.0	24.8	2
RSMDJ78A	RSMDJ78CA	78.0	86.70~95.80	1	126.0	23.8	2
RSMDJ85A	RSMDJ85CA	85.0	94.40~104.00	1	137.0	21.9	2
RSMDJ90A	RSMDJ90CA	90.0	100.00~111.00	1	146.0	20.5	2
RSMDJ100A	RSMDJ100CA	100.0	111.00~123.00	1	162.0	18.5	2
RSMDJ110A	RSMDJ110CA	110.0	122.00~135.00	1	177.0	16.9	2
RSMDJ120A	RSMDJ120CA	120.0	133.00~147.00	1	193.0	15.5	2
RSMDJ130A	RSMDJ130CA	130.0	144.00~159.00	1	209.0	14.4	2
RSMDJ150A	RSMDJ150CA	150.0	167.00~185.00	1	243.0	12.3	2
RSMDJ160A	RSMDJ160CA	160.0	178.00~197.00	1	259.0	11.6	2
RSMDJ170A	RSMDJ170CA	170.0	189.00~209.00	1	275.0	10.9	2
RSMDJ180A	RSMDJ180CA	180.0	201.00~222.00	1	292.0	10.3	2
RSMDJ190A	RSMDJ190CA	190.0	211.00~233.00	1	308.0	9.7	2
RSMDJ200A	RSMDJ200CA	200.0	224.00~247.00	1	324.0	9.3	2
RSMDJ210A	RSMDJ210CA	210.0	237.00~263.00	1	340.0	8.8	2
RSMDJ220A	RSMDJ220CA	220.0	246.00~272.00	1	356.0	8.4	2

Notes: For bidirectional type having V_{RWM} of 10V and less, the I_R limit is double.

Ratings and Characteristic Curves ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

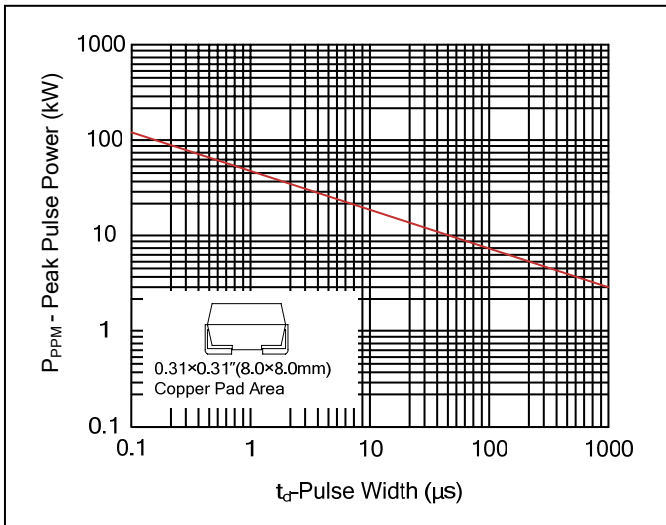


Figure 2. Pulse Derating Curve

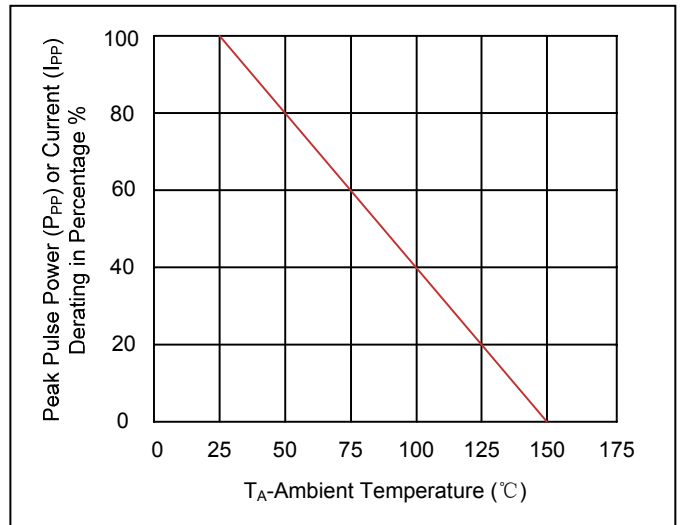


Figure 3. Pulse Waveform

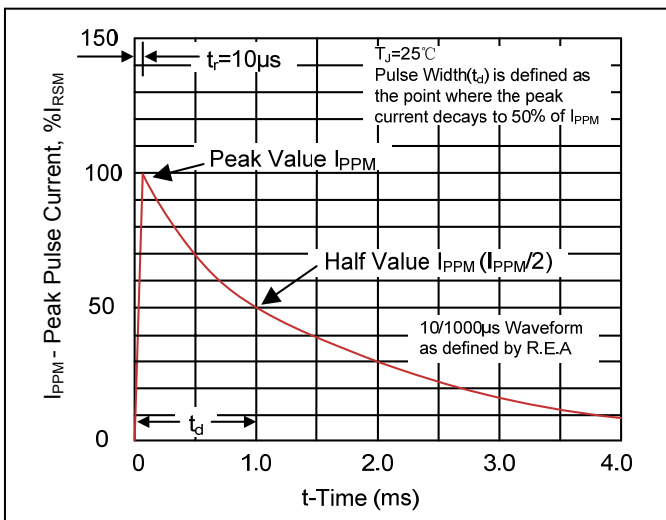


Figure 4. Typical Junction Capacitance

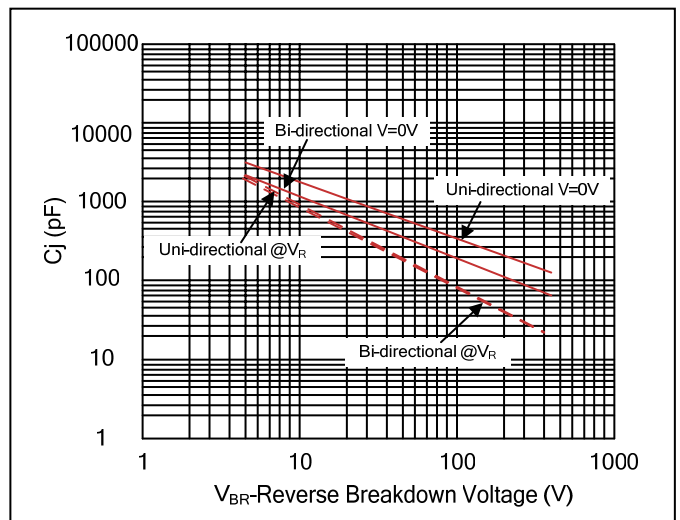


Figure 5. Steady State Power Dissipation Derating Curve

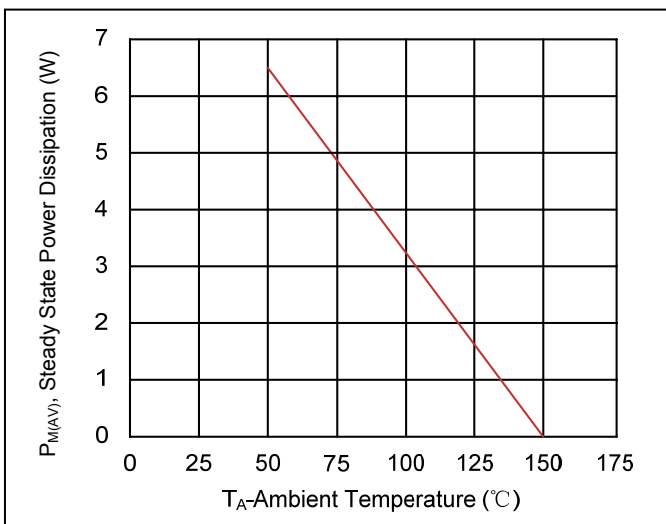
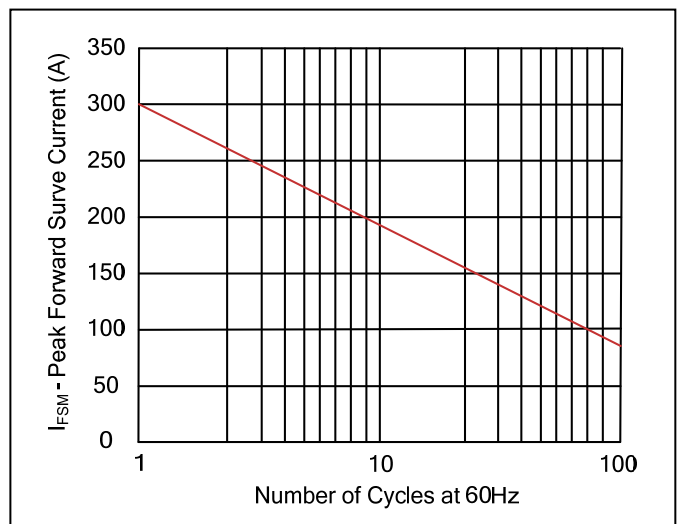
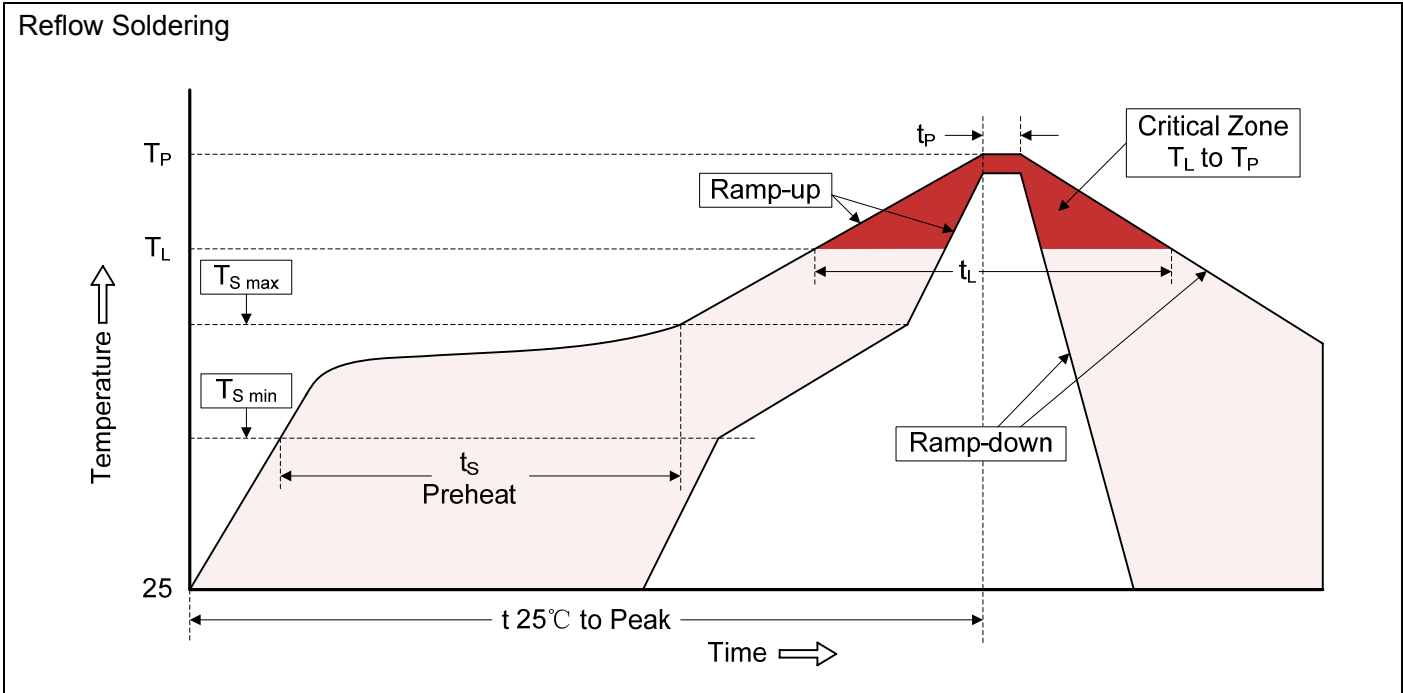


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



Recommended Soldering Conditions



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°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	8 minutes max.

Part Number Code

