SMBJ5.0A - SMBJ440CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

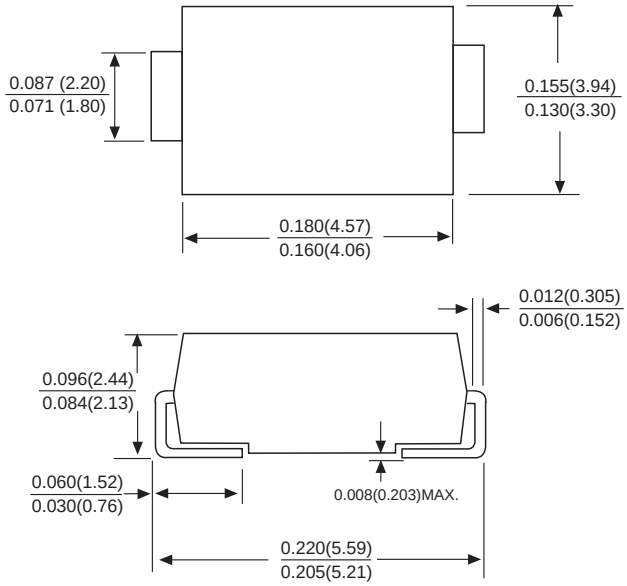
FEATURES

- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Plastic Case Material has UL Flammability Classification Rating 94V-O
- Typical IR less than 1μA above 10V
- Fast Response Time : typically less than 1.0ns from 0v to VBR

MECHANICAL DATA

Case: JEDEC SMB(DO-214AA), Molded Plastic
Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
Polarity: Cathode Band Except Bi-Directional
Weight: 0.093 grams (approx.)

DO-214AA/SMB



Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics @T_A=25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25ºC by 10/1000μs Waveform (Fig.2)(Note 1), (Note 2), (Note 5)	P_{PPM}	600	W
Power Dissipation on Infinite Heat Sink at TL=50°C	P_D	5.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	100	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only (Note 4)	V_F	3.5/5.0	V
Operating Temperature Range	T_j	-65 to +150	°C
Storage Temperature Range	T_{STG}	-65 to +175	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	20	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	100	°C/W

Note:

1. Non-repetitive current pulse , per Fig. 4 and derated above T_J (initial) =25°C per Fig. 3.
2. Mounted on copper pad area of 0.2x0.2” (5.0 x 5.0mm) to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
4. V_F < 3.5V for single die parts and V_F< 5.0V for stacked-die parts.
5. The P_{PPM} of stacked-die parts is 800W

Electrical Characteristics (T_A=25°C unless otherwise noted)

UNI-POLAR 单向	BI-POLAR 双向	REVERSE STANDOFF VOLTAGE V_{RWM} (V) 反向对峙电压	BREAKDOWN VOLTAGE V_{BR} (V) MIN. @ I_T 崩溃电压（最小）	BREAKDOWN VOLTAGE V_{BR} (V) MAX. @ I_T 崩溃电压（最大）	TEST CURRENT (I_T) mA 测试电流	MAXIMUM CLAMPING VOLTAGE @I_{PP} V_C (V) 最大嵌位电压	PEAK PULSE CURRENT I_{PP} (A) 峰值脉冲电流	REVERSE LEAKAGE @ V_{RWM} I_R (μA) 反向漏电
SMBJ5.0A	SMBJ5.0CA	5.00	6.40	7.00	10	9.2	65.3	800
SMBJ6.0A	SMBJ6.0CA	6.00	6.67	7.37	10	10.3	58.3	800
SMBJ6.5A	SMBJ6.5CA	6.50	7.22	7.98	10	11.2	53.6	500
SMBJ7.0A	SMBJ7.0CA	7.00	7.78	8.60	10	12.0	50.0	200
SMBJ7.5A	SMBJ7.5CA	7.50	8.33	9.21	1	12.9	46.6	100
SMBJ8.0A	SMBJ8.0CA	8.00	8.89	9.83	1	13.6	44.2	50
SMBJ8.5A	SMBJ8.5CA	8.50	9.44	10.40	1	14.4	41.7	20
SMBJ9.0A	SMBJ9.0CA	9.00	10.00	11.10	1	15.4	39.0	10
SMBJ10A	SMBJ10CA	10.00	11.10	12.30	1	17.0	35.3	5
SMBJ11A	SMBJ11CA	11.00	12.20	13.50	1	18.2	33.0	1
SMBJ12A	SMBJ12CA	12.00	13.30	14.70	1	19.9	30.2	1
SMBJ13A	SMBJ13CA	13.00	14.40	15.90	1	21.5	28.0	1
SMBJ14A	SMBJ14CA	14.00	15.60	17.20	1	23.2	25.9	1
SMBJ15A	SMBJ15CA	15.00	16.70	18.50	1	24.4	24.6	1
SMBJ16A	SMBJ16CA	16.00	17.80	19.70	1	26.0	23.1	1
SMBJ17A	SMBJ17CA	17.00	18.90	20.90	1	27.6	21.8	1
SMBJ18A	SMBJ18CA	18.00	20.00	22.10	1	29.2	20.6	1
SMBJ20A	SMBJ20CA	20.00	22.20	24.50	1	32.4	18.6	1
SMBJ22A	SMBJ22CA	22.00	24.40	26.90	1	35.5	16.9	1
SMBJ24A	SMBJ24CA	24.00	26.70	29.50	1	38.9	15.5	1
SMBJ26A	SMBJ26CA	26.00	28.90	31.90	1	42.1	14.3	1
SMBJ28A	SMBJ28CA	28.00	31.10	34.40	1	45.4	13.3	1
SMBJ30A	SMBJ30CA	30.00	33.30	36.80	1	48.4	12.4	1
SMBJ33A	SMBJ33CA	33.00	36.70	40.60	1	53.3	11.3	1
SMBJ36A	SMBJ36CA	36.00	40.00	44.20	1	58.1	10.4	1
SMBJ40A	SMBJ40CA	40.00	44.40	49.10	1	64.5	9.3	1
SMBJ43A	SMBJ43CA	43.00	47.80	52.80	1	69.4	8.7	1
SMBJ45A	SMBJ45CA	45.00	50.00	55.30	1	72.7	8.3	1
SMBJ48A	SMBJ48CA	48.00	53.30	58.90	1	77.4	7.8	1
SMBJ51A	SMBJ51CA	51.00	56.70	62.70	1	82.4	7.3	1
SMBJ54A	SMBJ54CA	54.00	60.00	66.30	1	87.1	6.9	1
SMBJ58A	SMBJ58CA	58.00	64.40	71.20	1	93.6	6.5	1
SMBJ60A	SMBJ60CA	60.00	66.70	73.70	1	96.8	6.2	1
SMBJ64A	SMBJ64CA	64.00	71.10	78.60	1	103.0	5.9	1
SMBJ70A	SMBJ70CA	70.00	77.80	86.00	1	113.0	5.3	1
SMBJ75A	SMBJ75CA	75.00	83.30	92.10	1	121.0	5.0	1
SMBJ78A	SMBJ78CA	78.00	86.70	95.80	1	126.0	4.8	1
SMBJ85A	SMBJ85CA	85.00	94.40	104.00	1	137.0	4.4	1
SMBJ90A	SMBJ90CA	90.00	100.00	111.00	1	146	4.1	1
SMBJ100A	SMBJ100CA	100.00	111.00	123.00	1	162	3.7	1
SMBJ110A	SMBJ110CA	110.00	122.00	135.00	1	177	3.4	1
SMBJ120A	SMBJ120CA	120.00	133.00	147.00	1	193	3.1	1
SMBJ130A	SMBJ130CA	130.00	144.00	159.00	1	209	2.9	1
SMBJ150A	SMBJ150CA	150.00	167.00	185.00	1	243	2.5	1
SMBJ160A	SMBJ160CA	160.00	178.00	197.00	1	259	2.3	1
SMBJ170A	SMBJ170CA	170.00	189.00	209.00	1	275	2.2	1
SMBJ180A	SMBJ180CA	180.00	201.00	222.00	1	292	2.1	1
SMBJ200A	SMBJ200CA	200.00	224.00	247.00	1	324	1.9	1
SMBJ220A	SMBJ220CA	220.00	246.00	272.00	1	356	1.7	1
SMBJ250A	SMBJ250CA	250.00	279.00	309.00	1	405	1.5	1
SMBJ300A*	SMBJ300CA	300.00	335.00	371.00	1	486	1.3	1
SMBJ350A	SMBJ350CA	350.00	391.00	432.00	1	567	1.1	1
SMBJ400A	SMBJ400CA	400.00	447.00	494.00	1	648	0.9	1
SMBJ440A	SMBJ440CA	440.00	492.00	543.00	1	713	0.9	1

1. For bidirectional type having V_R of 10 volts and less, the I_R limit is double.
2. Components marked with "*" use stacked-die, therefore they have a higher surge capability (typical 1.8*I_{PP}).

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

Figure 1 - TVS Transients Clamping Waveform

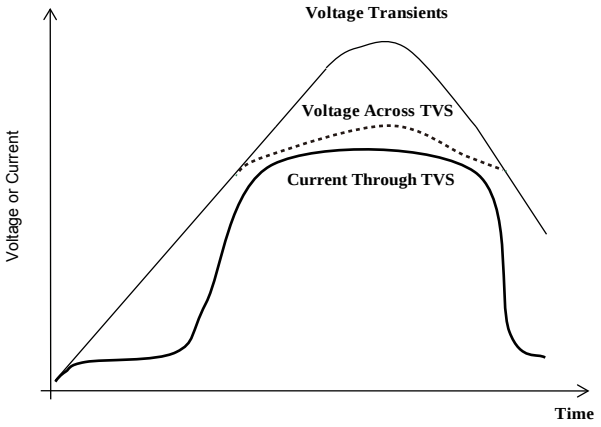


Figure 2 - Peak Pulse Power Rating

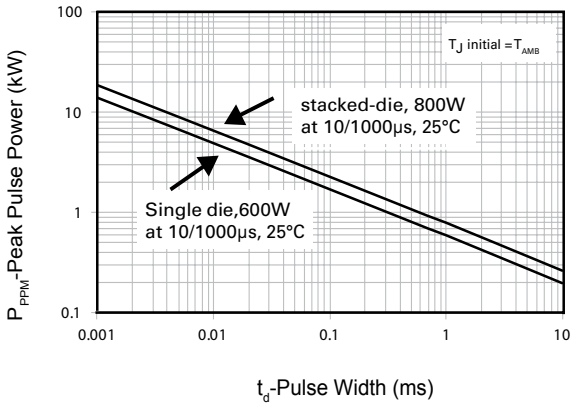


Figure 3 - Peak Pulse Power Derating Curve

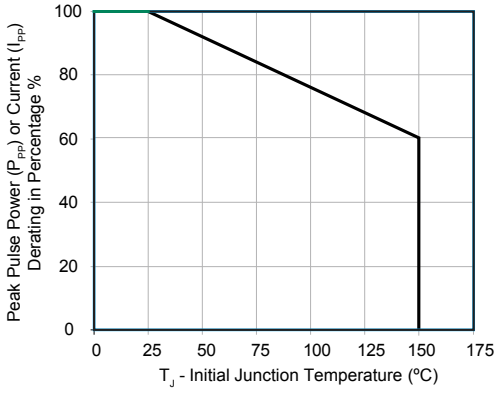


Figure 4 - Pulse Waveform

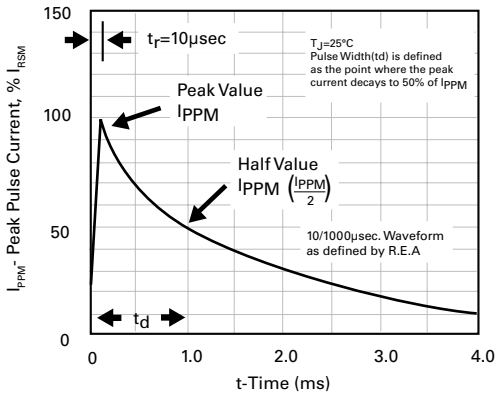


Figure 5 - Typical Junction Capacitance

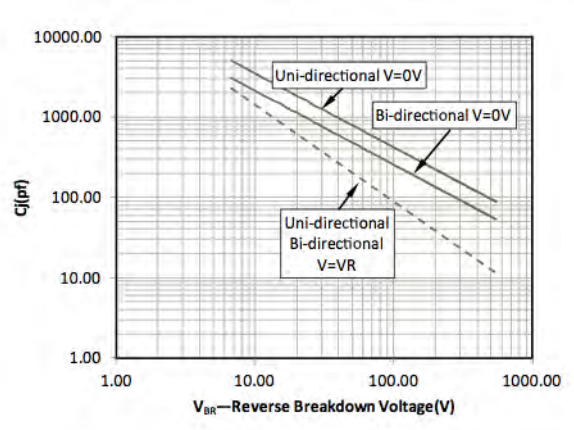


Figure 6 - Typical Transient Thermal Impedance

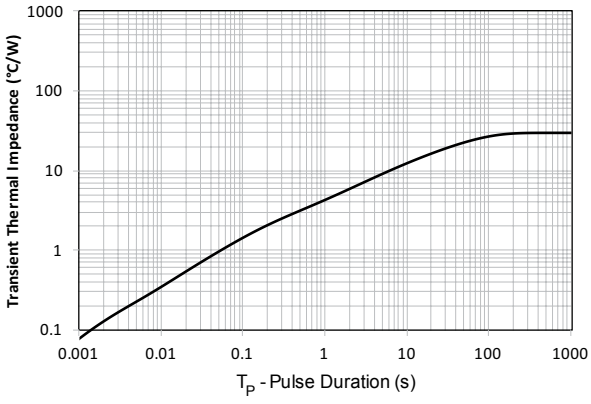


Figure 7 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

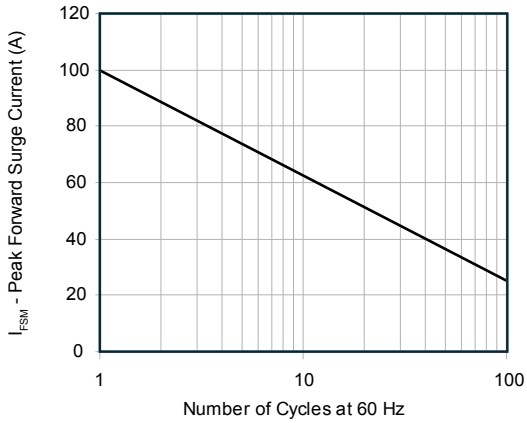


Figure 8 - Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)