

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

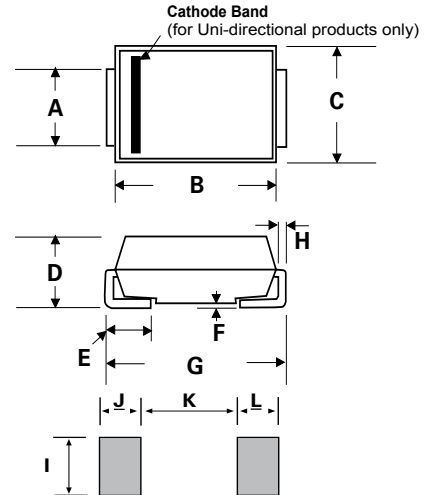
SMCJ5.0A-SMCJ440CA

Vishaymas General Semiconductor

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
- Repetition rate (duty cycle):0.01%
- Fast response time: typically less than 1.0 ps from 0 volts to BV for unidirectional types
- Typical IR less than 1μA above 10V
- High temperature soldering: 250°C/10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability Classification 94 V-O

DO-214AB (SMC)



MECHANICAL DATA

Case: JEDEC DO214AB. Molded plastic over glass passivated junction

Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Polarity: Color band denoted positive end (cathode) except Bidirectional

Standard Packaging: 16mm tape (EIA STD RS-481)

Weight: 0.007 ounces, 0.021 grams

Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.114	0.126	2.900	3.200
B	0.260	0.280	6.600	7.110
C	0.220	0.245	5.590	6.220
D	0.079	0.103	2.060	2.620
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.750	8.130
H	0.006	0.012	0.152	0.305
I	0.129	-	3.300	-
J	0.094	-	2.400	-
K	-	0.165	-	4.200
L	0.094	-	2.400	-

MAXIMUM RATINGS AND CHARACTERISTICS (TA=25°C unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation at TA=25°C by 10/1000μs Waveform (Fig.2)(Note 1), (Note 2)	PPPM	1500	W
Power Dissipation on Infinite Heat Sink at TL=50°C	PD	6.5	A
Peak Forward Surge Current, 8.3ms Single Half Sine-wave(Note 3)	IFSM	200	A
Operatings Temperature Range	TJ	-65 +150	°C
Storage Temperature Range	TSTG	-65 +175	°C
Maximum Instantaneous Forward Voltage at 100A for UnidirectionalOnly (Note 4)	VF	3.5/5.0	V
Typical Thermal Resistance Junction to Lead	RθJL	15	°C/W
Typical Thermal Resistance Junction to Ambient	RθJA	75	°C/W

Notes:

1. Non-repetitive current pulse, per Fig. 4 and derated above Tj (initial) =25°C per Fig. 3.
2. Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) 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. Vp < 3.5V for single die parts and Vp < 5.0V for stacked-die parts.

Electrical Characteristics ($T_A=25^\circ\text{C}$ 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 (最大)	BREAKDOWN VOLTAGE V_{BR} (V) MAX. @ I_T 崩溃电压 (最小)	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
SMCJ5.0A	SMCJ5.0CA	5.00	6.40	7.00	10	9.2	163.0	800
SMCJ6.0A	SMCJ6.0CA	6.00	6.67	7.37	10	10.3	145.7	800
SMCJ6.5A	SMCJ6.5CA	6.50	7.22	7.98	10	11.2	134.0	500
SMCJ7.0A	SMCJ7.0CA	7.00	7.78	8.60	10	12.0	125.0	200
SMCJ7.5A	SMCJ7.5CA	7.50	8.33	9.21	1	12.9	116.3	100
SMCJ8.0A	SMCJ8.0CA	8.00	8.89	9.83	1	13.6	110.3	50
SMCJ8.5A	SMCJ8.5CA	8.50	9.44	10.40	1	14.4	104.2	20
SMCJ9.0A	SMCJ9.0CA	9.00	10.00	11.10	1	15.4	97.4	10
SMCJ10A	SMCJ10CA	10.00	11.10	12.30	1	17.0	88.3	5
SMCJ11A	SMCJ11CA	11.00	12.20	13.50	1	18.2	82.5	1
SMCJ12A	SMCJ12CA	12.00	13.30	14.70	1	19.9	75.4	1
SMCJ13A	SMCJ13CA	13.00	14.40	15.90	1	21.5	69.8	1
SMCJ14A	SMCJ14CA	14.00	15.60	17.20	1	23.2	64.7	1
SMCJ15A	SMCJ15CA	15.00	16.70	18.50	1	24.4	61.5	1
SMCJ16A	SMCJ16CA	16.00	17.80	19.70	1	26.0	57.7	1
SMCJ17A	SMCJ17CA	17.00	18.90	20.90	1	27.6	54.4	1
SMCJ18A	SMCJ18CA	18.00	20.00	22.10	1	29.2	51.4	1
SMCJ20A	SMCJ20CA	20.00	22.20	24.50	1	32.4	46.3	1
SMCJ22A	SMCJ22CA	22.00	24.40	26.90	1	35.5	42.3	1
SMCJ24A	SMCJ24CA	24.00	26.70	29.50	1	38.9	38.6	1
SMCJ26A	SMCJ26CA	26.00	28.90	31.90	1	42.1	35.7	1
SMCJ28A	SMCJ28CA	28.00	31.10	34.40	1	45.4	33.1	1
SMCJ30A	SMCJ30CA	30.00	33.30	36.80	1	48.4	31.0	1
SMCJ33A	SMCJ33CA	33.00	36.70	40.60	1	53.3	28.2	1
SMCJ36A	SMCJ36CA	36.00	40.00	44.20	1	58.1	25.9	1
SMCJ40A	SMCJ40CA	40.00	44.40	49.10	1	64.5	23.3	1
SMCJ43A	SMCJ43CA	43.00	47.80	52.80	1	69.4	21.7	1
SMCJ45A	SMCJ45CA	45.00	50.00	55.30	1	72.7	20.6	1
SMCJ48A	SMCJ48CA	48.00	53.30	58.90	1	77.4	19.4	1
SMCJ51A	SMCJ51CA	51.00	56.70	62.70	1	82.4	18.2	1
SMCJ54A	SMCJ54CA	54.00	60.00	66.30	1	87.1	17.3	1
SMCJ58A	SMCJ58CA	58.00	64.40	71.20	1	93.6	16.1	1
SMCJ60A	SMCJ60CA	60.00	66.70	73.70	1	96.8	15.5	1
SMCJ64A	SMCJ64CA	64.00	71.10	78.60	1	103.0	14.6	1
SMCJ70A	SMCJ70CA	70.00	77.80	86.00	1	113.0	13.3	1
SMCJ75A	SMCJ75CA	75.00	83.30	92.10	1	121.0	12.4	1
SMCJ78A	SMCJ78CA	78.00	86.70	95.80	1	126.0	11.9	1
SMCJ85A	SMCJ85CA	85.00	94.40	104.00	1	137.0	11.0	1
SMCJ90A	SMCJ90CA	90.00	100.00	111.00	1	146.0	10.3	1
SMCJ100A	SMCJ100CA	100.00	111.00	123.00	1	162.0	9.3	1
SMCJ110A	SMCJ110CA	110.00	122.00	135.00	1	177.0	8.5	1
SMCJ120A	SMCJ120CA	120.00	133.00	147.00	1	193.0	7.8	1
SMCJ130A	SMCJ130CA	130.00	144.00	159.00	1	209.0	7.2	1
SMCJ150A	SMCJ150CA	150.00	167.00	185.00	1	243.0	6.2	1
SMCJ160A	SMCJ160CA	160.00	178.00	197.00	1	259.0	5.8	1
SMCJ170A	SMCJ170CA	170.00	189.00	209.00	1	275.0	5.5	1
SMCJ180A	SMCJ180CA	180.00	201.00	222.00	1	292.0	5.1	1
SMCJ200A	SMCJ200CA	200.00	224.00	247.00	1	324.0	4.6	1
SMCJ220A	SMCJ220CA	220.00	246.00	272.00	1	356.0	4.2	1
SMCJ250A	SMCJ250CA	250.00	279.00	309.00	1	405.0	3.7	1
SMCJ300A	SMCJ300CA	300.00	335.00	371.00	1	486.0	3.1	1
SMCJ350A	SMCJ350CA	350.00	391.00	432.00	1	567.0	2.6	1
SMCJ400A	SMCJ400CA	400.00	447.00	494.00	1	648.0	2.3	1
SMCJ440A	SMCJ440CA	440.00	492.00	543.00	1	713.0	2.1	1

For bidirectional type having V_R of 10 volts and less, the I_R limit is double. For parts without A, the V_{BR} is $\pm 10\%$ and V_C is 5% higher than with A parts

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

Figure 1 - TVS Transients Clamping Waveform

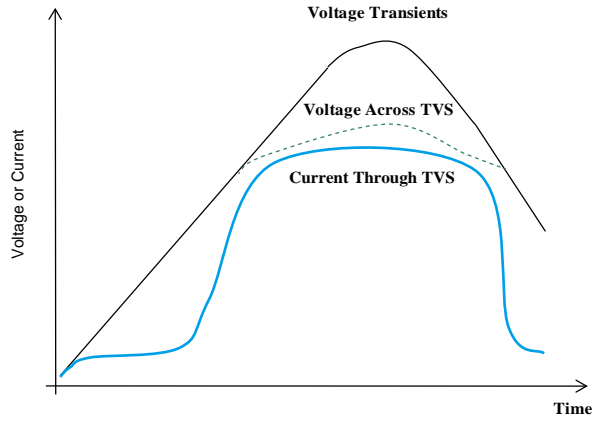


Figure 2 - Peak Pulse Power Rating

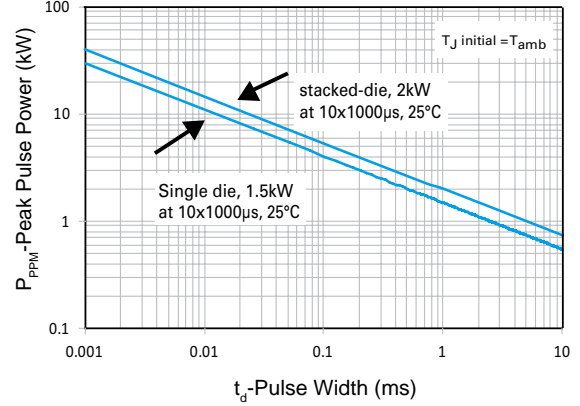


Figure 3 - Peak Pulse Power Derating Curve

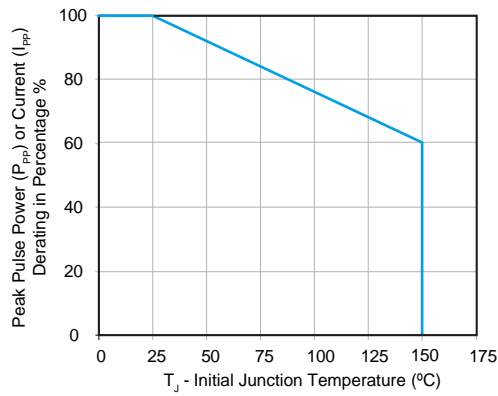


Figure 4 - Pulse Waveform

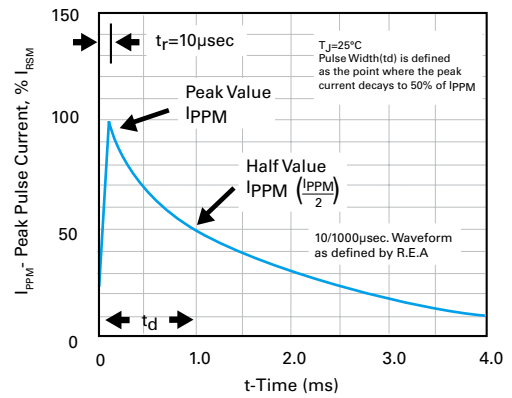


Figure 5 - Typical Junction Capacitance

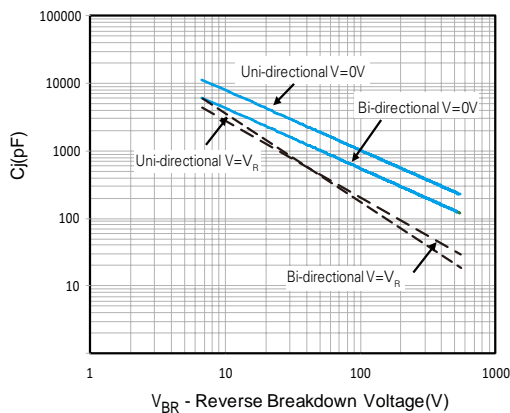


Figure 6 - Typical Transient Thermal Impedance

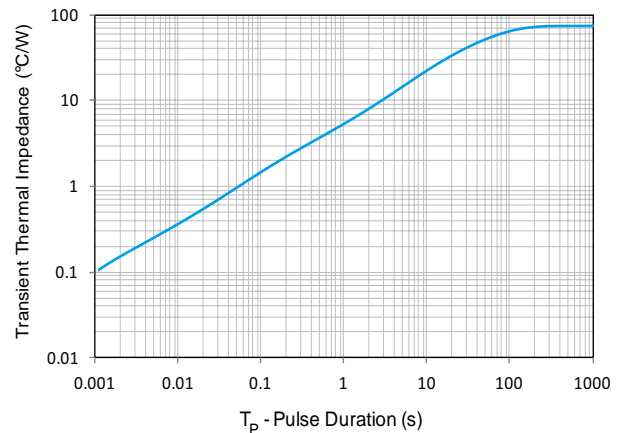


Figure 7 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

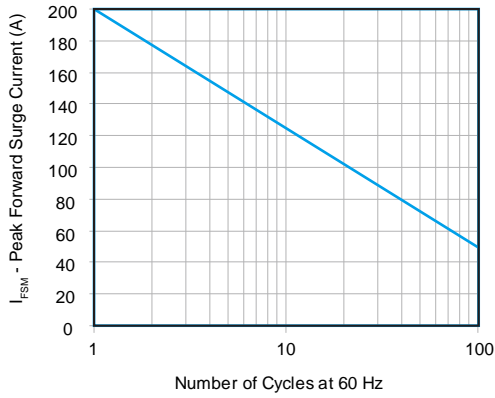


Figure 8 - Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)

