

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

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

MECHANICAL DATA

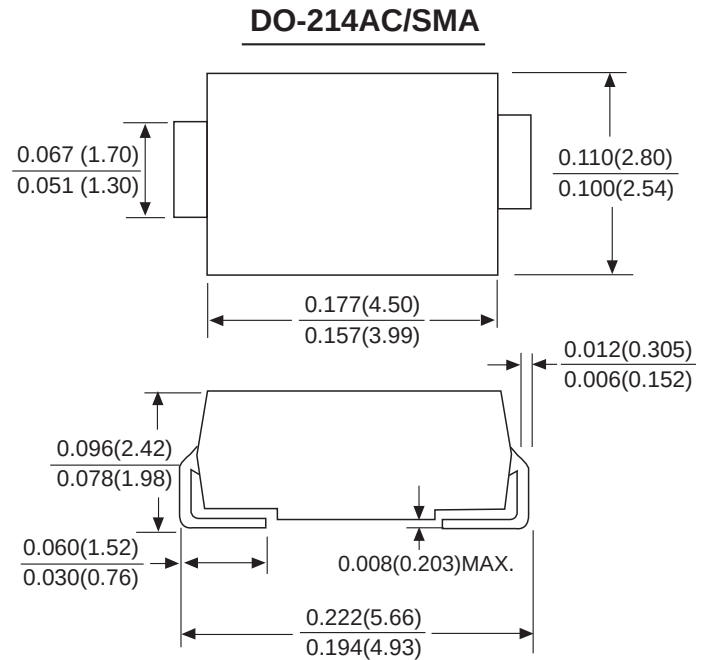
Case: JEDEC DO214AC. Molded plastic over glass passivated junction

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

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

Standard Packaging: 12mm tape (EIA STD RS-481)

Weight: 0.002 ounces, 0.064 grams)



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation at $T_A=25^\circ\text{C}$ by 10/1000μs Waveform (Fig.2)(Note 1), (Note 2)	P_{PPM}	400	Watts
Power Dissipation on Infinite Heat Sink at $T_L=50^\circ\text{C}$	P_D	3.3	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-wave(Note 3)	I_{FSM}	60	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only (Note 4)	V_F	3.5/5.0	Volt
Operatings Temperature Range	T_J	-65 +150	°C
Storage Temperature Range	T_{STG}	-65 +170	°C
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	30	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	120	°C/W

Notes:

1. Non-repetitive current pulse, per Fig.4 and derated above T_J (initial) =25°C per Fig. 3.
2. Mounted on 5.0x5.0mm copper pad to each terminal.
3. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only.
4. $V_F < 3.5\text{V}$ for single die parts and $V_F < 5.0\text{V}$ for stacked-die parts.

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SMAJ5.0A-SMAJ440CA

Electrical Characteristics (TA=25°C unless otherwise noted)								
UNI-POLAR 单向	BI-POLAR 双向	REVERSE STANDOFF VOLTAGE VRWM (V) 反向对峙电压	BREAKDOWN VOLTAGE VBR (V) MIN. @ IT 崩溃电压 (最小)	BREAKDOWN VOLTAGE VBR (V) MAX. @ IT 崩溃电压 (最大)	TEST CURRENT (IT) mA 测试电流	MAXIMUM CLAMPING VOLTAGE @IPP VC (V) 最大嵌位电压	PEAK PULSE CURRENT IPP (A) 峰值脉冲电流	REVERSE LEAKAGE @ VRWM IR (μA) 反向漏电
SMAJ5.0A	SMAJ5.0CA	5.00	6.40	7.00	10	9.2	43.5	800
SMAJ6.0A	SMAJ6.0CA	6.00	6.67	7.37	10	10.3	38.8	800
SMAJ6.5A	SMAJ6.5CA	6.50	7.22	7.98	10	11.2	35.7	500
SMAJ7.0A	SMAJ7.0CA	7.00	7.78	8.60	10	12.0	33.3	200
SMAJ7.5A	SMAJ7.5CA	7.50	8.33	9.21	1	12.9	31.0	100
SMAJ8.0A	SMAJ8.0CA	8.00	8.89	9.83	1	13.6	29.4	50
SMAJ8.5A	SMAJ8.5CA	8.50	9.44	10.40	1	14.4	27.8	20
SMAJ9.0A	SMAJ9.0CA	9.00	10.00	11.10	1	15.4	26.0	10
SMAJ10A	SMAJ10CA	10.00	11.10	12.30	1	17.0	23.5	5
SMAJ11A	SMAJ11CA	11.00	12.20	13.50	1	18.2	22.0	1
SMAJ12A	SMAJ12CA	12.00	13.30	14.70	1	19.9	20.1	1
SMAJ13A	SMAJ13CA	13.00	14.40	15.90	1	21.5	18.6	1
SMAJ14A	SMAJ14CA	14.00	15.60	17.20	1	23.2	17.2	1
SMAJ15A	SMAJ15CA	15.00	16.70	18.50	1	24.4	16.4	1
SMAJ16A	SMAJ16CA	16.00	17.80	19.70	1	26.0	15.4	1
SMAJ17A	SMAJ17CA	17.00	18.90	20.90	1	27.6	14.5	1
SMAJ18A	SMAJ18CA	18.00	20.00	22.10	1	29.2	13.7	1
SMAJ20A	SMAJ20CA	20.00	22.20	24.50	1	32.4	12.3	1
SMAJ22A	SMAJ22CA	22.00	24.40	26.90	1	35.5	11.3	1
SMAJ24A	SMAJ24CA	24.00	26.70	29.50	1	38.9	10.3	1
SMAJ26A	SMAJ26CA	26.00	28.90	31.90	1	42.1	9.5	1
SMAJ28A	SMAJ28CA	28.00	31.10	34.40	1	45.4	8.8	1
SMAJ30A	SMAJ30CA	30.00	33.30	36.80	1	48.4	8.3	1
SMAJ33A	SMAJ33CA	33.00	36.70	40.60	1	53.3	7.5	1
SMAJ36A	SMAJ36CA	36.00	40.00	44.20	1	58.1	6.9	1
SMAJ40A	SMAJ40CA	40.00	44.40	49.10	1	64.5	6.2	1
SMAJ43A	SMAJ43CA	43.00	47.80	52.80	1	69.4	5.8	1
SMAJ45A	SMAJ45CA	45.00	50.00	55.30	1	72.7	5.5	1
SMAJ48A	SMAJ48CA	48.00	53.30	58.90	1	77.4	5.2	1
SMAJ51A	SMAJ51CA	51.00	56.70	62.70	1	82.4	4.9	1
SMAJ54A	SMAJ54CA	54.00	60.00	66.30	1	87.1	4.6	1
SMAJ58A	SMAJ58CA	58.00	64.40	71.20	1	93.6	4.3	1
SMAJ60A	SMAJ60CA	60.00	66.70	73.70	1	96.8	4.1	1
SMAJ64A	SMAJ64CA	64.00	71.10	78.60	1	103.0	3.9	1
SMAJ70A	SMAJ70CA	70.00	77.80	86.00	1	113.0	3.5	1
SMAJ75A	SMAJ75CA	75.00	83.30	92.10	1	121.0	3.3	1
SMAJ78A	SMAJ78CA	78.00	86.70	95.80	1	126.0	3.2	1
SMAJ85A	SMAJ85CA	85.00	94.40	104.00	1	137.0	2.9	1
SMAJ90A	SMAJ90CA	90.00	100.00	111.00	1	146	2.7	1
SMAJ100A	SMAJ100CA	100.00	111.00	123.00	1	162	2.5	1
SMAJ110A	SMAJ110CA	110.00	122.00	135.00	1	177	2.3	1
SMAJ120A	SMAJ120CA	120.00	133.00	147.00	1	193	2.1	1
SMAJ130A	SMAJ130CA	130.00	144.00	159.00	1	209	1.9	1
SMAJ150A	SMAJ150CA	150.00	167.00	185.00	1	243	1.6	1
SMAJ160A	SMAJ160CA	160.00	178.00	197.00	1	259	1.5	1
SMAJ170A	SMAJ170CA	170.00	189.00	209.00	1	275	1.5	1
SMAJ180A	SMAJ180CA	180.00	201.00	222.00	1	292	1.4	1
SMAJ200A	SMAJ200CA	200.00	224.00	247.00	1	324	1.2	1
SMAJ220A	SMAJ220CA	220.00	246.00	272.00	1	356	1.1	1
SMAJ250A	SMAJ250CA	250.00	279.00	309.00	1	405	1.0	1
SMAJ300A	SMAJ300CA	300.00	335.00	371.00	1	486	0.8	1
SMAJ350A	SMAJ350CA	350.00	391.00	432.00	1	567	0.7	1
SMAJ400A	SMAJ400CA	400.00	447.00	494.00	1	648	0.6	1
SMAJ440A	SMAJ440CA	440.00	492.00	543.00	1	713	0.6	1

For bidirectional type having VR of 10 volts and less, the IR limit is double.

For parts without A , the VBR is ± 10% and VC is 5% higher than with A parts

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

Figure 1 - TVS Transients Clamping Waveform

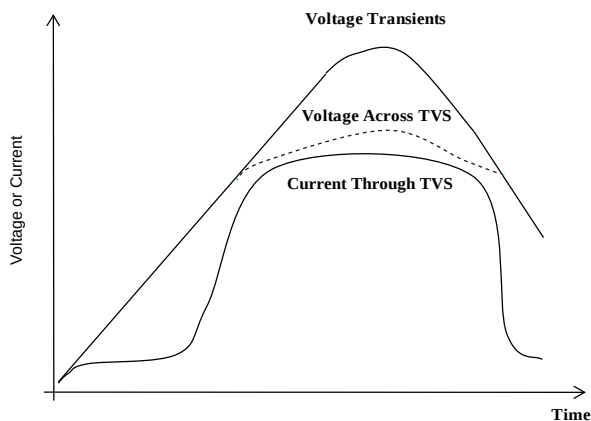


Figure 2 - Peak Pulse Power Rating Curve

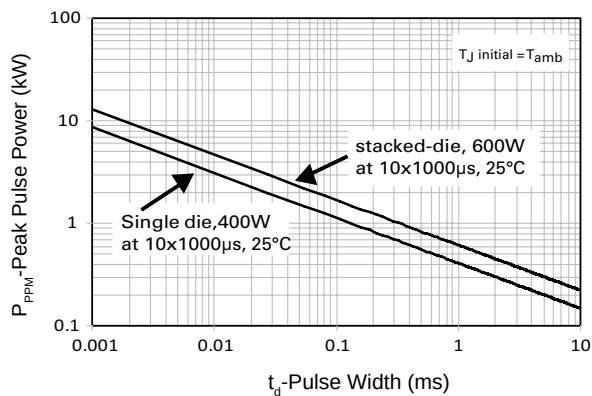


Figure 3 - Peak Pulse Power Derating Curve

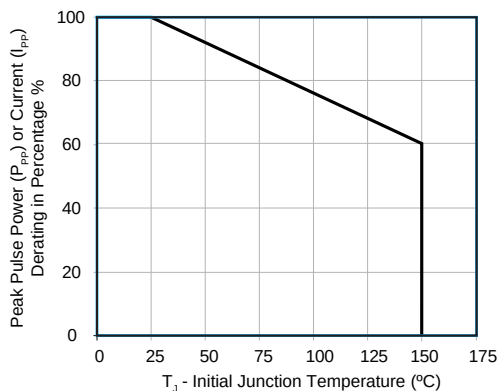


Figure 4 - Pulse Waveform

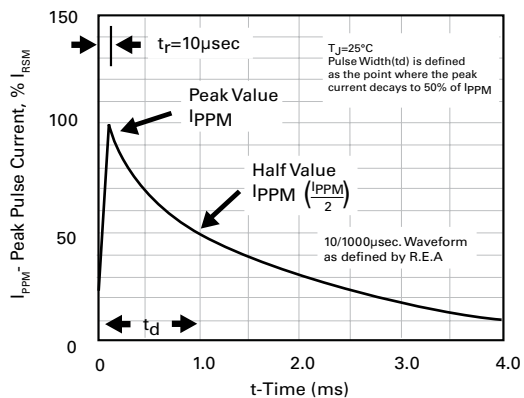


Figure 5 - Typical Junction Capacitance

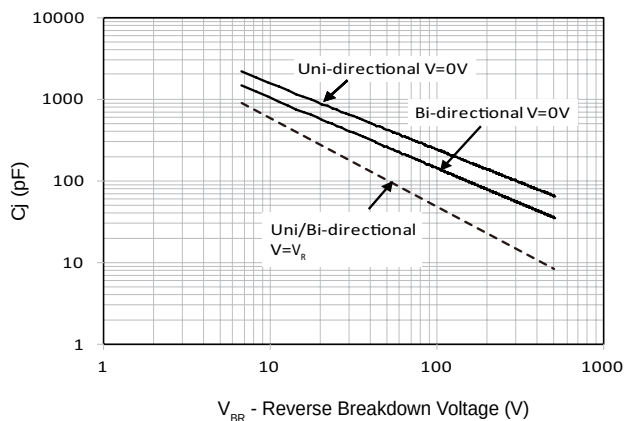


Figure 6 - Typical Transient Thermal Impedance

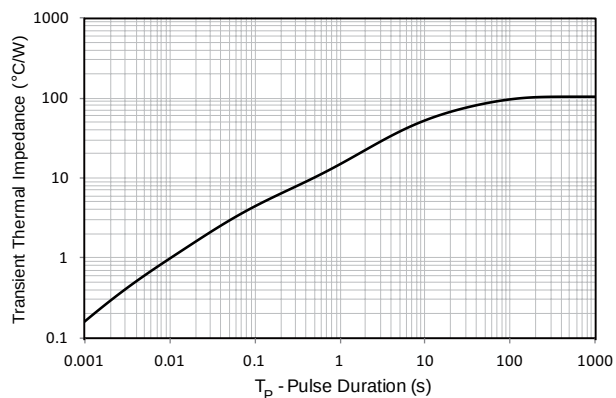


Figure 7 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

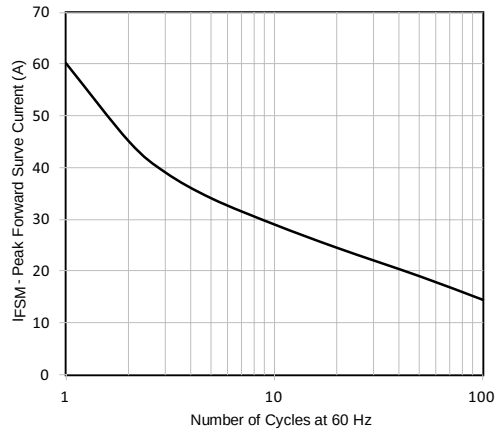


Figure 8 - Peak Forward Voltage Drop vs Peak Forward Current (Typical Values)

