

# Silicon Avalanche Diodes

## 600W Surface Mount Transient Voltage Suppressors

### RoHS P6SMBJ Series



#### FEATURES

- RoHS compliant
- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low lead inductance
- Excellent clamping capability
- Repetition Rate (duty cycle): 0.01%
- Fast response time: typically less than 1.0ps from 0 Volts to BV for unidirectional types
- Typical IR less than 1  $\mu$ mA above 10V
- High Temperature soldering: 250°C/10 seconds at terminals

**Agency Approvals:** Recognized under the Components Program of Underwriters Laboratories.

**Agency File Number:** E128662



#### MAXIMUM RATINGS AND CHARACTERISTICS

@25°C AMBIENT TEMPERATURE (unless otherwise noted)

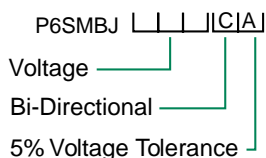
PARAMETER	SYMBOL	VALUE	UNIT
Peak pulse power Dissipation on 10/1000 $\mu$ s waveform (note 1,2, FIG.1)	P <sub>PPM</sub>	Min 600	Watts
Peak pulse current of on 10/1000 $\mu$ s waveform (note 1, FIG.3)	I <sub>PPM</sub>	SEE TABLE 1	Amps
Peak forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load, (JEDEC Method) (note 2.3)	I <sub>PSM</sub>	100	Amps
Operating junction and Storage Temperature Range	T <sub>j</sub> , T <sub>sTG</sub>	-55 to +150	°C

Note 1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub> = 25°C per Fig.2

Note 2. Mounted on 5.0mm<sup>2</sup>(0.03mm thick) Copper Pads to each terminal

Note 3. 8.3 ms single half sine-wave, or equivalent square wave, Duty cycle= 4 pulses per minute

#### ORDERING INFORMATION



Tape and reeled (3000 pcs)

#### Mechanical Specifications:

- Weight:** 0.003ounce, 0.093 gram
- Case:** JEDEC DO-214AA Molded Plastic over glass passivated junction
- Mounting Position:** Any
- Polarity:** Color band denotes cathode except Bidirectional
- Terminal:** Solder Plated solderable per MIL-STD-750, Method 2026
- Standard Packaging:** 12mm tape (EIA STF RS-481)

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#### ELECTRICAL SPECIFICATION @ Tamb 25°C

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Reverse Stand off Voltage Vr (Volts)	Breakdown Voltage VBR (Volts) @ IT		Test Current IT (mA)	Maximum Clamping Voltage Vc @ IPP (Volts)	Maximum Peak Pulse Current IPP (A)	Maximum Reverse Leakage IR @ VR (µA)
		UNI	BI		MIN	MAX				
P6SMBJ7.5A	P6SMBJ7.5CA	7V5A	7V5C	6.40	7.13	7.88	10	11.3	54.0	500
P6SMBJ8.2A	P6SMBJ8.2CA	8V2A	8V2C	7.02	7.79	8.61	10	12.1	50.4	200
P6SMBJ9.1A	P6SMBJ9.1CA	9V1A	9V1C	7.78	8.65	9.55	1	13.4	45.5	50
P6SMBJ10A	P6SMBJ10CA	10A	10C	8.55	9.50	10.50	1	14.5	42.1	10
P6SMBJ11A	P6SMBJ11CA	11A	11C	9.40	10.50	11.60	1	15.6	39.1	5
P6SMBJ12A	P6SMBJ12CA	12A	12C	10.20	11.40	12.60	1	16.7	36.5	5
P6SMBJ13A	P6SMBJ13CA	13A	13C	11.10	12.40	13.70	1	18.2	33.5	5
P6SMBJ15A	P6SMBJ15CA	15A	15C	12.80	14.30	15.80	1	21.2	28.8	5
P6SMBJ16A	P6SMBJ16CA	16A	16C	13.60	15.20	16.80	1	22.5	27.1	5
P6SMBJ18A	P6SMBJ18CA	18A	18C	15.30	17.10	18.90	1	25.5	24.2	5
P6SMBJ20A	P6SMBJ20CA	20A	20C	17.10	19.00	21.00	1	27.7	22.0	5
P6SMBJ22A	P6SMBJ22CA	22A	22C	18.80	20.90	23.10	1	30.6	19.9	5
P6SMBJ24A	P6SMBJ24CA	24A	24C	20.50	22.80	25.20	1	33.2	18.4	5
P6SMBJ27A	P6SMBJ27CA	27A	27C	23.10	25.70	28.40	1	37.5	16.3	5
P6SMBJ30A	P6SMBJ30CA	30A	30C	25.60	28.50	31.50	1	41.4	14.7	5
P6SMBJ33A	P6SMBJ33CA	33A	33C	28.20	31.40	34.70	1	45.7	13.3	5
P6SMBJ36A	P6SMBJ36CA	36A	36C	30.80	34.20	37.80	1	49.9	12.2	5
P6SMBJ39A	P6SMBJ39CA	39A	39C	33.30	37.10	41.00	1	53.9	11.3	5
P6SMBJ43A	P6SMBJ43CA	43A	43C	36.80	40.90	45.20	1	59.3	10.3	5
P6SMBJ47A	P6SMBJ47CA	47A	47C	40.20	44.70	49.40	1	64.8	9.4	5
P6SMBJ51A	P6SMBJ51CA	51A	51C	43.60	48.50	53.60	1	70.1	8.7	5
P6SMBJ56A	P6SMBJ56CA	56A	56C	47.80	53.20	58.80	1	77.0	7.9	5
P6SMBJ62A	P6SMBJ62CA	62A	62C	53.00	58.90	65.10	1	85.0	7.2	5
P6SMBJ68A	P6SMBJ68CA	68A	68C	58.10	64.60	71.40	1	92.0	6.6	5
P6SMBJ75A	P6SMBJ75CA	75A	75C	64.10	71.30	78.80	1	103.0	5.9	5
P6SMBJ82A	P6SMBJ82CA	82A	82C	70.10	77.90	86.10	1	113.0	5.4	5
P6SMBJ91A	P6SMBJ91CA	91A	91C	77.80	86.50	95.50	1	125.0	4.9	5
P6SMBJ100A	P6SMBJ100CA	100A	100C	85.50	95.00	105.00	1	137.0	4.5	5
P6SMBJ110A	P6SMBJ110CA	110A	110C	94.00	105.00	116.00	1	152.0	4.0	5
P6SMBJ120A	P6SMBJ120CA	120A	120C	102.00	114.00	126.00	1	165.0	3.7	5
P6SMBJ130A	P6SMBJ130CA	130A	130C	111.00	124.00	137.00	1	179.0	3.4	5
P6SMBJ150A	P6SMBJ150CA	150A	150C	128.00	143.00	158.00	1	207.0	2.9	5
P6SMBJ160A	P6SMBJ160CA	160A	160C	136.00	152.00	168.00	1	219.0	2.8	5
P6SMBJ170A	P6SMBJ170CA	170A	170C	145.00	162.00	179.00	1	234.0	2.6	5
P6SMBJ180A	P6SMBJ180CA	180A	180C	154.00	171.00	189.00	1	246.0	2.5	5
P6SMBJ200A	P6SMBJ200CA	200A	200C	171.00	190.00	210.00	1	274.0	2.2	5
P6SMBJ220A	P6SMBJ220CA	220A	220C	185.00	209.00	231.00	1	328.0	1.9	5
P6SMBJ250A	P6SMBJ250CA	250A	250C	214.00	237.00	263.00	1	344.0	1.8	5
P6SMBJ300A	P6SMBJ300CA	300A	300C	256.00	285.00	315.00	1	414.0	1.5	5
P6SMBJ350A	P6SMBJ350CA	350A	350C	300.00	332.00	368.00	1	482.0	1.3	5
P6SMBJ400A	P6SMBJ400CA	400A	400C	342.00	380.00	420.00	1	548.0	1.1	5
P6SMBJ440A	P6SMBJ440CA	440A	440C	376.00	418.00	462.00	1	602.0	1.0	5
P6SMBJ480A	P6SMBJ480CA	480A	480C	408.00	456.00	504.00	1	658.0	0.9	5
P6SMBJ510A	P6SMBJ510CA	510A	510C	434.00	485.00	535.00	1	698.0	0.9	5
P6SMBJ530A	P6SMBJ530CA	530A	530C	477.00	503.50	556.50	1	725.0	0.8	5
P6SMBJ540A	P6SMBJ540CA	540A	540C	459.00	513.00	567.00	1	740.0	0.8	5
P6SMBJ550A	P6SMBJ550CA	550A	550C	495.00	522.50	577.50	1	760.0	0.8	5

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.  
For parts without A (VBR is ± 10%).

6 SILICON DIODE ARRAYS

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

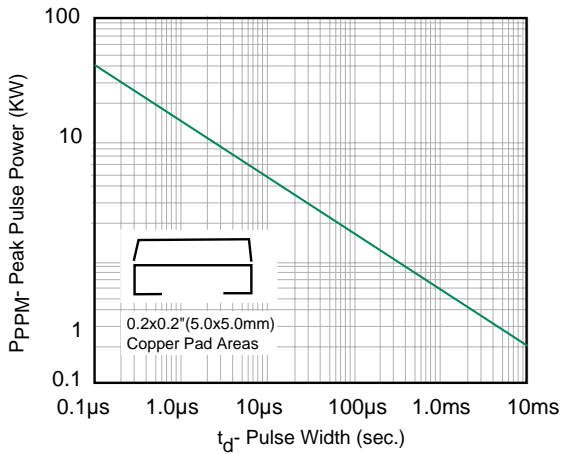


Fig. 1 Peak Pulse Power Rating

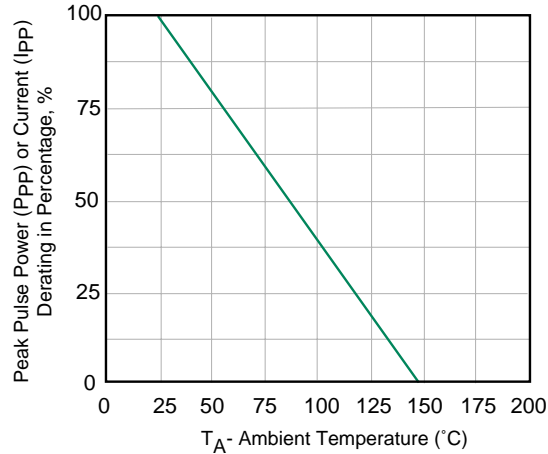


Fig. 2 Pulse Derating Curve

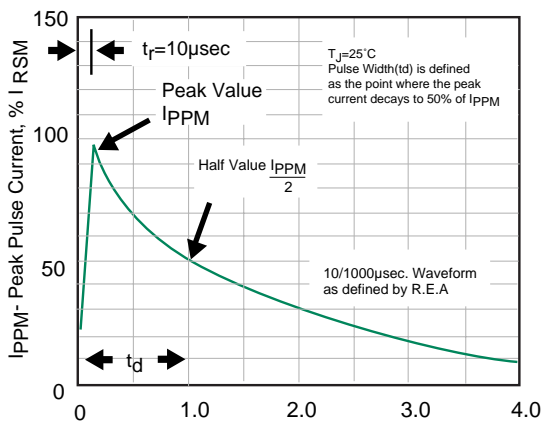


Fig. 3 Pulse Waveform

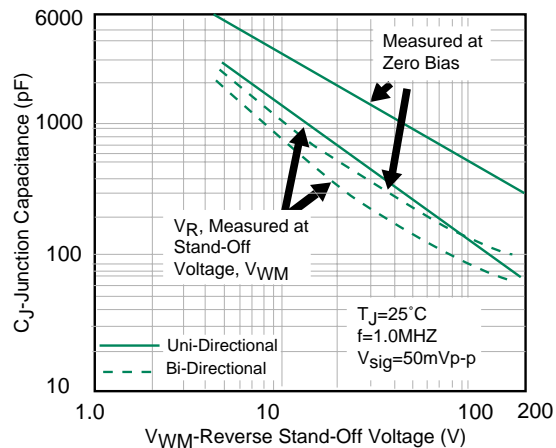


Fig. 4- Typical Junction Capacitance

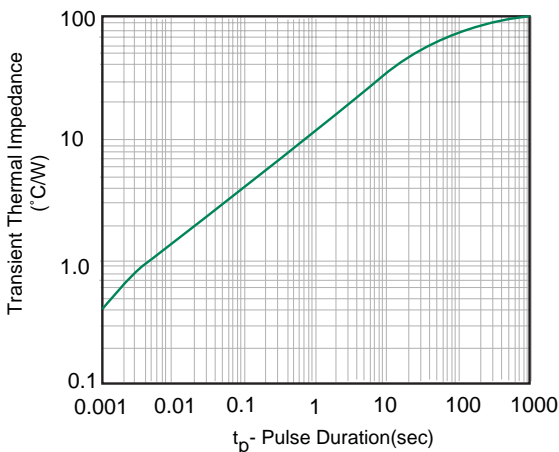


Fig. 5- Typ. Transient Thermal Impedance

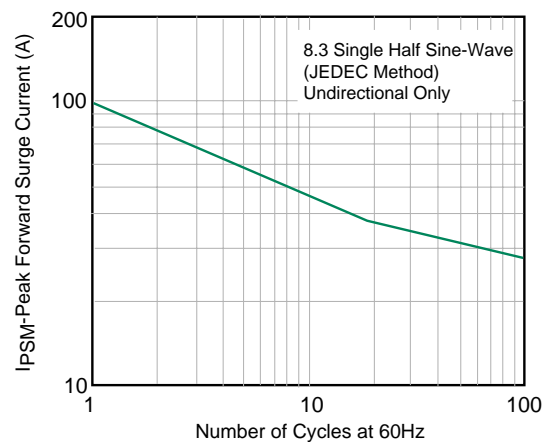


Fig. 6- Maximum Non-Repetitive Peak Forward Surge Current

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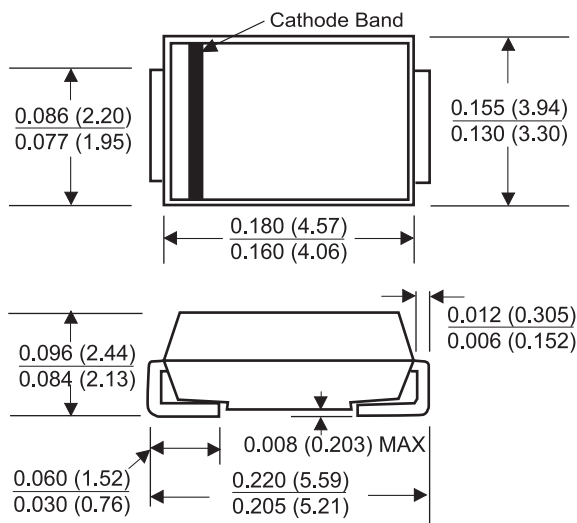
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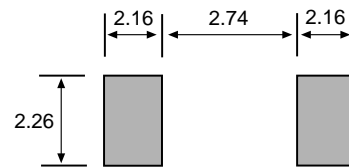


#### Package Outline Dimensions and Pad Layout

DO-214AA (SMB J-Bend)



Dimensions in inches and (millimeters)



Solder Pads

All dimensions in mm