

P6SMA Series

Breakdown Voltage: 6.8 to 220 V

Peak Pulse Power: 600 W

**Surface Mount
Transient Voltage Suppressors**

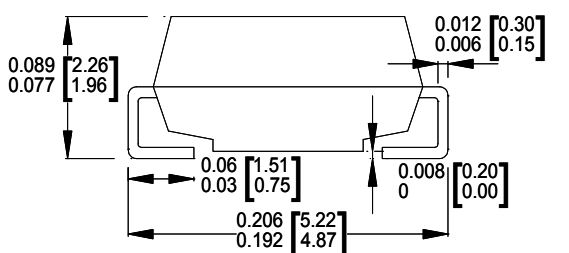
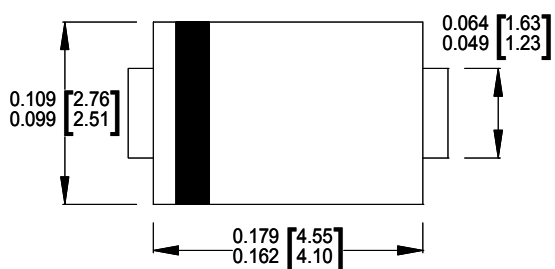
Features

- Glass passivated chip
- 600 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

SMA/ DO-214AC



Dimensions : inch [mm]

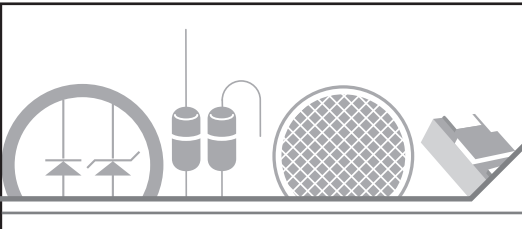
Maximum Ratings($T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾	P_{PP}	600	W
Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	P_D	3.0	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I_{FSM}	60	A
Maximum instantaneous forward voltage at 25 A for unidirectional only	V_F	3.5	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Note:

(1) Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.1

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum



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

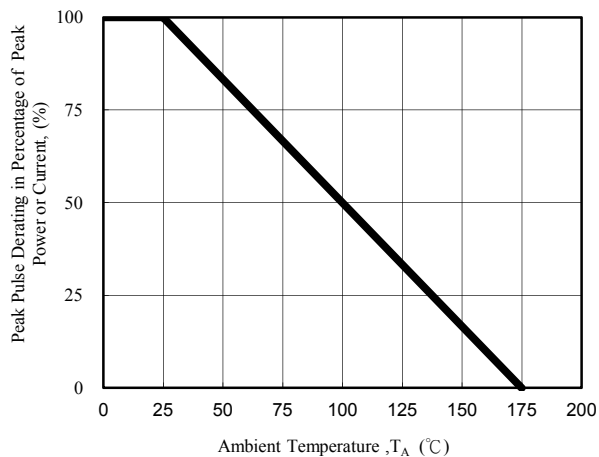


Fig. 1 - Pulse Derating Curve

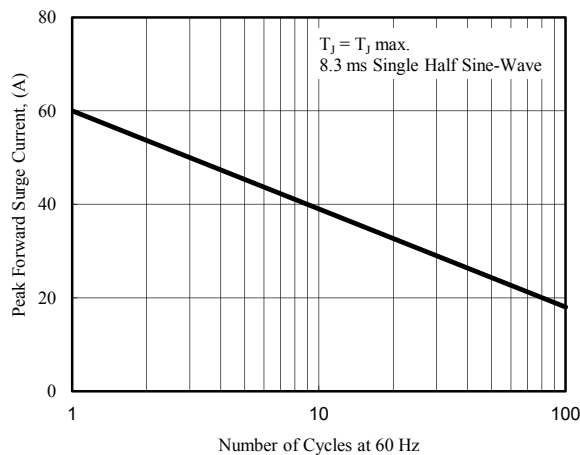


Fig. 2 - Maximum Non-Repetitive Surge Current

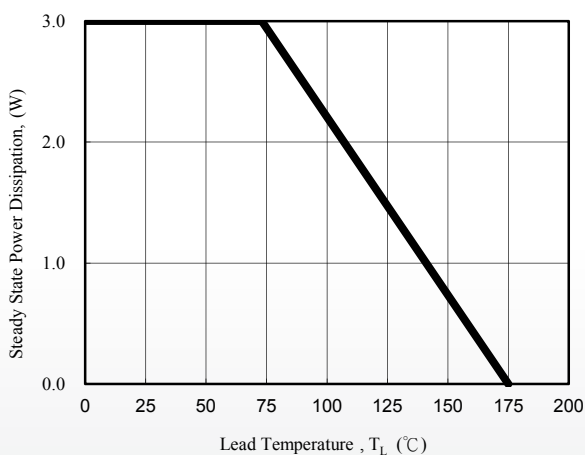


Fig. 3 - Steady State Power Derating Curve

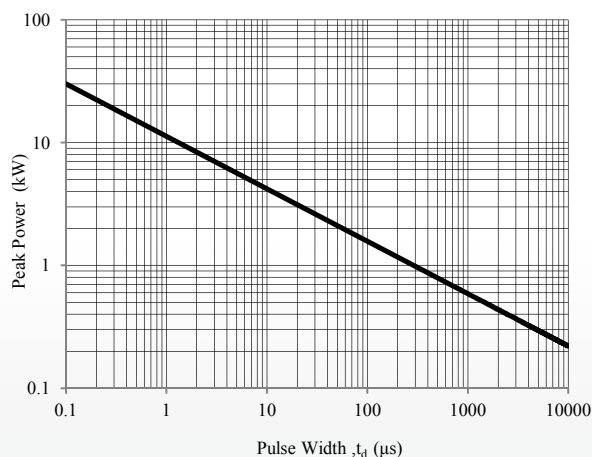


Fig. 4 - Peak Pulse Power Rating Curve

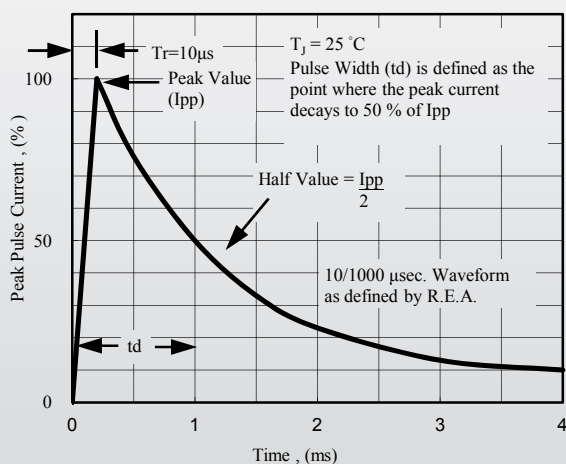


Fig. 5 - Pulse Waveform

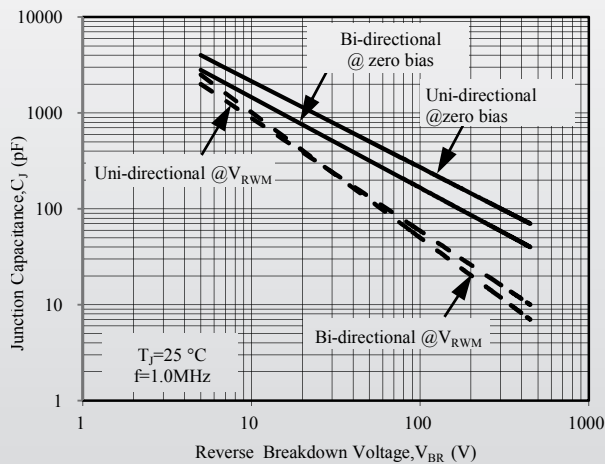
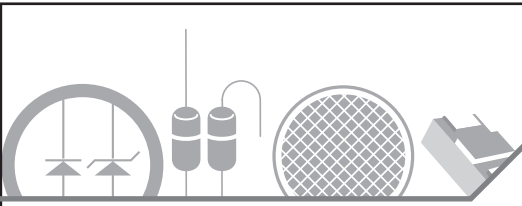


Fig. 6 - Typical Junction Capacitance



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

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage V_{BR} @ I_T			Maximum Reverse Leakage I_R @ V_{RWM} (uA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @ I_{PP} (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
P6SMA6.8A	P6SMA6.8CA	6P8A	6P8C	6.46	7.14	10	1000	5.8	57.1	10.5
P6SMA7.5A	P6SMA7.5CA	7P5A	7P5C	7.13	7.88	10	500	6.4	53.1	11.3
P6SMA8.2A	P6SMA8.2CA	8P2A	8P2C	7.79	8.61	10	200	7.0	49.6	12.1
P6SMA9.1A	P6SMA9.1CA	9P1A	9P1C	8.65	9.56	1	50	7.8	44.8	13.4
P6SMA10A	P6SMA10CA	P10A	P10C	9.50	10.50	1	10	8.6	41.4	14.5
P6SMA11A	P6SMA11CA	P11A	P11C	10.45	11.55	1	5	9.4	38.5	15.6
P6SMA12A	P6SMA12CA	P12A	P12C	11.40	12.60	1	5	10.2	35.9	16.7
P6SMA13A	P6SMA13CA	P13A	P13C	12.35	13.65	1	5	11.1	33.0	18.2
P6SMA15A	P6SMA15CA	P15A	P15C	14.25	15.75	1	5	12.8	28.3	21.2
P6SMA16A	P6SMA16CA	P16A	P16C	15.20	16.80	1	5	13.6	26.7	22.5
P6SMA18A	P6SMA18CA	P18A	P18C	17.10	18.90	1	5	15.3	23.8	25.2
P6SMA20A	P6SMA20CA	P20A	P20C	19.00	21.00	1	5	17.1	21.7	27.7
P6SMA22A	P6SMA22CA	P22A	P22C	20.90	23.10	1	5	18.8	19.6	30.6
P6SMA24A	P6SMA24CA	P24A	P24C	22.80	25.20	1	5	20.5	18.1	33.2
P6SMA27A	P6SMA27CA	P27A	P27C	25.65	28.35	1	5	23.1	16.0	37.5
P6SMA30A	P6SMA30CA	P30A	P30C	28.50	31.50	1	5	25.6	14.5	41.4
P6SMA33A	P6SMA33CA	P33A	P33C	31.35	34.65	1	5	28.2	13.1	45.7
P6SMA36A	P6SMA36CA	P36A	P36C	34.20	37.80	1	5	30.8	12.0	49.9
P6SMA39A	P6SMA39CA	P39A	P39C	37.05	40.95	1	5	33.3	11.1	53.9
P6SMA43A	P6SMA43CA	P43A	P43C	40.85	45.15	1	5	36.8	10.1	59.3
P6SMA47A	P6SMA47CA	P47A	P47C	44.65	49.35	1	5	40.2	9.26	64.8
P6SMA51A	P6SMA51CA	P51A	P51C	48.45	53.55	1	5	43.6	8.56	70.1
P6SMA56A	P6SMA56CA	P56A	P56C	53.20	58.80	1	5	47.8	7.79	77.0
P6SMA62A	P6SMA62CA	P62A	P62C	58.90	65.10	1	5	53.0	7.06	85.0
P6SMA68A	P6SMA68CA	P68A	P68C	64.60	71.40	1	5	58.1	6.52	92.0
P6SMA75A	P6SMA75CA	P75A	P75C	71.25	78.75	1	5	64.1	5.83	103.0
P6SMA82A		P82A		77.90	86.10	1	5	70.1	5.31	113.0
P6SMA91A		P91A		86.45	95.55	1	5	77.8	4.80	125.0
P6SMA100A		P100A		95.00	105.00	1	5	85.5	4.38	137.0
P6SMA110A		P110A		104.50	115.50	1	5	94.0	3.95	152.0
P6SMA120A		P120A		114.00	126.00	1	5	102.0	3.64	165.0
P6SMA130A		P130A		123.50	136.50	1	5	111.0	3.35	179.0
P6SMA150A		P150A		142.50	157.50	1	5	128.0	2.90	207.0
P6SMA160A		P160A		152.00	168.00	1	5	136.0	2.74	219.0
P6SMA170A		P170A		161.50	178.50	1	5	145.0	2.56	234.0
P6SMA180A		P180A		171.00	189.00	1	5	154.0	2.44	246.0
P6SMA200A		P200A		190.00	210.00	1	5	171.0	2.19	274.0
P6SMA220A		P220A		209.00	231.00	1	5	185.0	1.83	328.0

Note:

1. The available parts are "A" type only, the parts without A (V_{BR} is $\pm 10\%$) is not available
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double