



DATA SHEET

SEMICONDUCTOR

P6SMBJ Series

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE 5.0 to 440 Volts 600 Watt Peak Power Pulse



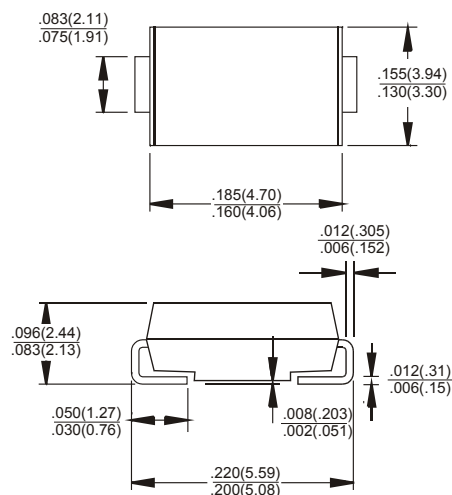
SMB/DO-214AA Unit:inch(mm)

FEATURES

- For surface mounted applications in order to optimize board space.
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- High temperature soldering : 260°C /10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability
- Classification 94V-O
- Pb free product at available : 99% Sn above meet RoHS environment substance directive request

MECHANICAL DATA

- Case: JEDEC DO-214AA,Molded plastic over passivated junction.
- Terminals: Solder plated,solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes positive end (cathode)
- Standard Packaging:12mm tape (EIA-481)
- Quantify Per Reel : 3000 pcs



DEVICES FOR BIPOLAR APPLICATIONS

- For Bidirectional use C or CA Suffix for types P6SMBJ5.0 thru types P6SMBJ440A.
- Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

- Rating at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.
- For Capacitive load derate current by 20%.

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation on 10/1000us waveform (Note1.2 , Fig.1)	P _{pp}	600	Watts
Peak Forward Surge Current, 8.3ms single half sine - wave uni- directional only (JEDEC method) (Notes 2,3)	I _{FSM}	100	Amps
Peak Pulse Current on 10/1000s waveform(Note 1 , Fig.3)	I _{PP}	See Table 1	Amps
Operating and Storage Temperature Range	T _J , T _{STG}	-55 ~ +150	°C

NOTES:

- Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig.2.
- Mounted on 5.0 mm²(0.13mm thick) land areas.
- Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

P6SMBJ Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current	Package	
										SMB / DO-214AA	
			VBR @ IT			IT	IR@VRWM			Vc@ Ipp	Ipp
		VRWM	Min.	Max.	UNI		BI				
UNI	BI	V	V	V	m A	µA	µA	V	A	UNI	BI
600W Transient Voltage Suppresor											
P6SMBJ5.0	P6SMBJ5.0C	5.0	6.40	7.82	10	800.0	1600.0	9.6	62.5	B5.0V	B5.0C
P6SMBJ5.0A	P6SMBJ5.0CA	5.0	6.40	7.07	10	800.0	1600.0	9.2	65.2	B5.0A	B5.0D
P6SMBJ6.0	P6SMBJ6.0C	6.0	6.67	8.15	10	800.0	1600.0	11.4	52.6	B6.0V	B6.0C
P6SMBJ6.0A	P6SMBJ6.0CA	6.0	6.67	7.37	10	800.0	1600.0	10.3	58.3	B6.0A	B6.0D
P6SMBJ6.5	P6SMBJ6.5C	6.5	7.22	8.82	10	500.0	1000.0	12.3	48.8	B6.5V	B6.5C
P6SMBJ6.5A	P6SMBJ6.5CA	6.5	7.22	7.98	10	500.0	1000.0	11.2	53.6	B6.5A	B6.5D
P6SMBJ7.0	P6SMBJ7.0C	7.0	7.78	9.51	10	200.0	400.0	13.3	45.4	B7.0V	B7.0C
P6SMBJ7.0A	P6SMBJ7.0CA	7.0	7.78	8.60	10	200.0	400.0	12.0	50.0	B7.0A	B7.0D
P6SMBJ7.5	P6SMBJ7.5C	7.5	8.33	10.20	1	100.0	200.0	14.3	42.0	B7.5V	B7.5C
P6SMBJ7.5A	P6SMBJ7.5CA	7.5	8.33	9.21	1	100.0	200.0	12.9	46.5	B7.5A	B7.5D
P6SMBJ8.0	P6SMBJ8.0C	8.0	8.89	10.90	1	50.0	100.0	15.0	40.0	B8.0V	B8.0C
P6SMBJ8.0A	P6SMBJ8.0CA	8.0	8.89	9.83	1	50.0	100.0	13.6	44.1	B8.0A	B8.0D
P6SMBJ8.5	P6SMBJ8.5C	8.5	9.44	11.50	1	20.0	40.0	15.9	37.7	B8.5V	B8.5C
P6SMBJ8.5A	P6SMBJ8.5CA	8.5	9.44	10.40	1	20.0	40.0	14.4	41.7	B8.5A	B8.5D
P6SMBJ9.0	P6SMBJ9.0C	9.0	10.00	12.20	1	10.0	20.0	16.9	35.5	B9.0V	B9.0C
P6SMBJ9.0A	P6SMBJ9.0CA	9.0	10.00	11.10	1	10.0	20.0	15.4	39.0	B9.0A	B9.0D
P6SMBJ10	P6SMBJ10C	10.0	11.10	13.60	1	5.0	10.0	18.8	31.9	B10V	B10C
P6SMBJ10A	P6SMBJ10CA	10.0	11.10	12.30	1	5.0	10.0	17.0	35.3	B10A	B10D
P6SMBJ11	P6SMAJ11C	11.0	12.20	14.90	1	5.0	5.0	20.1	29.9	B11V	B11C
P6SMBJ11A	P6SMBJ11CA	11.0	12.20	13.50	1	5.0	5.0	18.2	33.0	B11A	B11D
P6SMBJ12	P6SMBJ12C	12.0	13.30	16.30	1	5.0	5.0	22.0	27.3	B12V	B12C
P6SMBJ12A	P6SMBJ12CA	12.0	13.30	14.70	1	5.0	5.0	19.9	30.2	B12A	B12D
P6SMBJ13	P6SMBJ13C	13.0	14.40	17.60	1	5.0	5.0	23.8	25.2	B13V	B13C
P6SMBJ13A	P6SMBJ13CA	13.0	14.40	15.90	1	5.0	5.0	21.5	27.9	B13A	B13D
P6SMBJ14	P6SMBJ14C	14.0	15.60	19.10	1	5.0	5.0	25.8	23.3	B14V	B14C
P6SMBJ14A	P6SMBJ14CA	14.0	15.60	17.20	1	5.0	5.0	23.2	25.9	B14A	B14D
P6SMBJ15	P6SMBJ15C	15.0	16.70	20.40	1	5.0	5.0	26.9	22.3	B15V	B15C
P6SMBJ15A	P6SMBJ15CA	15.0	16.70	18.50	1	5.0	5.0	24.4	24.6	B15A	B15D
P6SMBJ16	P6SMBJ16C	16.0	17.80	21.80	1	5.0	5.0	28.8	20.8	B16V	B16C
P6SMBJ16A	P6SMBJ16CA	16.0	17.80	19.70	1	5.0	5.0	26.0	23.1	B16A	B16D
P6SMBJ17	P6SMBJ17C	17.0	18.90	23.10	1	5.0	5.0	30.5	19.7	B17V	B17C
P6SMBJ17A	P6SMBJ17CA	17.0	18.90	20.90	1	5.0	5.0	27.6	21.7	B17A	B17D
P6SMBJ18	P6SMBJ18C	18.0	20.00	24.40	1	5.0	5.0	32.2	18.6	B18V	B18C
P6SMBJ18A	P6SMBJ18CA	18.0	20.00	22.10	1	5.0	5.0	29.2	20.5	B18A	B18D
P6SMBJ20	P6SMBJ20C	20.0	22.20	27.10	1	5.0	5.0	35.8	16.8	B20V	B20C
P6SMBJ20A	P6SMBJ20CA	20.0	22.20	24.50	1	5.0	5.0	32.4	18.5	B20A	B20D
P6SMBJ22	P6SMBJ22C	22.0	24.40	29.80	1	5.0	5.0	39.4	15.2	B22V	B22C
P6SMBJ22A	P6SMBJ22CA	22.0	24.40	26.90	1	5.0	5.0	35.5	16.9	B22A	B22D
P6SMBJ24	P6SMBJ24C	24.0	26.70	32.60	1	5.0	5.0	43.0	14.0	B24V	B24C
P6SMBJ24A	P6SMBJ24CA	24.0	26.70	29.50	1	5.0	5.0	38.9	15.4	B24A	B24D
P6SMBJ26	P6SMBJ26C	26.0	28.90	35.30	1	5.0	5.0	46.6	12.9	B26V	B26C
P6SMBJ26A	P6SMBJ26CA	26.0	28.90	31.90	1	5.0	5.0	42.1	14.3	B26A	B26D
P6SMBJ28	P6SMBJ28C	28.0	31.10	38.00	1	5.0	5.0	50.0	12.0	B28V	B28C
P6SMBJ28A	P6SMBJ28CA	28.0	31.10	34.40	1	5.0	5.0	45.4	13.2	B28A	B28D
P6SMBJ30	P6SMBJ30C	30.0	33.30	40.70	1	5.0	5.0	53.5	11.2	B30V	B30C
P6SMBJ30A	P6SMBJ30CA	30.0	33.30	36.80	1	5.0	5.0	48.4	12.4	B30A	B30D
P6SMBJ33	P6SMBJ33C	33.0	36.70	44.90	1	5.0	5.0	59.0	10.2	B33V	B33C

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										SMB / DO-214AA	
			VBR @ IT			IT	IR@VRWM			Vc@ Ipp	Ipp
UNI	BI	Min.	Max.	UNI	BI		UNI	BI			
600W Transient Voltage Suppresor											
P6SMBJ33A	P6SMBJ33CA	33.0	36.70	40.60	1	5.0	5.0	53.3	11.3	B33A	B33D
P6SMBJ36	P6SMBJ36C	36.0	40.00	48.90	1	5.0	5.0	64.3	9.3	B36V	B36C
P6SMBJ36A	P6SMBJ36CA	36.0	40.00	44.20	1	5.0	5.0	58.1	10.3	B36A	B36D
P6SMBJ40	P6SMBJ40C	40.0	44.40	54.30	1	5.0	5.0	71.4	8.4	B40V	B40C
P6SMBJ40A	P6SMBJ40CA	40.0	44.40	49.10	1	5.0	5.0	64.5	9.3	B40A	B40D
P6SMBJ43	P6SMBJ43C	43.0	47.80	58.40	1	5.0	5.0	76.7	7.8	B43V	B43C
P6SMBJ43A	P6SMBJ43CA	43.0	47.80	52.80	1	5.0	5.0	69.4	8.6	B43A	B43D
P6SMBJ45	P6SMBJ45C	45.0	50.00	61.10	1	5.0	5.0	80.3	7.5	B45V	B45C
P6SMBJ45A	P6SMBJ45CA	45.0	50.00	55.30	1	5.0	5.0	72.7	8.3	B45A	B45D
P6SMBJ48	P6SMBJ48C	48.0	53.30	65.10	1	5.0	5.0	85.5	7.0	B48V	B48C
P6SMBJ48A	P6SMBJ48CA	48.0	53.30	58.90	1	5.0	5.0	77.4	7.8	B48A	B48D
P6SMBJ51	P6SMBJ51C	51.0	56.70	69.30	1	5.0	5.0	91.1	6.6	B51V	B51C
P6SMBJ51A	P6SMBJ51CA	51.0	56.70	62.70	1	5.0	5.0	82.4	7.3	B51A	B51D
P6SMBJ54	P6SMBJ54C	54.0	60.00	73.30	1	5.0	5.0	96.3	6.2	B54V	B54C
P6SMBJ54A	P6SMBJ54CA	54.0	60.00	66.30	1	5.0	5.0	87.1	6.9	B54A	B54D
P6SMBJ58	P6SMBJ58C	58.0	64.40	78.70	1	5.0	5.0	103.0	5.8	B58V	B58C
P6SMBJ58A	P6SMBJ58CA	58.0	64.40	71.20	1	5.0	5.0	93.6	6.4	B58A	B58D
P6SMBJ60	P6SMBJ60C	60.0	66.70	81.50	1	5.0	5.0	107.0	5.6	B60V	B60C
P6SMBJ60A	P6SMBJ60CA	60.0	66.70	73.70	1	5.0	5.0	96.8	6.2	B60A	B60D
P6SMBJ64	P6SMBJ64C	64.0	71.10	86.90	1	5.0	5.0	114.0	5.3	B64V	B64C
P6SMBJ64A	P6SMBJ64CA	64.0	71.10	78.60	1	5.0	5.0	103.0	5.8	B64A	B64D
P6SMBJ70	P6SMBJ70C	70.0	77.80	95.10	1	5.0	5.0	125.0	4.8	B70V	B70C
P6SMBJ70A	P6SMBJ70CA	70.0	77.80	86.00	1	5.0	5.0	113.0	5.3	B70A	B70D
P6SMBJ75	P6SMBJ75C	75.0	83.30	102.00	1	5.0	5.0	134.0	4.5	B75V	B75C
P6SMBJ75A	P6SMBJ75CA	75.0	83.30	92.10	1	5.0	5.0	121.0	5.0	B75A	B75D
P6SMBJ78	P6SMBJ78C	78.0	86.70	106.00	1	5.0	5.0	139.0	4.3	B78V	B78C
P6SMBJ78A	P6SMBJ78CA	78.0	86.70	95.80	1	5.0	5.0	126.0	4.8	B78A	B78D
P6SMBJ85	P6SMBJ85C	85.0	94.40	115.00	1	5.0	5.0	151.0	4.0	B85V	B85C
P6SMBJ85A	P6SMBJ85CA	85.0	94.40	104.00	1	5.0	5.0	137.0	4.4	B85A	B85D
P6SMBJ90	P6SMBJ90C	90.0	100.00	122.00	1	5.0	5.0	160.0	3.8	B90V	B90C
P6SMBJ90A	P6SMBJ90CA	90.0	100.00	111.00	1	5.0	5.0	146.0	4.1	B90A	B90D
P6SMBJ100	P6SMBJ100C	100.0	111.00	136.00	1	5.0	5.0	179.0	3.4	B100V	B100C
P6SMBJ100A	P6SMBJ100CA	100.0	111.00	123.00	1	5.0	5.0	162.0	3.7	B100A	B100D
P6SMBJ110	P6SMBJ110C	110.0	122.00	149.00	1	5.0	5.0	196.0	3.1	B110V	B110C
P6SMBJ110A	P6SMBJ110CA	110.0	12200	135.00	1	5.0	5.0	177.0	3.4	B110A	B110D
P6SMBJ120	P6SMBJ120C	120.0	133.00	163.00	1	5.0	5.0	214.0	2.8	B120V	B120C
P6SMBJ120A	P6SMBJ120CA	120.0	133.00	147.00	1	5.0	5.0	193.0	3.1	B120A	B120D
P6SMBJ130	P6SMBJ130C	130.0	144.00	176.00	1	5.0	5.0	231.0	2.6	B130V	B130C
P6SMBJ130A	P6SMBJ130CA	130.0	144.00	159.00	1	5.0	5.0	209.0	2.9	B130A	B130D
P6SMBJ150	P6SMBJ150C	150.0	167.00	204.00	1	5.0	5.0	268.0	2.2	B150V	B150C
P6SMBJ150A	P6SMBJ150CA	150.0	167.00	185.00	1	5.0	5.0	243.0	2.5	B150A	B150D
P6SMBJ160	P6SMBJ160C	160.0	178.00	218.00	1	5.0	5.0	287.0	2.1	B160V	B160C
P6SMBJ160A	P6SMBJ160CA	160.0	178.00	197.00	1	5.0	5.0	259.0	2.3	B160A	B160D
P6SMBJ170	P6SMBJ170C	170.0	189.00	231.00	1	5.0	5.0	304.0	2.0	B170V	B170C
P6SMBJ170A	P6SMBJ170CA	170.0	189.00	209.00	1	5.0	5.0	275.0	2.2	B170A	B170D
P6SMBJ188	P6SMBJ188C	188.0	209.00	255.00	1	5.0	5.0	344.0	1.7	B188V	B188C
P6SMBJ188A	P6SMBJ188CA	188.0	209.00	231.00	1	5.0	5.0	328.0	2.0	B188A	B188D

P6SMBJ Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current	Package	
			VBR @ IT		IT	IR@VRWM		Vc@ Ipp	Ipp	SMB / DO-214AA	
		VRWM	Min.	Max.		UNI	BI				
UNI	BI	V	V	V	m A	µA	µA	V	A	UNI	BI
600W Transient Voltage Suppresor											
P6SMBJ200A	P6SMBJ200CA	200	224	247	1	5.0	5.0	324	1.9	B200A	B200D
P6SMBJ220A	P6SMBJ220CA	220	246	272	1	5.0	5.0	356	1.7	B220A	B220D
P6SMBJ250A	P6SMBJ250CA	250	279	309	1	5.0	5.0	405	1.5	B250A	B250D
P6SMBJ300A	P6SMBJ300CA	300	335	371	1	5.0	5.0	486	1.3	B300A	B300D
P6SMBJ350A	P6SMBJ350CA	350	391	432	1	5.0	5.0	567	1.1	B350A	B350D
P6SMBJ400A	P6SMBJ400CA	400	447	494	1	5.0	5.0	648	0.9	B400A	B400D
P6SMBJ440A	P6SMBJ440CA	440	492	543	1	5.0	5.0	713	0.9	B440A	B440D

DEVICE CHARACTERISTICS

P6SMBJ Series

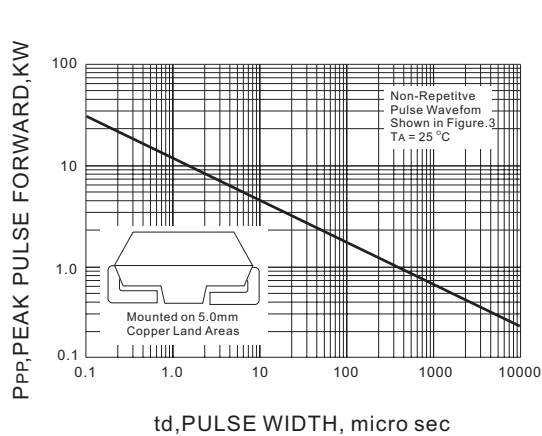


Fig.1 PEAK PULSE POWER RATING CURVE

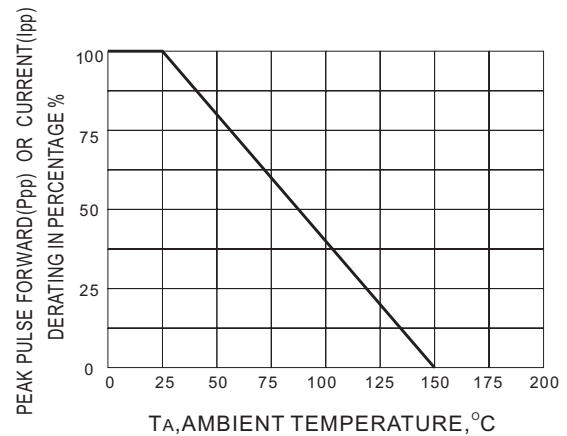


Fig.2 DERATING CURVE

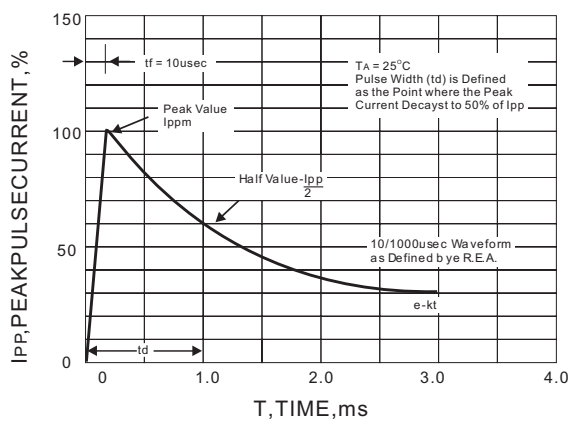


Fig.3 PULSE WAVE FORM

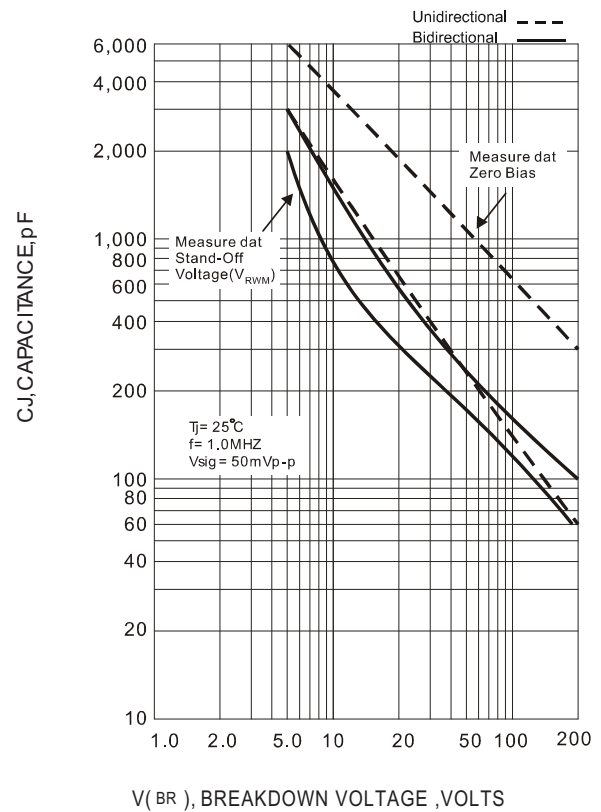


Fig.4 TYPICAL CAPACITANCE

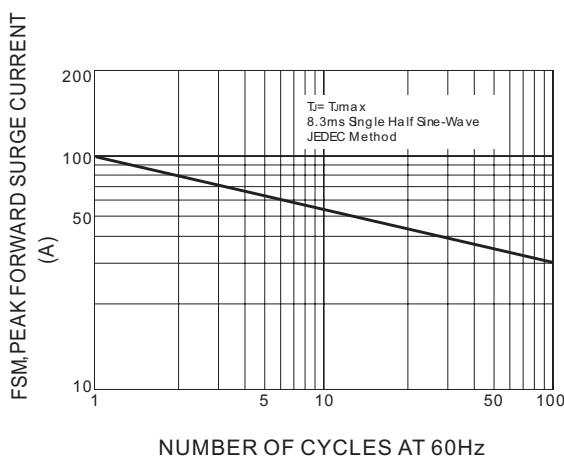


Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT