SEMICONDUCTOR

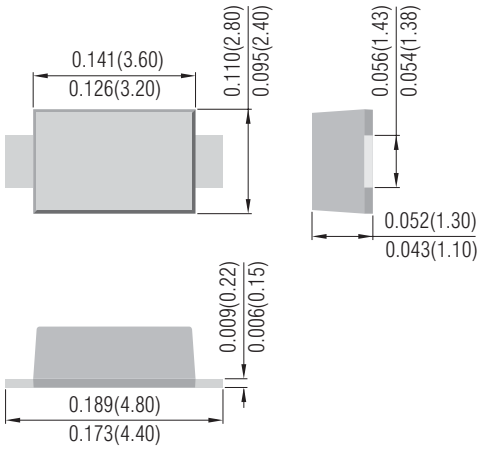
DATA SHEET

P4SMFJ Series

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE 5.0 to 188 Volts 400 Watt Peak Power Pulse

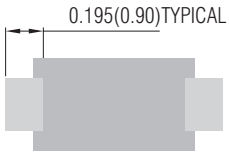
SMF Unit:inch(mm)



FEATURES

- For surface mounted applications in order to optimize board space.
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Low inductance
- Fast response time: typically less than 1.0 ps from 0 volts to BV min
- Typical IR less than 1μA above 10V
- High temperature soldering : 250°C/10 seconds at terminals.
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering : 260°C / 10 seconds at terminals
- Pb free product at available : 99% Sn above meet RoHS environment substance directive request
  MSL:Level 1

MECHANICAL DATA



- Case: JEDEC DO-214AC low profile molded plastic
- Terminals: Solder leads, solderable per MIL-STD-750, Method 2026
- Polarity: Indicated by cathode band except Bi-directional types.
- Standard Packageing: 12mm tape per(EIA-481)
- Quantify Per Reel : 7500 pcs

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°Cambient 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)	Ppp	400	Watts
Peak Forward Surge Current, 8.3ms single half sine - wave uni- directional only (JEDEC method) (Notes 2,3)	IFSM	40	Amps
Peak Pulse Current on 10/1000s waveform(Note 1 , Fig.3)	IPP	See Table 1	Amps
Operating and Storage Temperature Range	TJ, TSTG	-55 ~ +150	°C

NOTES:

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

P4SMFJ Series

Part Number		Reverse Stand-off Voltage	BreakdownVoltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current	Package	
			VBR@ＩT		ＩT	ＩR@ VRWM		Vc@Ipp	Ipp	SMF	
										Device Marking Code	
		VRWM	Min.	Max.		UNI	BI				
UNI	BI	V	V	V	m A	μA	μA	V	A	UNI	BI
400W Transient Voltage Suppresor											
P4SMFJ5.0	P4SMFJ5.0C	5.0	6.40	7.82	10	800.0	1600.0	9.6	41.7	5.0V	5.0C
P4SMFJ5.0A	P4SMFJ5.0CA	5.0	6.40	7.07	10	800.0.	1600.0	9.2	43.85	5.0A	5.0D
P4SMFJ6.0	P4SMFJ6.0C	6.0	6.67	8.15	10	800.0	1600.0	11.4	35.1	6.0V	6.0C
P4SMFJ6.0A	P4SMFJ6.0CA	6.0	6.67	7.37	10	800.0	1600.0	10.3	38.8	6.0A	6.0D
P4SMFJ6.5	P4SMFJ6.5C	6.5	7.22	8.82	10	500.0	1000.0	12.3	32.5	6.5V	6.5C
P4SMFJ6.5A	P4SMFJ6.5CA	6.5	7.22	7.98	10	500.0	1000.0	11.2	35.7	6.5A	6.5D
P4SMFJ7.0	P4SMFJ7.0C	7.0	7.78	9.51	10	200.0	400.0	13.3	30.1	7.0V	7.0C
P4SMFJ7.0A	P4SMFJ7.0CA	7.0	7.78	8.60	10	200.0	400.0	12.0	33.3	7.0A	7.0D
P4SMFJ7.5	P4SMFJ7.5C	7.5	8.33	10.20	1	100.0	200.0	14.3	28.0	7.5V	7.5C
P4SMFJ7.5A	P4SMFJ7.5CA	7.5	8.33	9.21	1	100.0	200.0	12.9	31.0	7.5A	7.5C
P4SMFJ8.0	P4SMFJ8.0C	8.0	8.89	10.90	1	50.0	100.0	15.0	26.7	8.0V	8.0D
P4SMFJ8.0A	P4SMFJ8.0CA	8.0	8.89	9.83	1	50.0	100.0	13.6	29.4	8.0A	8.0C
P4SMFJ8.5	P4SMFJ8.5C	8.5	9.44	11.50	1	10.0	20.0	15.9	25.2	8.5V	8.5D
P4SMFJ8.5A	P4SMFJ8.5CA	8.5	9.44	10.40	1	10.0	20.0	14.4	27.8	8.5A	8.5C
P4SMFJ9.0	P4SMFJ9.0C	9.0	10.00	12.20	1	5.0	10.0	16.9	23.7	9.0V	9.0D
P4SMFJ9.0A	P4SMFJ9.0CA	9.0	10.00	11.10	1	5.0	10.0	15.4	26.0	9.0A	9.0C
P4SMFJ10	P4SMFJ10C	10.0	11.10	13.60	1	5.0	10.0	18.8	21.3	10V	10D
P4SMFJ10A	P4SMFJ10CA	10.0	11.10	12.30	1	5.0	10.0	17.0	23.5	10A	10C
P4SMFJ11	P4SMFJ11C	11.0	12.20	14.90	1	5.0	5.0	20.1	19.9	11V	11D
P4SMFJ11A	P4SMFJ11CA	11.0	12.20	13.50	1	5.0	5.0	18.2	22.0	11A	11C
P4SMFJ12	P4SMFJ12C	12.0	13.30	16.30	1	5.0	5.0	22.0	18.2	12V	12D
P4SMFJ12A	P4SMFJ12CA	12.0	13.30	14.70	1	5.0	5.0	19.9	20.1	12A	12C
P4SMFJ13	P4SMFJ13C	13.0	14.40	17.60	1	5.0	5.0	23.8	16.8	13V	13D
P4SMFJ13A	P4SMFJ13CA	13.0	14.40	15.90	1	5.0	5.0	21.5	18.6	13A	13C
P4SMFJ14	P4SMFJ14C	14.0	15.60	19.10	1	5.0	5.0	25.8	15.5	14V	14D
P4SMFJ14A	P4SMFJ14CA	14.0	15.60	17.20	1	5.0	5.0	23.2	17.2	14A	14C
P4SMFJ15	P4SMFJ15C	15.0	16.70	20.40	1	5.0	5.0	26.9	14.9	15V	15C
P4SMFJ15A	P4SMFJ15CA	15.0	16.70	18.50	1	5.0	5.0	24.4	16.4	15A	15D
P4SMFJ16	P4SMFJ16C	16.0	17.80	21.80	1	5.0	5.0	28.8	13.9	16V	16C
P4SMFJ16A	P4SMFJ16CA	16.0	17.80	19.70	1	5.0	5.0	26.0	15.4	16A	16D
P4SMFJ17	P4SMFJ17C	17.0	18.90	23.10	1	5.0	5.0	30.5	13.1	17V	17C
P4SMFJ17A	P4SMFJ17CA	17.0	18.90	20.90	1	5.0	5.0	27.6	14.5	17A	17D
P4SMFJ18	P4SMFJ18C	18.0	20.00	24.40	1	5.0	5.0	32.2	12.4	18V	18C
P4SMFJ18A	P4SMFJ18CA	18.0	20.00	22.10	1	5.0	5.0	29.2	13.7	18A	18D
P4SMFJ20	P4SMFJ20C	20.0	22.20	27.10	1	5.0	5.0	35.8	11.2	20V	20C
P4SMFJ20A	P4SMFJ20CA	20.0	22.20	24.50	1	5.0	5.0	32.4	12.3	20A	20D
P4SMFJ22	P4SMFJ22C	22.0	24.40	29.80	1	5.0	5.0	39.4	10.2	22V	22C
P4SMFJ22A	P4SMFJ22CA	22.0	24.40	26.90	1	5.0	5.0	35.5	11.3	22A	22D
P4SMFJ24	P4SMFJ24C	24.0	26.70	32.60	1	5.0	5.0	43.0	9.3	24V	24C
P4SMFJ24A	P4SMFJ24CA	24.0	26.70	29.50	1	5.0	5.0	38.9	10.3	24A	24D
P4SMFJ26	P4SMFJ26C	26.0	28.90	35.30	1	5.0	5.0	46.6	8.6	26V	26C
P4SMFJ26A	P4SMFJ26CA	26.0	28.90	31.90	1	5.0	5.0	42.1	9.5	26A	26D
P4SMFJ28	P4SMFJ28C	28.0	31.10	38.00	1	5.0	5.0	50.0	8.0	28V	28C
P4SMFJ28A	P4SMFJ28CA	28.0	31.10	34.40	1	5.0	5.0	45.4	8.8	28A	28D
P4SMFJ30	P4SMFJ30C	30.0	33.30	40.70	1	5.0	5.0	53.5	7.5	30V	30C
P4SMFJ30A	P4SMFJ30CA	30.0	33.30	36.80	1	5.0	5.0	48.4	8.3	30A	30D
P4SMFJ33	P4SMFJ33C	33.0	36.70	44.90	1	5.0	5.0	59.0	6.8	33V	33C

P4SMFJ Series

Part Number		Reverse Stand-off Voltage	BreakdownVoltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current	Package	
			VBR@ＩT		ＩT	ＩR@ VRWM		Vc@Ipp	Ipp	SMF	
		VRWM	Min.	Max.		UNI	BI			Device Marking Code	
UNI	BI	V	V	V	m A	μA	μA	V	A	UNI	BI
400W Transient Voltage Suppresor											
P4SMFJ33A	P4SMFJ33CA	33.0	36.70	40.60	1	5.0	5.0	53.3	7.5	33A	33D
P4SMFJ36	P4SMFJ36C	36.0	40.00	48.90	1	5.0	5.0	64.3	6.2	36V	36C
P4SMFJ36A	P4SMFJ36CA	36.0	40.00	44.20	1	5.0	5.0	58.1	6.9	36A	36D
P4SMFJ40	P4SMFJ40C	40.0	44.40	54.30	1	5.0	5.0	71.4	5.6	40V	40C
P4SMFJ40A	P4SMFJ40A	40.0	44.40	49.10	1	5.0	5.0	64.5	6.2	40A	40D
P4SMFJ43	P4SMFJ43C	43.0	47.80	58.40	1	5.0	5.0	76.7	5.2	43V	43C
P4SMFJ43A	P4SMFJ43CA	43.0	47.80	52.80	1	5.0	5.0	69.4	5.8	43A	43D
P4SMFJ45	P4SMFJ45C	45.0	50.00	61.10	1	5.0	5.0	80.3	5.0	45V	45C
P4SMFJ45A	P4SMFJ45CA	45.0	50.00	55.30	1	5.0	5.0	72.7	5.5	45A	45D
P4SMFJ48	P4SMFJ48C	48.0	53.30	65.10	1	5.0	5.0	85.5	4.7	48V	48C
P4SMFJ48A	P4SMFJ48CA	48.0	53.30	58.90	1	5.0	5.0	77.4	5.2	48A	48D
P4SMFJ51	P4SMFJ51C	51.0	56.70	69.30	1	5.0	5.0	91.1	4.4	51V	51C
P4SMFJ51A	P4SMFJ51CA	51.0	56.70	62.70	1	5.0	5.0	82.4	4.9	51A	51D
P4SMFJ54	P4SMFJ54C	54.0	60.00	73.30	1	5.0	5.0	96.3	4.2	54V	54C
P4SMFJ54A	P4SMFJ54CA	54.0	60.00	66.30	1	5.0	5.0	87.1	4.6	54A	54D
P4SMFJ58	P4SMFJ58C	58.0	64.40	78.70	1	5.0	5.0	103.0	3.9	58V	58C
P4SMFJ58A	P4SMFJ58CA	58.0	64.40	71.20	1	5.0	5.0	93.6	4.3	58A	58D
P4SMFJ60	P4SMFJ60C	60.0	66.70	81.50	1	5.0	5.0	107.0	3.7	60V	60C
P4SMFJ60A	P4SMFJ60CA	60.0	66.70	73.70	1	5.0	5.0	96.8	4.1	60A	60D
P4SMFJ64	P4SMFJ64C	64.0	71.10	86.90	1	5.0	5.0	114.0	3.5	64V	64C
P4SMFJ64A	P4SMFJ64CA	64.0	71.10	78.60	1	5.0	5.0	1030	3.9	64A	64D
P4SMFJ70	P4SMFJ70C	70.0	77.80	95.10	1	5.0	5.0	125.0	3.2	70V	70C
P4SMFJ70A	P4SMFJ70CA	70.0	77.80	86.00	1	5.0	5.0	1130	3.5	70A	70D
P4SMFJ75	P4SMFJ75C	75.0	83.30	102.00	1	5.0	5.0	134.0	3.0	75V	75C
P4SMFJ75A	P4SMFJ75CA	75.0	83.30	92.10	1	5.0	5.0	121.0	3.0	75A	75D
P4SMFJ78	P4SMFJ78C	78.0	86.70	106.00	1	5.0	5.0	139.0	2.9	78V	78C
P4SMFJ78A	P4SMFJ78CA	78.0	86.70	95.80	1	5.0	5.0	126.0	3.2	78A	78D
P4SMFJ85	P4SMFJ85C	85.0	94.40	115.00	1	5.0	5.0	151.0	2.0	85V	85C
P4SMFJ85A	P4SMFJ85CA	85.0	94.40	104.00	1	5.0	5.0	137.0	2.2	85A	85D
P4SMFJ90	P4SMFJ90C	90.0	100.00	122.00	1	5.0	5.0	1600	1.9	90V	90C
P4SMFJ90A	P4SMFJ90CA	90.0	100.00	111.00	1	5.0	5.0	146.0	2.1	90A	90D
P4SMFJ100	P4SMFJ100C	100.0	111.00	136.00	1	5.0	5.0	179.0	1.7	100V	100C
P4SMFJ100A	P4SMFJ100CA	100.0	111.00	123.00	1	5.0	5.0	162.0	1.9	100A	100D
P4SMFJ110	P4SMFJ110C	110.0	122.00	149.00	1	5.0	5.0	196.0	1.5	110V	110C
P4SMFJ110A	P4SMFJ110CA	110.0	122.00	135.00	1	5.0	5.0	177.0	1.7	110A	110D
P4SMFJ120	P4SMFJ120C	120.0	133.00	163.00	1	5.0	5.0	214.0	1.4	120V	120C
P4SMFJ120A	P4SMFJ120CA	120.0	133.00	147.00	1	5.0	5.0	193.0	1.6	120A	120D
P4SMFJ130	P4SMFJ130C	130.0	144.00	176.00	1	5.0	5.0	231.0	1.3	130V	130C
P4SMFJ130A	P4SMFJ130CA	130.0	144.00	159.00	1	5.0	5.0	209.0	1.4	130A	130D
P4SMFJ150	P4SMFJ150C	150.0	167.00	204.00	1	5.0	5.0	268.0	1.1	150V	150C
P4SMFJ150A	P4SMFJ150CA	150.0	167.00	185.00	1	5.0	5.0	243.0	1.2	150A	150D
P4SMFJ160	P4SMFJ160C	160.0	178.00	218.00	1	5.0	5.0	287.0	1.1	160V	160C
P4SMFJ160A	P4SMFJ160CA	160.0	178.00	197.00	1	5.0	5.0	259.0	1.2	160A	160D
P4SMFJ170	P4SMFJ170C	170.0	189.00	231.00	1	5.0	5.0	304.0	1.1	170V	170C
P4SMFJ170A	P4SMFJ170CA	170.0	189.00	209.00	1	5.0	5.0	275.0	1.1	170A	170D
P4SMFJ188	P4SMFJ188C	188.0	209.00	255.00	1	5.0	5.0	344.0	0.9	188V	188C
P4SMFJ188A	P4SMFJ188CA	188.0	209.00	231.00	1	5.0	5.0	328.0	0.9	188A	188D

DEVICE CHARACTERISTICS

P4SMFJ Series

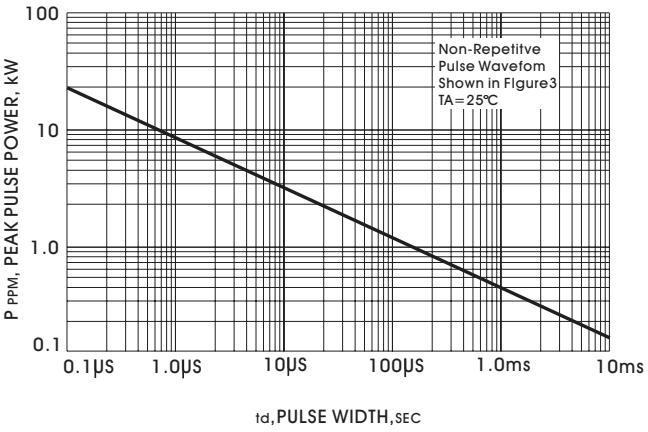


Fig.1 PEAK PULSE POWER RATING CURVE

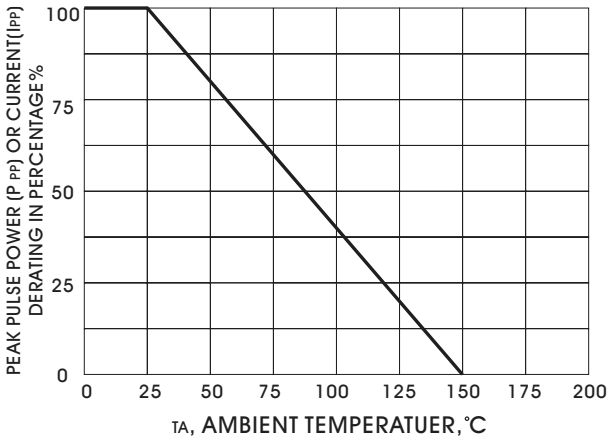


Fig.2 DERATING CURVE

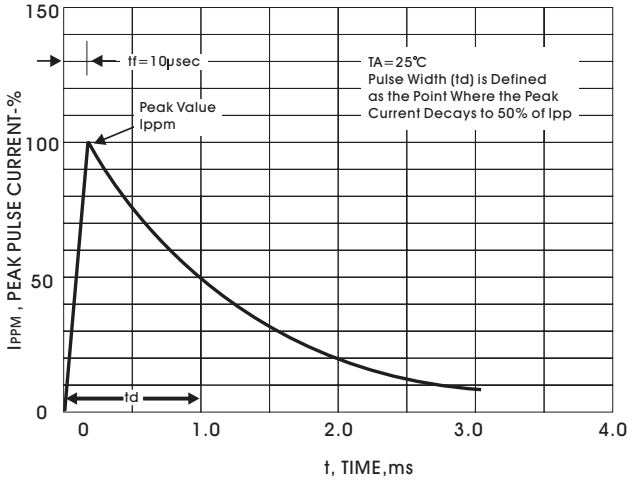


Fig.3 PULSE WAVE FORM

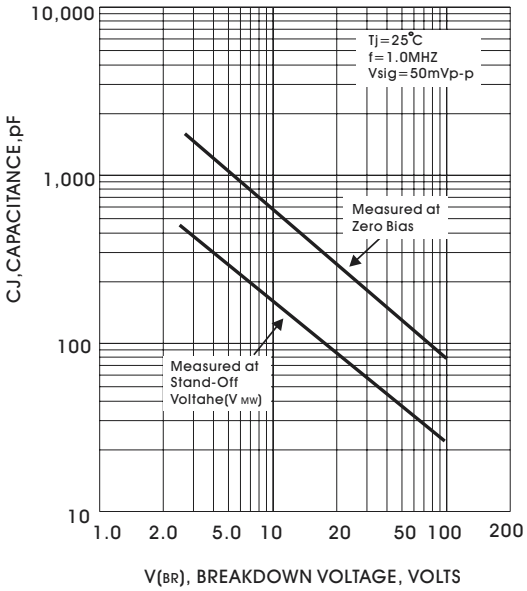


Fig.4 TYPICAL CAPACITANCE

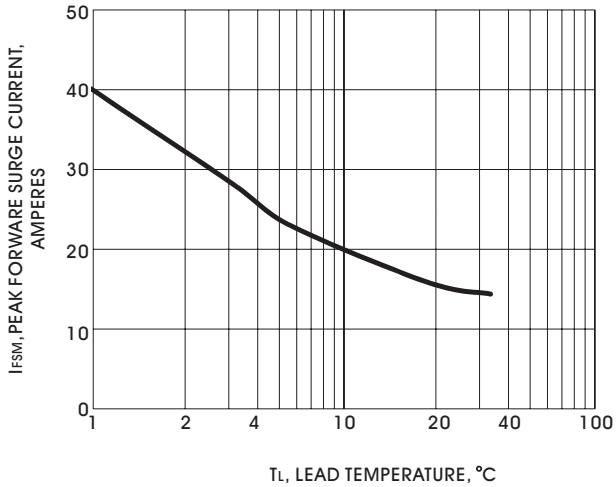


Fig.5 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT