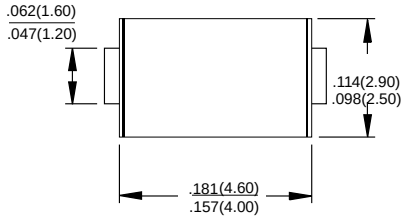
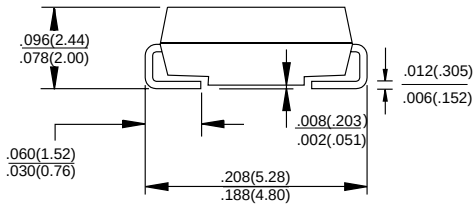
YEA SHIN TECHNOLOGY CO., LTD

P4SMAJ Series

Surface Mount Transient Voltage Suppressor
400W Peak Power Pulse Voltage 5.0 to 440V

SMA/DO-214AC 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 : 260°C/10 seconds at terminals.
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Pb free product at available : 99% Sn above meet RoHS environment substance directive request

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.

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)	I_{FSM}	40	Amps
Peak Pulse Current on 10/1000us waveform (Note1, Fig.3)	I_{PP}	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. Rating is 300W at 85 to 188V.
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.

DEVICE CHARACTERISTICS

P4SMAJ Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Curren	Peakage	
			V_{BR} @ I_T		I_T	I_R @ V_{RWM}		Vc @ Ipp	Ipp	SMA / DO-214AC	
		V_{RWM}	Min.	Max.		UNI	BI			Device Marking Code	
UNI	BI	V	V	V	mA	uA	uA	V	A	UNI	BI
400W Transient Voltage Suppressor											
P4SMAJ5.0	P4SMAJ5.0C	5.0	6.40	7.82	10	800	1600	9.6	41.7	5.0V	5.0C
P4SMAJ5.0A	P4SMAJ5.0CA	5.0	6.40	7.07	10	800	1600	9.2	43.85	5.0A	5.0D
P4SMAJ6.0	P4SMAJ6.0C	6.0	6.67	8.15	10	800	1600	11.4	35.1	6.0V	6.0C
P4SMAJ6.0A	P4SMAJ6.0CA	6.0	6.67	7.37	10	800	1600	10.3	38.8	6.0A	6.0D
P4SMAJ6.5	P4SMAJ6.5C	6.5	7.22	8.82	10	500	1000	12.3	32.5	6.5V	6.5C
P4SMAJ6.5A	P4SMAJ6.5CA	6.5	7.22	7.98	10	500	1000	11.2	35.7	6.5A	6.5D
P4SMAJ7.0	P4SMAJ7.0C	7.0	7.78	9.51	10	200	400	13.3	30.1	7.0V	7.0C
P4SMAJ7.0A	P4SMAJ7.0CA	7.0	7.78	8.60	10	200	400	12.0	33.3	7.0A	7.0D
P4SMAJ7.5	P4SMAJ7.5C	7.5	8.33	10.20	1	100	200	14.3	28.0	7.5V	7.5C
P4SMAJ7.5A	P4SMAJ7.5CA	7.5	8.33	9.21	1	100	200	12.9	31.0	7.5A	7.5D
P4SMAJ8.0	P4SMAJ8.0C	8.0	8.89	10.90	1	50	100	15.0	26.7	8.0V	8.0C
P4SMAJ8.0A	P4SMAJ8.0CA	8.0	8.89	9.83	1	50	100	13.6	29.4	8.0A	8.0D
P4SMAJ8.5	P4SMAJ8.5C	8.5	9.44	11.50	1	10	20	15.9	25.2	8.5V	8.5C
P4SMAJ8.5A	P4SMAJ8.5CA	8.5	9.44	10.40	1	10	20	14.4	27.8	8.5A	8.5D
P4SMAJ9.0	P4SMAJ9.0C	9.0	10.00	12.20	1	5	10	16.9	23.7	9.0V	9.0C
P4SMAJ9.0A	P4SMAJ9.0CA	9.0	10.00	11.10	1	5	10	15.4	26.0	9.0A	9.0D
P4SMAJ10	P4SMAJ10C	10.0	11.10	13.60	1	5	10	18.8	21.3	10V	10C
P4SMAJ10A	P4SMAJ10CA	10.0	11.10	12.30	1	5	10	17.0	23.5	10A	10D
P4SMAJ11	P4SMAJ11C	11.0	12.20	14.90	1	5	5	20.1	19.9	11V	11C
P4SMAJ11A	P4SMAJ11CA	11.0	12.20	13.50	1	5	5	18.2	22.0	11A	11D
P4SMAJ12	P4SMAJ12C	12.0	13.30	16.30	1	5	5	22.0	18.2	12V	12C
P4SMAJ12A	P4SMAJ12CA	12.0	13.30	14.70	1	5	5	19.9	20.1	12A	12D
P4SMAJ13	P4SMAJ13C	13.0	14.40	17.60	1	5	5	23.8	16.8	13V	13C
P4SMAJ13A	P4SMAJ13CA	13.0	14.40	15.90	1	5	5	21.5	18.6	13A	13D
P4SMAJ14	P4SMAJ14C	14.0	15.60	19.10	1	5	5	25.8	15.5	14V	14C
P4SMAJ14A	P4SMAJ14CA	14.0	15.60	17.20	1	5	5	23.2	17.2	14A	14D
P4SMAJ15	P4SMAJ15C	15.0	16.70	20.40	1	5	5	26.9	14.9	15V	15C
P4SMAJ15A	P4SMAJ15CA	15.0	16.70	18.50	1	5	5	24.4	16.4	15A	15D
P4SMAJ16	P4SMAJ16C	16.0	17.80	21.80	1	5	5	28.8	13.9	16V	16C
P4SMAJ16A	P4SMAJ16CA	16.0	17.80	19.70	1	5	5	26.0	15.4	16A	16D
P4SMAJ17	P4SMAJ17C	17.0	18.90	23.10	1	5	5	30.5	13.1	17V	17C
P4SMAJ17A	P4SMAJ17CA	17.0	18.90	20.90	1	5	5	27.6	14.5	17A	17D
P4SMAJ18	P4SMAJ18C	18.0	20.00	24.40	1	5	5	32.2	12.4	18V	18C
P4SMAJ18A	P4SMAJ18CA	18.0	20.00	22.10	1	5	5	29.2	13.7	18A	18D
P4SMAJ20	P4SMAJ20C	20.0	22.20	27.10	1	5	5	35.8	11.2	20V	20C
P4SMAJ20A	P4SMAJ20CA	20.0	22.20	24.50	1	5	5	32.4	12.3	20A	20D
P4SMAJ22	P4SMAJ22C	22.0	24.40	29.80	1	5	5	39.4	10.2	22V	22C
P4SMAJ22A	P4SMAJ22CA	22.0	24.40	26.90	1	5	5	35.5	11.3	22A	22D
P4SMAJ24	P4SMAJ24C	24.0	26.70	32.60	1	5	5	43.0	9.3	24V	24C
P4SMAJ24A	P4SMAJ24CA	24.0	26.70	29.50	1	5	5	38.9	10.3	24A	24D
P4SMAJ26	P4SMAJ26C	26.0	28.90	35.30	1	5	5	46.6	8.6	26V	26C
P4SMAJ26A	P4SMAJ26CA	26.0	28.90	31.90	1	5	5	42.1	9.5	26A	26D
P4SMAJ28	P4SMAJ28C	28.0	31.10	38.00	1	5	5	50.0	8.0	28V	28C
P4SMAJ28A	P4SMAJ28CA	28.0	31.10	34.40	1	5	5	45.4	8.8	28A	28D
P4SMAJ30	P4SMAJ30C	30.0	33.30	40.70	1	5	5	53.5	7.5	30V	30C
P4SMAJ30A	P4SMAJ30CA	30.0	33.30	36.80	1	5	5	48.4	8.3	30A	30D

DEVICE CHARACTERISTICS

P4SMAJ Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Curren	Peakage	
			V_{BR} @ I_T			I_R @ V_{RWM}				SMA / DO-214AC	
		V_{RWM}	Min.	Max.	I_T	UNI	BI	Vc @ Ipp	Ipp	Device Marking Code	
UNI	BI	V	V	V	mA	uA	uA	V	A	UNI	BI
400W Transient Voltage Suppressor											
P4SMAJ33	P4SMAJ33C	33.0	36.70	44.90	1	5	5	59.0	6.8	33V	33C
P4SMAJ33A	P4SMAJ33CA	33.0	36.70	40.60	1	5	5	53.3	7.5	33A	33D
P4SMAJ36	P4SMAJ36C	36.0	40.00	48.90	1	5	5	64.3	6.2	36V	36C
P4SMAJ36A	P4SMAJ36CA	36.0	40.00	44.20	1	5	5	58.1	6.9	36A	36D
P4SMAJ40	P4SMAJ40C	40.0	44.40	54.30	1	5	5	71.4	5.6	40V	40C
P4SMAJ40A	P4SMAJ40CA	40.0	44.40	49.10	1	5	5	64.5	6.2	40A	40D
P4SMAJ43	P4SMAJ43C	43.0	47.80	58.40	1	5	5	76.7	5.2	43V	43C
P4SMAJ43A	P4SMAJ43CA	43.0	47.80	52.80	1	5	5	69.4	5.8	43A	43D
P4SMAJ45	P4SMAJ45C	45.0	50.00	61.10	1	5	5	80.3	5.0	45V	45C
P4SMAJ45A	P4SMAJ45CA	45.0	50.00	55.30	1	5	5	72.7	5.5	45A	45D
P4SMAJ48	P4SMAJ48C	48.0	53.30	65.10	1	5	5	85.5	4.7	48V	48C
P4SMAJ48A	P4SMAJ48CA	48.0	53.30	58.90	1	5	5	77.4	5.2	48A	48D
P4SMAJ51	P4SMAJ51C	51.0	56.70	69.30	1	5	5	91.1	4.4	51V	51C
P4SMAJ51A	P4SMAJ51CA	51.0	56.70	62.70	1	5	5	82.4	4.9	51A	51D
P4SMAJ54	P4SMAJ54C	54.0	60.00	73.30	1	5	5	96.3	4.2	54V	54C
P4SMAJ54A	P4SMAJ54CA	54.0	60.00	66.30	1	5	5	87.1	4.6	54A	54D
P4SMAJ58	P4SMAJ58C	58.0	64.40	78.70	1	5	5	103.0	3.9	58V	58C
P4SMAJ58A	P4SMAJ58CA	58.0	64.40	71.20	1	5	5	93.6	4.3	58A	58D
P4SMAJ60	P4SMAJ60C	60.0	66.70	81.50	1	5	5	107.0	3.7	60V	60C
P4SMAJ60A	P4SMAJ60CA	60.0	66.70	73.70	1	5	5	96.8	4.1	60A	60D
P4SMAJ64	P4SMAJ64C	64.0	71.10	86.90	1	5	5	114.0	3.5	64V	64C
P4SMAJ64A	P4SMAJ64CA	64.0	71.10	78.60	1	5	5	103.0	3.9	64A	64D
P4SMAJ70	P4SMAJ70C	70.0	77.80	95.10	1	5	5	125.0	3.2	70V	70C
P4SMAJ70A	P4SMAJ70CA	70.0	77.80	86.00	1	5	5	113.0	3.5	70A	70D
P4SMAJ75	P4SMAJ75C	75.0	83.30	102.00	1	5	5	134.0	3.0	75V	75C
P4SMAJ75A	P4SMAJ75CA	75.0	83.30	92.10	1	5	5	121.0	3.0	75A	75D
P4SMAJ78	P4SMAJ78C	78.0	86.70	106.00	1	5	5	139.0	2.9	78V	78C
P4SMAJ78A	P4SMAJ78CA	78.0	86.70	95.80	1	5	5	126.0	3.2	78A	78D
P4SMAJ85	P4SMAJ85C	85.0	94.40	115.00	1	5	5	151.0	2.0	85V	85C
P4SMAJ85A	P4SMAJ85CA	85.0	94.40	104.00	1	5	5	137.0	2.2	85A	85D
P4SMAJ90	P4SMAJ90C	90.0	100.00	122.00	1	5	5	160.0	1.9	90V	90C
P4SMAJ90A	P4SMAJ90CA	90.0	100.00	111.00	1	5	5	146.0	2.1	90A	90D
P4SMAJ100	P4SMAJ100C	100.0	111.00	136.00	1	5	5	179.0	1.7	100V	100C
P4SMAJ100A	P4SMAJ100CA	100.0	111.00	123.00	1	5	5	162.0	1.9	100A	100D
P4SMAJ110	P4SMAJ110C	110.0	122.00	149.00	1	5	5	196.0	1.5	110V	110C
P4SMAJ110A	P4SMAJ110CA	110.0	122.00	135.00	1	5	5	177.0	1.7	110A	110D
P4SMAJ120	P4SMAJ120C	120.0	133.00	163.00	1	5	5	214.0	1.4	120V	120C
P4SMAJ120A	P4SMAJ120CA	120.0	133.00	147.00	1	5	5	193.0	1.6	120A	120D
P4SMAJ130	P4SMAJ130C	130.0	144.00	176.00	1	5	5	231.0	1.3	130V	130C
P4SMAJ130A	P4SMAJ130CA	130.0	144.00	159.00	1	5	5	209.0	1.4	130A	130D
P4SMAJ150	P4SMAJ150C	150.0	167.00	204.00	1	5	5	268.0	1.1	150V	150C
P4SMAJ150A	P4SMAJ150CA	150.0	167.00	185.00	1	5	5	243.0	1.2	150A	150D
P4SMAJ160	P4SMAJ160C	160.0	178.00	218.00	1	5	5	287.0	1.1	160V	160C
P4SMAJ160A	P4SMAJ160CA	160.0	178.00	197.00	1	5	5	259.0	1.2	160A	160D
P4SMAJ170	P4SMAJ170C	170.0	189.00	231.00	1	5	5	304.0	1.1	170V	170C
P4SMAJ170A	P4SMAJ170CA	170.0	189.00	209.00	1	5	5	275.0	1.1	170A	170D
P4SMAJ188	P4SMAJ188C	188.0	209.00	255.00	1	5	5	344.0	0.9	188V	188C
P4SMAJ188A	P4SMAJ188CA	188.0	209.00	231.00	1	5	5	328.0	0.9	188A	188D

DEVICE CHARACTERISTICS

P4SMAJ Series

Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Curren	Peakage	
			V_{BR} @ I_T		I_T	I_R @ V_{RWM}		Vc @ Ipp	Ipp	SMA / DO-214AC	
		V_{RWM}	Min.	Max.		UNI	BI			Device Marking Code	
UNI	BI	V	V	V	mA	uA	uA	V	A	UNI	BI
400W Transient Voltage Suppressor											
P4SMAJ200A	P4SMAJ200CA	200.0	224.00	247.00	1	5	5	324.0	1.2	200A	200D
P4SMAJ220A	P4SMAJ220CA	220.0	246.00	272.00	1	5	5	356.0	1.1	220A	220D
P4SMAJ250A	P4SMAJ250CA	250.0	279.00	309.00	1	5	5	405.0	1.0	250A	250D
P4SMAJ300A	P4SMAJ300CA	300.0	335.00	371.00	1	5	5	486.0	0.8	300A	300D
P4SMAJ350A	P4SMAJ350CA	350.0	391.00	432.00	1	5	5	567.0	0.7	350A	350D
P4SMAJ400A	P4SMAJ400CA	400.0	447.00	494.00	1	5	5	648.0	0.6	400A	400D
P4SMAJ440A	P4SMAJ440CA	440.0	492.00	543.00	1	5	5	713.0	0.6	440A	440D

Note:

1. For parts 'without A' denotes 10% tolerance device.
2. Suffix 'A' denotes 5% tolerance device.
3. Add suffix 'C' after part number to specify Bi-directional devices.
4. For Bi-Directional device VR of 10Volts and under, the IR limit is double.

DEVICE CHARACTERISTICS

P4SMAJ Series

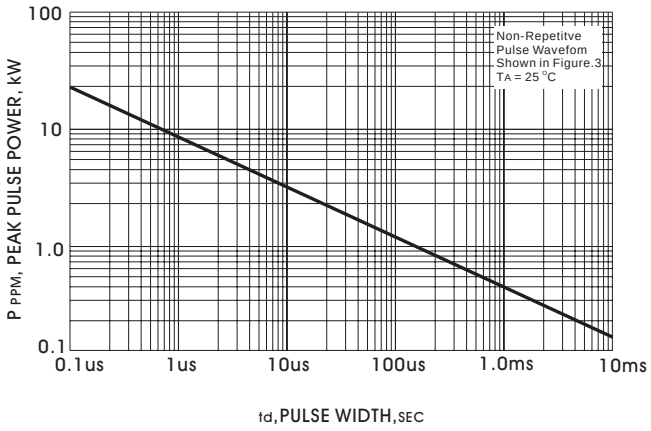


Fig.1 PEAK PULSE POWER RATING CURVE

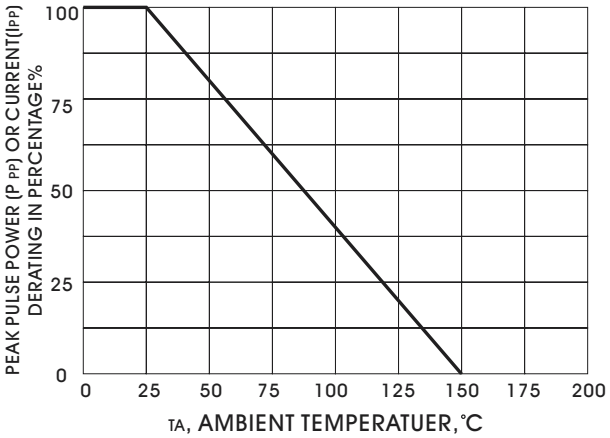


Fig.2 DERATING CURVE

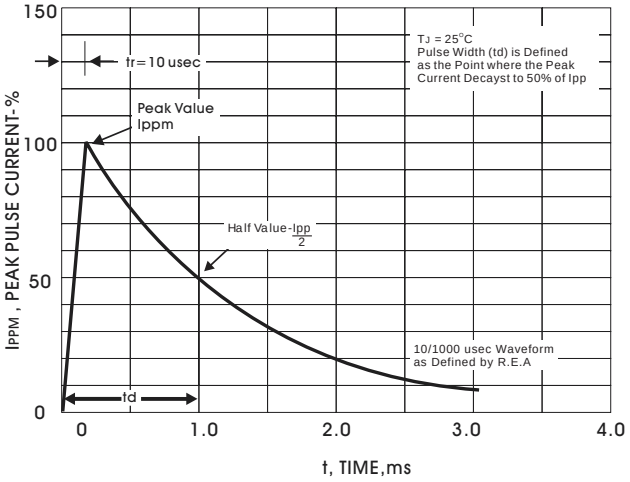


Fig.3 PULSE WAVE FORM

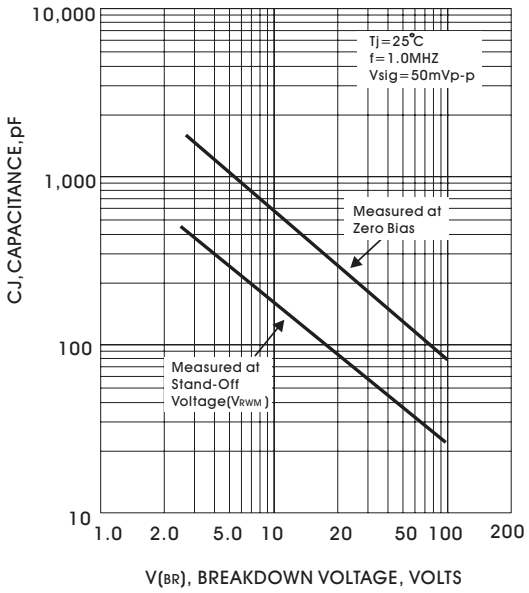


Fig.4 TYPICAL CAPACITANCE

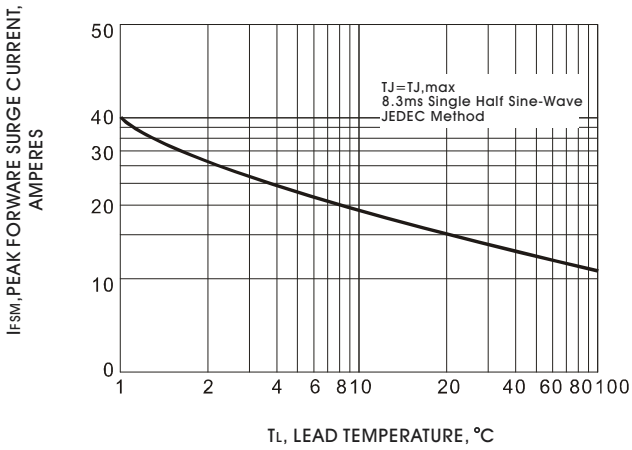


Fig.5 MAXIMUM NON-REPETITIVE PEAK
FORWARD SURGE CURRENT