



INTERNATIONAL SEMICONDUCTOR, INC.

TRANSIENT VOLTAGE SUPPRESSORS

500 Watts
P5KE5.5
thru
P5KE170A

SA5.0
thru
SA170A

5.0 to 170 VOLTS

500 WATT PEAK POWER 1.0 WATT STEADY STATE

This series is a low cost commercial product for use in applications where space is a premium and where large voltage transients can damage sensitive components.

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25 °C ambient unless otherwise specified

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_P=1\text{ms}$ (Note 1)	P_{PK}	500	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Lengths .375", (9.5 mm) (Note 2)	P_D	1.0	Watts
Clamping Time 0 Volts to V_{BR}	$t_{clamping}$	$< 1 \times 10^{-12}$	Sec
Forward Surge Rating, 1/120 seconds	I_{FS}	70	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-40 to +150	$^\circ\text{C}$

FEATURES

- Available in ranges from 5.0 to 170 Volts
- Small Package Size
- Low Clamping Ratio
- Available in bipolar for AC applications (see Notes 3 and 4)

NOTES TO CHARACTERISTICS AND SPECIFICATIONS:

- V_{BR} measured after I_T applied for 300 us. I_T = Square Wave Pulse or equivalent.
- Surge current Waveform per Fig.3 and derated per Fig. 4.
- For bipolar use C or CA suffix. For types SA6.5 thru SA170A electrical characteristics apply in both directions.
- For bipolar types 10 volts and under, the I_{FS} limit is doubled.

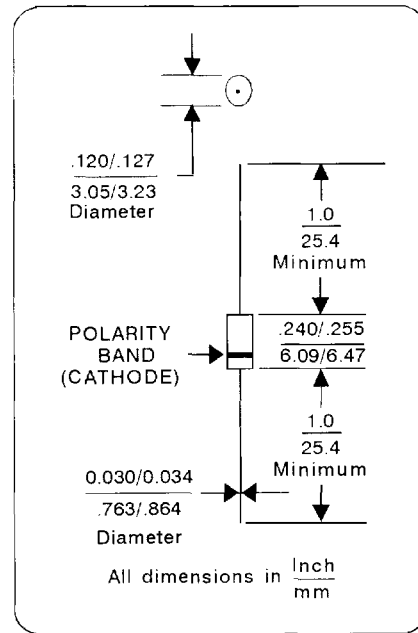


Figure 1

MECHANICAL DATA

Case: Molded plastic over passivated Junction

Terminals: Axial leads, solderable per MIL-STD-202, Method 208

Polarity: Color band denotes cathode (Except Bipolar)

Mounting Position: Any

Weight: 0.015 ounce (0.4 grams)

Figure 2: PEAK PULSE POWER vs PULSE TIME

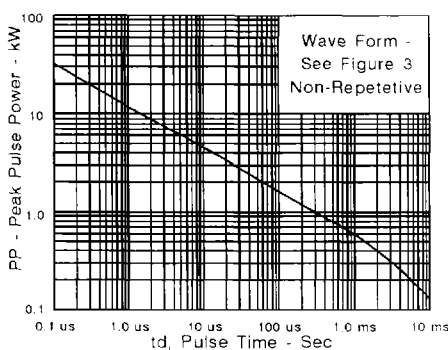


FIGURE 3 - PULSE WAVEFORM

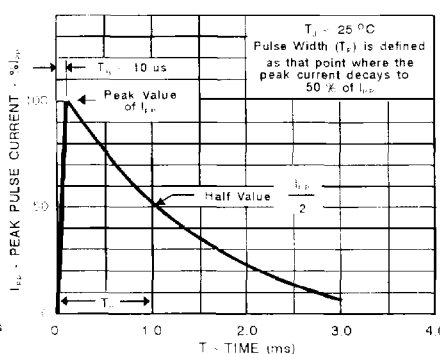
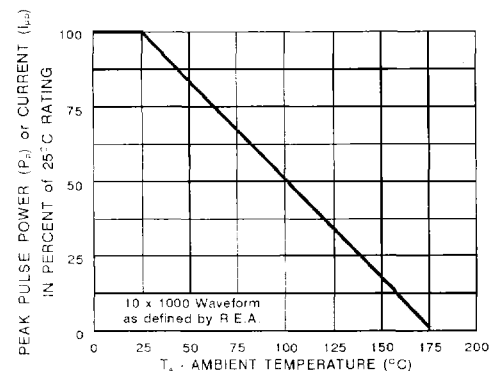


FIGURE 4 - PULSE DERATING CURVE



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P5KE and SA5.0 Series ELECTRICAL CHARACTERISTICS at 25°C

ISI PART NUMBER		REVERSE STAND-OFF VOLTAGE (Note 1) V _R Volts	BREAKDOWN VOLTAGE			MAXIMUM CLAMPING VOLTAGE @ IPP (1 msec) V _C Volts	MAXIMUM PEAK PULSE CURRENT (Fig. 2) I _{PP} Amps	MAXIMUM REVERSE LEAKAGE @ V _R I _R uA	MAXIMUM VOLTAGE TEMPERATURE VARIATION OF V _{BR} mV/°C
			Min V _{BR} Volts	Max V _{BR} Volts	@ I _R mA				
P5KE5.0	SA5.0	5.0	6.40	7.30	10	9.6	52.0	600	5.0
P5KE5.0A	SA5.0A	5.0	6.40	7.00	10	9.2	54.3	600	5.0
P5KE6.0	SA6.0	6.0	6.67	8.15	10	11.4	43.9	600	5.0
P5KE6.0A	SA6.0A	6.0	6.67	7.37	10	10.3	48.5	600	5.0
P5KE6.5	SA6.5	6.5	7.22	8.82	10	12.3	40.7	400	5.0
P5KE6.5A	SA6.5A	6.5	7.22	7.98	10	11.2	44.7	400	5.0
P5KE7.0	SA7.0	7.0	7.78	9.51	10	13.3	37.8	150	5.0
P5KE7.0A	SA7.0A	7.0	7.78	8.60	10	12.0	41.7	150	5.0
P5KE7.5	SA7.5	7.5	8.33	10.20	1	14.3	35.0	50	7.0
P5KE7.5A	SA7.5A	7.5	8.33	9.21	1	12.9	38.8	50	7.0
P5KE8.0	SA8.0	8.0	8.89	10.90	1	15.0	33.3	25	7.0
P5KE8.0A	SA8.0A	8.0	8.89	9.83	1	13.6	36.7	25	7.0
P5KE8.5	SA8.5	8.5	9.44	11.5	1	15.9	31.4	5	8.0
P5KE8.5a	SA8.5a	8.5	9.44	10.4	1	14.4	34.7	5	8.0
P5KE9.0	SA9.0	9.0	10.0	12.2	1	16.9	29.5	1	9.0
P5KE9.0A	SA9.0A	9.0	10.0	11.1	1	15.4	32.5	1	9.0
P5KE10	SA10	10	11.1	13.6	1	18.8	26.6	1	10
P5KE10A	SA10A	10	11.1	12.3	1	17.0	29.4	1	10
P5KE11	SA11	11	12.2	14.9	1	20.1	24.9	1	11
P5KE11A	SA11A	11	12.2	13.5	1	18.2	27.4	1	11
P5KE12	SA12	12	13.3	16.3	1	22.0	22.7	1	12
P5KE12A	SA12A	12	13.3	14.7	1	19.9	25.1	1	12
P5KE13	SA13	13	14.4	17.6	1	23.8	21.0	1	13
P5KE13A	SA13A	13	14.4	15.9	1	21.5	23.2	1	13
P5KE14	SA14	14	15.6	19.1	1	25.8	19.4	1	14
P5KE14A	SA14A	14	15.6	17.2	1	23.2	21.5	1	14
P5KE15	SA15	15	16.7	20.4	1	26.9	18.8	1	16
P5KE15A	SA15A	15	16.7	18.5	1	24.4	20.6	1	16
P5KE16	SA16	16	17.8	21.8	1	28.8	17.6	1	19
P5KE16A	SA16A	16	17.8	19.7	1	26.0	19.2	1	17
P5KE17	SA17	17	18.9	23.1	1	30.5	16.4	1	20
P5KE17A	SA17A	17	18.9	20.9	1	27.6	18.1	1	19
P5KE18	SA18	18	20.0	24.4	1	32.2	15.5	1	21
P5KE18A	SA18A	18	20.0	22.1	1	29.2	17.2	1	20
P5KE20	SA20	20	22.2	27.1	1	35.8	13.9	1	25
P5KE20A	SA20A	20	22.2	24.5	1	32.4	15.4	1	23
P5KE22	SA22	22	24.4	29.8	1	39.4	12.7	1	28
P5KE22A	SA22A	22	24.4	26.9	1	35.5	14.1	1	25
P5KE24	SA24	24	26.7	32.6	1	43.0	11.6	1	35
P5KE24A	SA24A	24	26.7	29.5	1	38.9	12.8	1	28
P5KE26	SA26	26	28.9	35.3	1	46.6	10.7	1	31
P5KE26A	SA26A	26	28.9	31.9	1	42.1	11.9	1	30
P5KE28	SA28	28	31.1	38.0	1	50.1	9.9	1	35
P5KE28A	SA28A	28	31.1	34.4	1	45.4	11.0	1	31
P5KE30	SA30	30	33.3	40.7	1	53.5	9.3	1	39
P5KE30A	SA30A	30	33.3	36.8	1	48.4	10.3	1	36
P5KE33	SA33	33	36.7	44.9	1	59.0	8.5	1	42
P5KE33A	SA33A	33	36.7	40.6	1	53.3	9.4	1	39
P5KE36	SA36	36	40.0	48.9	1	64.3	7.8	1	46
P5KE36A	SA36A	36	40.0	44.2	1	58.1	8.6	1	41
P5KE40	SA40	40	44.4	54.3	1	71.4	7.0	1	51
P5KE40A	SA40A	40	44.4	49.1	1	64.5	7.8	1	46
P5KE43	SA43	43	47.8	58.4	1	76.7	6.5	1	55
P5KE43A	SA43A	43	47.8	52.8	1	69.4	7.2	1	50
P5KE45	SA45	45	50.0	61.1	1	80.3	6.2	1	58
P5KE45A	SA45A	45	50.0	55.3	1	72.7	6.9	1	52
P5KE48	SA48	48	53.3	65.1	1	85.5	5.8	1	63
P5KE48A	SA48A	48	53.3	58.9	1	77.4	6.5	1	56
P5KE51	SA51	51	56.7	69.3	1	91.1	5.5	1	66
P5KE51A	SA51A	51	56.7	62.7	1	82.4	6.1	1	61
P5KE54	SA54	54	60.0	73.3	1	96.3	5.2	1	71
P5KE54A	SA54A	54	60.0	66.3	1	87.1	5.7	1	65
P5KE58	SA58	58	64.4	78.7	1	103.0	4.9	1	78
P5KE58A	SA58A	58	64.4	71.2	1	93.6	5.3	1	70
P5KE60	SA60	60	66.7	81.5	1	107.0	4.7	1	80
P5KE60A	SA60A	60	66.7	73.7	1	96.8	5.2	1	71
P5KE64	SA64	64	71.1	86.9	1	114.0	4.4	1	86
P5KE64A	SA64A	64	71.1	78.6	1	103.0	4.9	1	76
P5KE70	SA70	70	77.8	95.1	1	125	4.0	1	94
P5KE70A	SA70A	70	77.8	86.0	1	113	4.4	1	85
P5KE75	SA75	75	83.3	102.0	1	134	3.7	1	101
P5KE75A	SA75A	75	83.3	92.1	1	121	4.1	1	91
P5KE78	SA78	78	86.7	106.0	1	139	3.6	1	105
P5KE78A	SA78A	78	86.7	95.8	1	126	4.0	1	95
P5KE85	SA85	85	94.4	115.0	1	151	3.3	1	114
P5KE85A	SA85A	85	94.4	104.0	1	137	3.6	1	103
P5KE90	SA90	90	100	122	1	160	3.1	1	121
P5KE90A	SA90A	90	100	111	1	146	3.4	1	110
P5KE100	SA100	100	111	136	1	179	2.8	1	135
P5KE100A	SA100A	100	111	123	1	162	3.1	1	123
P5KE110	SA110	110	122	149	1	196	2.6	1	148
P5KE110A	SA110A	110	122	135	1	177	2.8	1	133
P5KE120	SA120	120	133	163	1	214	2.3	1	162
P5KE120A	SA120A	120	133	147	1	193	2.0	1	146
P5KE130	SA130	130	144	176	1	231	2.2	1	175
P5KE130A	SA130A	130	144	159	1	209	2.4	1	158
P5KE150	SA150	150	167	204	1	268	1.9	1	203
P5KE150A	SA150A	150	167	185	1	243	2.1	1	184
P5KE160	SA160	160	178	218	1	287	1.7	1	217
P5KE160A	SA160A	160	178	197	1	259	1.9	1	196
P5KE170	SA170	170	189	231	1	304	1.6	1	230
P5KE170A	SA170A	170	189	209	1	275	1.8	1	208