

# ST5KA5.0 thru ST5KA110

PRELIMINARY DATA



SOLID STATE DEVICES, INC

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Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

## Designer's Data Sheet

### FEATURES:

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction
- 5000W Peak Pulse Power capability on 10/1000  $\mu$ s waveform
- Repetition rate (Duty Cycle): .05%
- Low incremental surge resistance
- Fast response time: typically less than 1.0 ps from 0 volts to BV
- Typical ID less than 1 $\mu$ A above 10V
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension

### MECHANICAL DATA:

- **Case:** Molded plastic over glass passivated junction
- **Terminals:** Plated Axial leads, solderable per MIL-STD-750, Method 2026
- **Polarity:** Color band denotes positive end (cathode)
- **Weight:** 0.007 ounce, 2.1 gram

## 5000 WATT 5.0-110 VOLTS TRANSIENT SUPPRESSORS

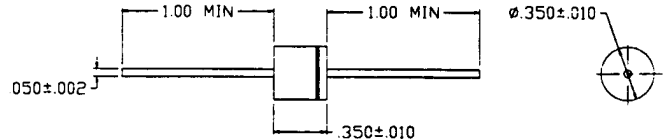


Fig. 2. PEAK PULSE POWER RATING CURVE

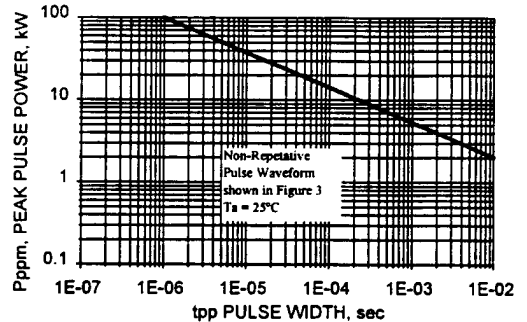


Fig. 3. CURRENT PULSE WAVEFORM

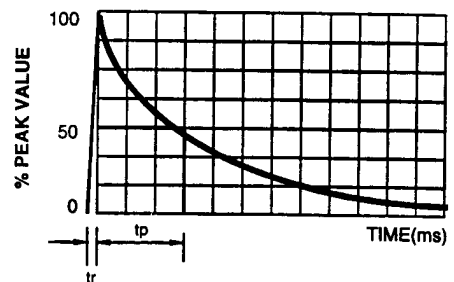
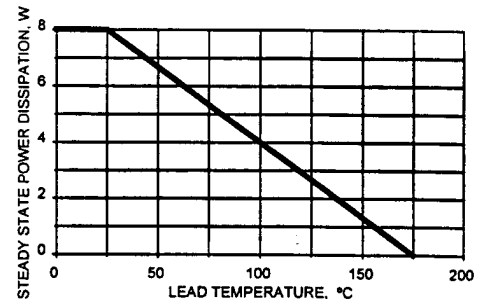


Fig. 4. STEADY STATE POWER DERATING



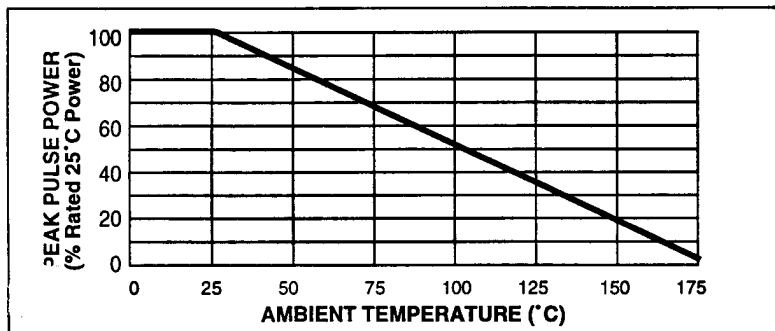
### MAXIMUM RATINGS

CHARACTERISTICS	SYMBOL	VALUE	UNITS
Stand Off Voltage	VRWM	5.0-110	V
Steady State Power Dissipation (NOTE 1)	PD	8	W
Peak Pulse Power @ 1.0 msec	PPP	5000	W
Forward Surge Current	IFSM	400	A
Peak Pulse Power and Steady State Power Derating		See Graph	
Peak Pulse Power and Pulse Width		See Graph	
Operating and Storage Temperature		-55°C to +175°C	

#### NOTE:

- 1) Lead length .375, mounted on copper clad area of 0.8in<sup>2</sup>
- 2) SSDI's Transient Suppressors offer standard Breakdown Voltage Tolerances of +10%(A) and +5%(B). For other Voltages and Voltage Tolerances, contact SSDI's Marketing Department.

Fig. 1. PEAK PULSE POWER VS. TEMPERATURE DERATING CURVE



NOTE: All specifications are subject to change without notification. SSDI's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: T00027 A



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## ELECTRICAL CHARACTERISTICS

PART NUMBER	Breakdown Voltage V(BR) (note 1)		at I <sub>T</sub> (mA)	Reverse Stand off Voltage V <sub>WM</sub> (Volts)	Maximum Reverse Leakage at V <sub>WM</sub> I <sub>D</sub> (μA)	Maximum Peak Pulse Current I <sub>PPM</sub> (note 2) (Amps)	Maximum Clamping Voltage at I <sub>PPM</sub> V <sub>c</sub> (volts)	Maximum Temperature Coefficient of V(BR) (%/°C)
	MIN	MAX						
ST5KA5.0	6.4	7.30	50	5.0	2000	520	9.6	0.057
ST5KB5.0	6.4	7.00	50	5.0	2000	543	9.2	0.057
ST5KA6.0	6.67	8.15	50	6.0	5000	439	11.4	0.061
ST5KB6.0	6.67	7.37	50	6.0	5000	485	10.3	0.061
ST5KA7.0	7.78	9.51	50	7.0	1000	378	13.3	0.068
ST5KB7.0	7.78	8.6	50	7.0	1000	417	12.0	0.068
ST5KA8.0	8.89	10.9	5.0	8.0	150	333	15.0	0.075
ST5KB8.0	8.89	9.83	5.0	8.0	150	367	13.6	0.075
ST5KA9.0	10.0	12.2	5.0	9.0	20.0	295	16.9	0.081
ST5KB9.0	10.0	11.1	5.0	9.0	20.0	325	15.4	0.081
ST5KA10	11.1	13.6	5.0	10.0	15.0	266	18.8	0.084
ST5KB10	11.1	12.3	5.0	10.0	15.0	294	17.0	0.084
ST5KA12	13.3	16.3	5.0	12.0	10.0	227	22.0	0.088
ST5KB12	13.3	14.7	5.0	12.0	10.0	251	19.9	0.088
ST5KA14	15.6	19.1	5.0	14.0	10.0	194	25.8	0.092
ST5KB14	15.6	17.2	5.0	14.0	10.0	215	23.2	0.092
ST5KA16	17.8	21.8	5.0	16.0	10.0	176	28.8	0.096
ST5KB16	17.8	19.7	5.0	16.0	10.0	176	28.8	0.096
ST5KA18	20.0	24.4	5.0	18.0	10.0	155	32.2	0.098
ST5KB18	20.0	22.1	5.0	18.0	10.0	172	29.2	0.098
ST5KA20	22.2	27.1	5.0	20.0	10.0	139	35.8	0.099
ST5KB20	22.2	24.5	5.0	20.0	10.0	154	32.4	0.099
ST5KA22	24.4	29.8	5.0	22.0	10.0	127	39.4	0.100
ST5KB22	24.4	26.9	5.0	22.0	10.0	141	35.5	0.100
ST5KA24	26.7	32.6	5.0	24.0	10.0	116	43.0	0.101
ST5KB24	26.7	29.5	5.0	24.0	10.0	128	38.9	0.101
ST5KA26	28.9	35.3	5.0	26.0	10.0	107	46.6	0.101
ST5KB26	28.9	31.9	5.0	26.0	10.0	119	42.1	0.101
ST5KA28	31.1	38.0	5.0	28.0	10.0	99	50.1	0.102
ST5KB28	31.1	34.4	5.0	28.0	10.0	110	45.4	0.102
ST5KA30	33.3	40.7	5.0	30.0	10.0	93	53.5	0.103
ST5KB30	33.3	36.8	5.0	30.0	10.0	103	48.4	0.103
ST5KA33	36.7	44.9	5.0	33.0	10.0	85	59.0	0.104
ST5KB33	36.7	40.6	5.0	33.0	10.0	94	53.3	0.104
ST5KA36	40.0	48.9	5.0	36.0	10.0	78	64.3	0.104
ST5KB36	40.0	44.2	5.0	36.0	10.0	85	58.1	0.104
ST5KA40	44.4	54.3	5.0	40.0	10.0	70	71.4	0.105
ST5KB40	44.4	49.1	5.0	40.0	10.0	78	64.5	0.105
ST5KA43	47.8	58.4	5.0	43.0	10.0	65	76.7	0.105
ST5KB43	47.8	52.8	5.0	43.0	10.0	72	69.4	0.105
ST5KA45	50.0	61.1	5.0	45.0	10.0	62	80.3	0.106
ST5KB45	50.0	55.3	5.0	45.0	10.0	69	72.7	0.106
ST5KA48	53.3	65.2	5.0	48.0	10.0	58	85.5	0.106
ST5KB48	53.3	58.9	5.0	48.0	10.0	65	77.4	0.106
ST5KA51	56.1	69.3	5.0	51.0	10.0	55	91.1	0.107
ST5KB51	56.7	62.7	5.0	51.0	10.0	61	82.4	0.107
ST5KA54	60.0	73.3	5.0	54.0	10.0	52	96.3	0.107
ST5KB54	60.0	66.3	5.0	54.0	10.0	57	87.1	0.107
ST5KA58	64.4	78.7	5.0	58.0	10.0	49	103	0.107
ST5KB58	64.4	71.2	5.0	58.0	10.0	53	94	0.107
ST5KA60	66.7	81.5	5.0	60.0	10.0	47	107	0.108
ST5KB60	66.7	73.7	5.0	60.0	10.0	52	97	0.108
ST5KA64	71.1	96.9	5.0	64.0	10.0	44	114	0.108
ST5KB64	71.1	78.6	5.0	64.0	10.0	49	103	0.108
ST5KA70	77.6	95.1	5.0	70.0	10.0	40	125	0.108
ST5KB70	77.8	86.0	5.0	70.0	10.0	44	113	0.108
ST5KA75	83.3	102	5.0	75.0	10.0	37	134	0.108
ST5KB75	83.3	92.1	5.0	75.0	10.0	41	121	0.108
ST5KA78	86.7	106.0	5.0	78.0	10.0	36	126	0.108
ST5KB78	86.7	95.8	5.0	78.0	10.0	40	126	0.108
ST5KA85	94.9	115	5.0	85.0	10.0	33	151	0.108
ST5KB85	94.4	104	5.0	85.0	10.0	36	137	0.110
ST5KA90	100	122	5.0	90.0	10.0	31	160	0.110
ST5KB90	100	111	5.0	90.0	10.0	34	146	0.110
ST5KA100	111	136	5.0	100	10.0	28	179	0.110
ST5KB100	111	123	5.0	100	10.0	31	162	0.110
ST5KA110	122	149	5.0	110	10.0	26	196	0.112
ST5KB110	122	135	5.0	110	10.0	28	177	0.112

## NOTES:

- 1) V(BR) measured after I<sub>T</sub> applied for 300 ms. I<sub>T</sub> = Square Wave Pulse or equivalent.
- 2) Surge Current waveform per Figure 3 and Derate per Figure 1.