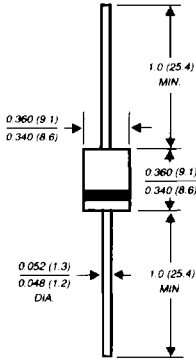


5KP5.0 THRU 5KP110A

GLASS PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPRESSOR

Stand-off Voltage - 5.0 to 110 Volts Peak Pulse Power - 5000 Watts

Case Style P600

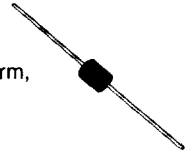


Dimensions in inches and (millimeters)

Available in unidirectional only

FEATURES

- ◆ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Glass passivated junction
- ◆ 5000W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.05%
- ◆ Excellent clamping capability
- ◆ Low incremental surge resistance
- ◆ Fast response time: typically less than 1.0ps from 0 Volts to $V_{(BR)}$
- ◆ Devices with $V_{(BR)} > 10V$ I_D are typically I_D less than 1.0 μ A
- ◆ High temperature soldering guaranteed: 265°C/10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3 kg) tension



MECHANICAL DATA

Case: Molded plastic body over glass passivated junction
Terminals: Solder plated axial leads, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes positive end (cathode)
Mounting Position: Any
Weight: 0.07 ounce, 2.1 grams

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

	SYMBOL	VALUE	UNITS
Peak pulse power dissipation with a 10/1000 μ s waveform (NOTE 1, FIG. 1)	PPPM	Minimum 5000	Watts
Peak pulse current with a 10/1000 μ s waveform (NOTE 1, FIG. 3)	IPPM	SEE TABLE 1	Amps
Steady state power dissipation at $T_L = 75^\circ\text{C}$ lead lengths 0.375" (9.5mm) (NOTE 2)	PM(AV)	8.0	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (NOTE 3)	IFSM	400	Amps
Instantaneous forward voltage at 100A, (NOTE 3)	V _F	3.5	Volts
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175	°C

NOTES:

- (1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^\circ\text{C}$ per Fig. 2
- (2) Mounted on copper pad area of 0.8 x 0.8" (20 x 20mm) per Fig. 5
- (3) Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum

ELECTRICAL CHARACTERISTICS at (T_A=25°C unless otherwise noted)

Device Type	Breakdown Voltage V _(BR) (Volts) (NOTE 1)		Test Current at I _r (mA)	Stand-off Voltage V _{WM} (Volts)	Maximum Reverse Leakage at V _{WM} I _o (µA)	Maximum Peak Pulse Current I _{PPM} (NOTE 2) (Amps)	Maximum Clamping Voltage at I _{PPM} V _c (Volts)	Maximum Temperature Coefficient of V _(BR) (% / °C)
	MIN	MAX						
5KP5.0	6.40	7.30	50	5.0	2000	546	9.6	0.057
5KP5.0A	6.40	7.00	50	5.0	2000	570	9.2	0.057
5KP6.0	6.67	8.15	50	6.0	5000	460	11.4	0.061
5KP6.0A	6.67	7.37	50	6.0	5000	509	10.3	0.061
5KP6.5	7.22	8.82	50	6.5	2000	426	12.3	0.065
5KP6.5A	7.22	7.98	50	6.5	2000	468	11.2	0.065
5KP7.0	7.78	9.51	50	7.0	1000	394	13.3	0.068
5KP7.0A	7.78	8.60	50	7.0	1000	437	12.0	0.068
5KP7.5	8.33	10.2	5.0	7.5	250	367	14.3	0.073
5KP7.5A	8.33	9.21	5.0	7.5	250	406	12.9	0.073
5KP8.0	8.89	10.9	5.0	8.0	150	350	15.0	0.075
5KP8.0A	8.89	9.83	5.0	8.0	150	386	13.6	0.075
5KP8.5	9.44	11.5	5.0	8.5	50.0	330	15.9	0.078
5KP8.5A	9.44	10.4	5.0	8.5	50.0	364	14.4	0.078
5KP9.0	10.0	12.2	5.0	9.0	20.0	310	16.9	0.081
5KP9.0A	10.0	11.1	5.0	9.0	20.0	340	15.4	0.081
5KP10	11.1	13.6	5.0	10.0	15.0	279	18.8	0.084
5KP10A	11.1	12.3	5.0	10.0	15.0	308	17.0	0.084
5KP11	12.2	14.9	5.0	11.0	10.0	261	20.1	0.086
5KP11A	12.2	13.5	5.0	11.0	10.0	288	18.2	0.086
5KP12	13.3	16.3	5.0	12.0	10.0	238	22.0	0.088
5KP12A	13.3	14.7	5.0	12.0	10.0	263	19.9	0.088
5KP13	14.4	17.6	5.0	13.0	10.0	220	23.8	0.090
5KP13A	14.4	15.9	5.0	13.0	10.0	244	21.5	0.090
5KP14	15.6	19.1	5.0	14.0	10.0	203	25.8	0.092
5KP14A	15.6	17.2	5.0	14.0	10.0	226	23.2	0.092
5KP15	16.7	20.4	5.0	15.0	10.0	195	26.9	0.094
5KP15A	16.7	18.5	5.0	15.0	10.0	215	24.4	0.094
5KP16	17.8	21.8	5.0	16.0	10.0	182	28.8	0.096
5KP16A	17.8	19.7	5.0	16.0	10.0	201	26.0	0.096
5KP17	18.9	23.1	5.0	17.0	10.0	172	30.5	0.097
5KP17A	18.9	20.9	5.0	17.0	10.0	190	27.6	0.097
5KP18	20.0	24.4	5.0	18.0	10.0	163	32.2	0.098
5KP18A	20.0	22.1	5.0	18.0	10.0	179	29.2	0.098
5KP20	22.2	27.1	5.0	20.0	10.0	146	35.8	0.099
5KP20A	22.2	24.5	5.0	20.0	10.0	162	32.4	0.099
5KP22	24.4	29.8	5.0	22.0	10.0	133	39.4	0.100
5KP22A	24.4	26.9	5.0	22.0	10.0	147	35.5	0.100
5KP24	26.7	32.6	5.0	24.0	10.0	122	43.0	0.101
5KP24A	26.7	29.5	5.0	24.0	10.0	134	38.9	0.101
5KP26	28.9	35.3	5.0	26.0	10.0	112	46.6	0.101
5KP26A	28.9	31.9	5.0	26.0	10.0	124	42.1	0.101
5KP28	31.1	38.0	5.0	28.0	10.0	104	50.1	0.102
5KP28A	31.1	34.4	5.0	28.0	10.0	115	45.4	0.102
5KP30	33.3	40.7	5.0	30.0	10.0	98.0	53.5	0.103
5KP30A	33.3	36.8	5.0	30.0	10.0	108	48.4	0.103
5KP33	36.7	44.9	5.0	33.0	10.0	88	59.0	0.104

ELECTRICAL CHARACTERISTICS at (T_A=25°C unless otherwise noted)

Device Type	Breakdown Voltage V _(BR) (Volts) (NOTE 1)		Test Current at I _T (mA)	Stand-off Voltage V _{WM} (Volts)	Maximum Reverse Leakage at V _{WM} I _D (µA)	Maximum Peak Pulse Current I _{PPM} (NOTE 2) (Amps)	Maximum Clamping Voltage at I _{PPM} V _C (Volts)	Maximum Temperature Coefficient of V _(BR) (% / °C)
	MIN	MAX						
5KP33A	36.7	40.6	5.0	33.0	10.0	98.0	53.3	0.104
5KP36	40.0	48.9	5.0	36.0	10.0	81.0	64.3	0.104
5KP36A	40.0	44.2	5.0	36.0	10.0	90.0	58.1	0.104
5KP40	44.4	54.3	5.0	40.0	10.0	73.0	71.4	0.105
5KP40A	44.4	49.1	5.0	40.0	10.0	81.0	64.5	0.105
5KP43	47.8	58.4	5.0	43.0	10.0	68.0	76.7	0.105
5KP43A	47.8	52.8	5.0	43.0	10.0	75.0	69.4	0.105
5KP45	50.0	61.1	5.0	45.0	10.0	65.0	80.3	0.106
5KP45A	50.0	55.3	5.0	45.0	10.0	72.0	72.7	0.106
5KP48	53.3	65.2	5.0	48.0	10.0	61.0	85.5	0.106
5KP48A	53.3	58.9	5.0	48.0	10.0	67.0	77.4	0.106
5KP51	56.1	69.3	5.0	51.0	10.0	57.0	91.1	0.107
5KP51A	56.7	62.7	5.0	51.0	10.0	63.0	82.4	0.107
5KP54	60.0	73.3	5.0	54.0	10.0	54.0	96.3	0.107
5KP54A	60.0	66.3	5.0	54.0	10.0	60.0	87.1	0.107
5KP58	64.4	78.7	5.0	58.0	10.0	50.0	103	0.107
5KP58A	64.4	71.2	5.0	58.0	10.0	55.0	94	0.107
5KP60	66.7	81.5	5.0	60.0	10.0	49.0	107	0.108
5KP60A	66.7	73.7	5.0	60.0	10.0	54.0	97	0.108
5KP64	71.1	96.9	5.0	64.0	10.0	46.0	114	0.108
5KP64A	71.1	78.6	5.0	64.0	10.0	50.0	103	0.108
5KP70	77.6	95.1	5.0	70.0	10.0	42.0	125	0.108
5KP70A	77.8	86.0	5.0	70.0	10.0	46.0	113	0.108
5KP75	83.3	102	5.0	75.0	10.0	39.0	134	0.108
5KP75A	83.3	92.1	5.0	75.0	10.0	43.0	121	0.108
5KP78	86.7	106.0	5.0	78.0	10.0	37.0	139	0.108
5KP78A	86.7	95.8	5.0	78.0	10.0	41.0	126	0.108
5KP85	94.4	115	5.0	85.0	10.0	34.0	151	0.108
5KP85A	94.4	104	5.0	85.0	10.0	38.0	137	0.110
5KP90	100	122	5.0	90.0	10.0	32.0	160	0.110
5KP90A	100	111	5.0	90.0	10.0	35.0	146	0.110
5KP100	111	136	5.0	100	10.0	29.0	179	0.110
5KP100A	111	123	5.0	100	10.0	32.0	162	0.110
5KP110	122	149	5.0	110	10.0	26.0	196	0.112
5KP110A	122	135	5.0	110	10.0	9.0	177	0.112

NOTES:

(1) V_(BR) measured after I_T applied for 300µs I_T=square wave pulse or equivalent

(2) Surge current waveform per Fig. 3 and derate per Fig. 2

(3) All items and symbols are consistent with ANSI/IEEE C62.35

APPLICATION

The 5KP series of high power transient voltage suppressors were designed to be used on the output of switching power supplies. These devices may be used to replace crowbar circuits. Both the 5 and 10 percent voltage tolerances are referenced to the power supply output voltage level.

They are able to withstand high levels of peak current while allowing a circuit breaker to trip or a fuse blow before shorting. This will enable the user to reset the breaker or replace the fuse and continue operation. For this type operation, it is recommended that a sufficient mounting surface be used for dissipating the heat generated by the Transient Voltage Suppressor during the transient or over-voltage condition.

Transient Voltage Suppressors are Silicon PN Junction devices designed for absorption of high voltage transients associated with power disturbances, switching and induced lighting effects. This series is available from 5.0 volts thru 110 volts.

RATINGS AND CHARACTERISTIC CURVES 5KP5.0 THRU 5KP110A

FIG. 1 - PEAK PULSE POWER RATING CURVE

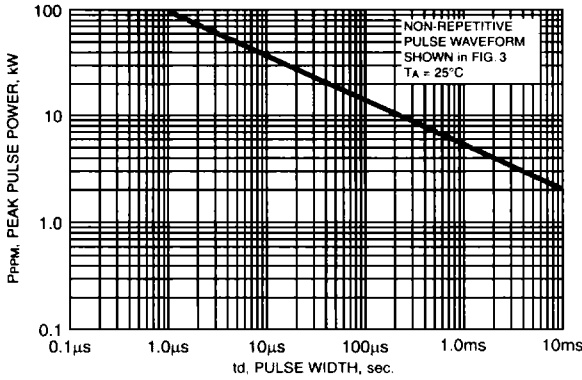


FIG. 2 - PULSE DERATING CURVE

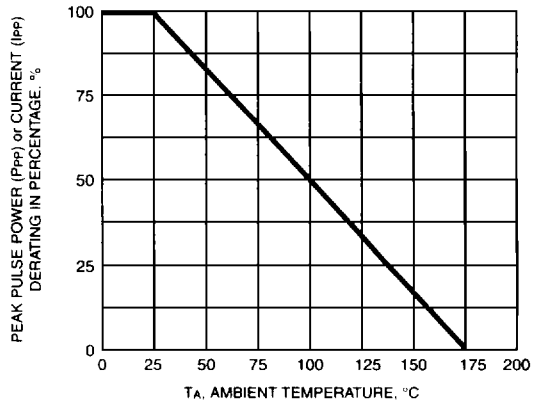


FIG. 3 - PULSE WAVEFORM

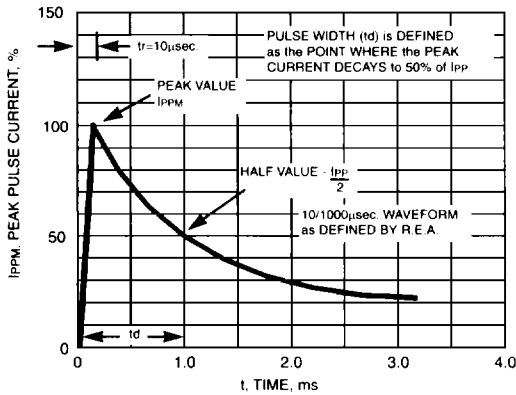


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

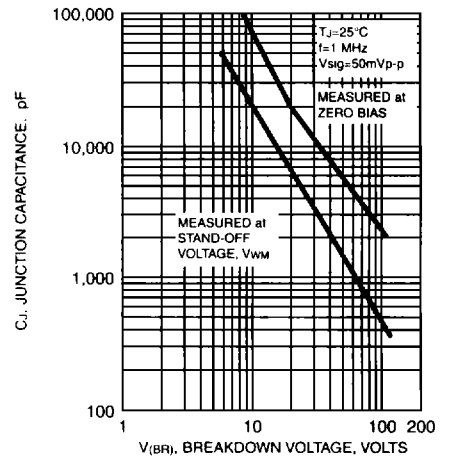


FIG. 5 - STEADY STATE POWER DERATING CURVE

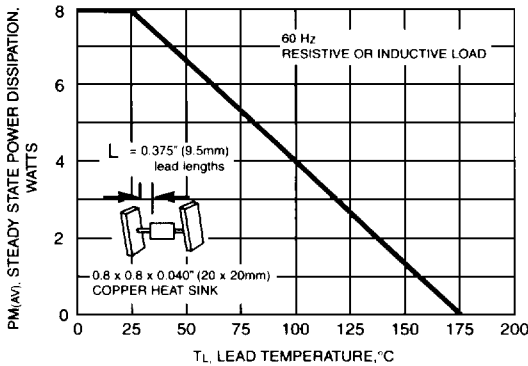


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

