



## 5KP5.0 THRU 5KP110CA

TRANSIENT VOLTAGE SUPPRESSOR

**BREAKDOWN VOLTAGE: 50-110V**

**PEAK PULSE POWER: 5000W**

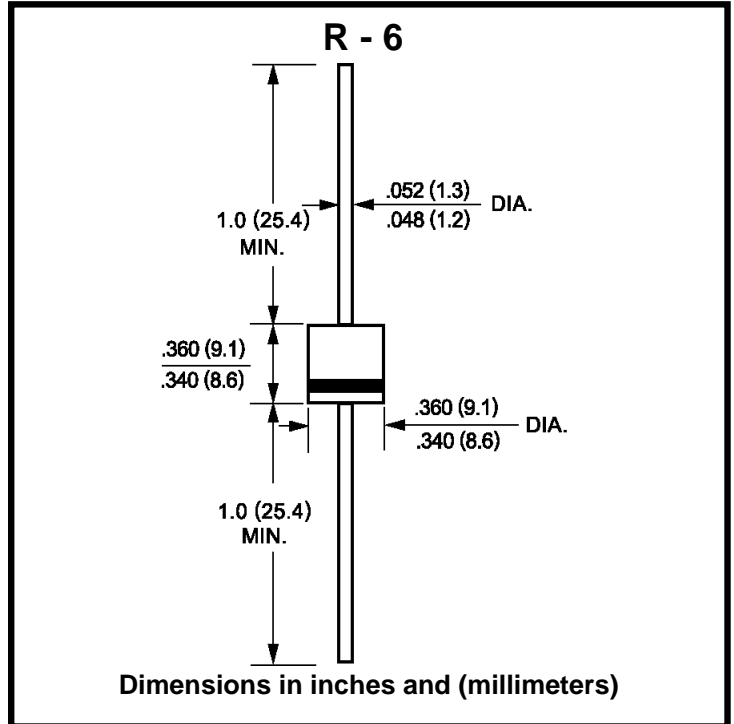
TECHNICAL  
SPECIFICATION

### FEATURES

- 5000W peak pulse power capability
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time:  
typically less than 1.0ps from 0V to  $V_{BR}$   
for unidirectional and 5.0nS for bidirectional types.
- High temperature soldering guaranteed:  
265°C/10S/9.5mm lead length at 5 lbs tension

### MECHANICAL DATA

- Terminal: Plated axial leads solderable per MIL-STD 202E, method 208C
- Case: Molded with UL-94 Class V-O recognized flame retardant epoxy
- Polarity: Color band denotes cathode except for unidirectional types.
- Mounting position: Any



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

(Ratings at 25°C ambient temperature unless otherwise specified)

RATINGS	SYMBOL	VALUE	UNITS
Peak power dissipation (Note 1)	P <sub>ppm</sub>	Minimum 5000	W
Peak pulse reverse current (Note 1)	I <sub>ppm</sub>	See Table	A
Steady state power dissipation (Note 2)	P <sub>m(av)</sub>	8.0	W
Peak forward surge current (Note 3)	I <sub>FSM</sub>	400	A
Maximum instantaneous forward voltage at 100A	V <sub>F</sub>	3.5	V
Operating junction and storage temperature range	T <sub>STG</sub> , T <sub>J</sub>	-55 to + 175	°C

Notes:

1. 10/1000μS waveform non-repetitive current pulse, and derated above T<sub>a</sub>=25°C
2. T<sub>i</sub>=75°C, lead length 9.5mm, Mounted on copper pad area of (20×20mm)
3. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

### DEVICES FOR BIDIRECTIONAL APPLICATIONS

1. Suffix 'A' dnotes 5% tolerance device, no suffix 'A' dnotes 10% tolerance device.
2. For bidirectional use 'C' or 'CA' suffix for types 5KP5.0 thru types 5KP110A (e.g. 5KP7.5C, 5KP110CA), for unidirectional don't use 'C' suffix after types.
3. For bidirectional devices having V<sub>WM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled.
4. Electrical characteristics apply in both directions.

# ELECTRICAL CHARACTERISTICS]

( at  $T_A=25^{\circ}\text{C}$  unless otherwise noted )

Device Type	Breakdown Voltage $V_{(BR)}$ (Volts) (NOTE 1)		Test Current $I_T$ (mA)	Stand-off Voltage $V_{WM}$ (Volts)	Maximum Reverse Leakage at $V_{WM}$ $I_D$ ( $\mu\text{A}$ ) (NOTE 3)	Maximum Peak Pulse Reverse Current $I_{ppm}$ (Amps) (NOTE 2)	Maximum Clamping Voltage at $I_{ppm}$ $V_C$ (Volts)	Maximum Temperature Coefficient of $V_{(BR)}$ ( $\%/^{\circ}\text{C}$ )
	MIN	MAX						
5KP5.0	6.40	7.30	50	5.0	5000	520	9.6	0.057
5KP5.0A	6.40	7.00	50	5.0	5000	543	9.2	0.057
5KP6.0	6.67	8.15	50	6.0	5000	439	11.4	0.061
5KP6.0A	6.67	7.37	50	6.0	5000	485	10.3	0.061
5KP6.5	7.22	8.82	50	6.5	2000	407	12.3	0.065
5KP6.5A	7.22	7.98	50	6.5	2000	447	11.2	0.065
5KP7.0	7.78	9.51	50	7.0	1000	378	13.3	0.068
5KP7.0A	7.78	8.60	50	7.0	1000	417	12.0	0.068
5KP7.5	8.33	10.2	5.0	7.5	250	350	14.3	0.073
5KP7.5A	8.33	9.21	5.0	7.5	250	388	12.9	0.073
5KP8.0	8.89	10.9	5.0	8.0	150	333	15.0	0.075
5KP8.0A	8.89	9.83	5.0	8.0	150	367	13.6	0.075
5KP8.5	9.44	11.5	5.0	8.5	50.0	314	15.9	0.078
5KP8.5A	9.44	10.4	5.0	8.5	50.0	347	14.4	0.078
5KP9.0	10.0	12.2	5.0	9.0	20.0	295	16.9	0.081
5KP9.0A	10.0	11.1	5.0	9.0	20.0	325	15.4	0.081
5KP10	11.1	13.6	5.0	10.0	15.0	266	18.8	0.084
5KP10A	11.1	12.3	5.0	10.0	15.0	294	17.0	0.084
5KP11	12.2	14.9	5.0	11.0	10.0	249	20.1	0.086
5KP11A	12.2	13.5	5.0	11.0	10.0	274	18.2	0.086
5KP12	13.3	16.3	5.0	12.0	10.0	227	22.0	0.088
5KP12A	13.3	14.7	5.0	12.0	10.0	251	19.9	0.088
5KP13	14.4	17.6	5.0	13.0	10.0	210	23.8	0.090
5KP13A	14.4	15.9	5.0	13.0	10.0	232	21.5	0.090
5KP14	15.6	19.1	5.0	14.0	10.0	194	25.8	0.092
5KP14A	15.6	17.2	5.0	14.0	10.0	215	23.2	0.092
5KP15	16.7	20.4	5.0	15.0	10.0	188	26.9	0.094
5KP15A	16.7	18.5	5.0	15.0	10.0	206	24.4	0.094
5KP16	17.8	21.8	5.0	16.0	10.0	176	28.8	0.096
5KP16A	17.8	19.7	5.0	16.0	10.0	176	26.0	0.096
5KP17	18.9	23.1	5.0	17.0	10.0	164	30.5	0.097
5KP17A	18.9	20.9	5.0	17.0	10.0	161	27.6	0.097
5KP18	20.0	24.4	5.0	18.0	10.0	155	32.2	0.098
5KP18A	20.0	22.1	5.0	18.0	10.0	172	29.2	0.098
5KP20	22.2	27.1	5.0	20.0	10.0	139	35.8	0.099
5KP20A	22.2	24.5	5.0	20.0	10.0	154	32.4	0.099
5KP22	24.4	29.8	5.0	22.0	10.0	127	39.4	0.100
5KP22A	24.4	26.9	5.0	22.0	10.0	141	35.5	0.100
5KP24	26.7	32.6	5.0	24.0	10.0	116	43.0	0.101
5KP24A	26.7	29.5	5.0	24.0	10.0	128	38.9	0.101
5KP26	28.9	35.3	5.0	26.0	10.0	107	46.6	0.101
5KP26A	28.9	31.9	5.0	26.0	10.0	119	42.1	0.101
5KP28	31.1	38.0	5.0	28.0	10.0	99	50.1	0.102
5KP28A	31.1	34.4	5.0	28.0	10.0	110	45.4	0.102
5KP30	33.3	40.7	5.0	30.0	10.0	93	53.5	0.103
5KP30A	33.3	36.8	5.0	30.0	10.0	103	48.4	0.103

# ELECTRICAL CHARACTERISTICS

( at  $T_A=25^{\circ}\text{C}$  unless otherwise noted )

Device Type	Breakdown Voltage $V_{(BR)}$ (Volts) (NOTE 1)		Test Current $I_T$ (mA)	Stand-off Voltage $V_{WM}$ (Volts)	Maximum Reverse Leakage at $V_{WM}$ $I_D$ ( $\mu\text{A}$ ) (NOTE 3)	Maximum Peak Pulse Reverse Current $I_{ppm}$ (Amps) (NOTE 2)	Maximum Clamping Voltage at $I_{ppm}$ VC (Volts)	Maximum Temperature Coefficient of $V_{(BR)}$ (%/°C)
	MIN	MAX						
5KP33	36.7	44.9	5.0	33.0	10.0	85	59.0	0.104
5KP33A	36.7	40.6	5.0	33.0	10.0	94	53.3	0.104
5KP36	40.0	48.9	5.0	36.0	10.0	78	64.3	0.104
5KP36A	40.0	44.2	5.0	36.0	10.0	85	58.1	0.104
5KP40	44.4	54.3	5.0	40.0	10.0	70	71.4	0.105
5KP40A	44.4	49.1	5.0	40.0	10.0	78	64.5	0.105
5KP43	47.8	58.4	5.0	43.0	10.0	65	76.7	0.105
5KP43A	47.8	52.8	5.0	43.0	10.0	72	69.4	0.105
5KP45	50.0	61.1	5.0	45.0	10.0	62	80.3	0.106
5KP45A	50.0	55.3	5.0	45.0	10.0	69	72.7	0.106
5KP48	53.3	65.2	5.0	48.0	10.0	58	85.5	0.106
5KP48A	53.3	58.9	5.0	48.0	10.0	65	77.4	0.106
5KP51	56.7	69.3	5.0	51.0	10.0	55	91.1	0.107
5KP51A	56.7	62.7	5.0	51.0	10.0	61	82.4	0.107
5KP54	60.0	73.3	5.0	54.0	10.0	52	96.3	0.107
5KP54A	60.0	66.3	5.0	54.0	10.0	57	87.1	0.107
5KP58	64.4	78.7	5.0	58.0	10.0	49	103	0.107
5KP58A	64.4	71.2	5.0	58.0	10.0	53	94	0.107
5KP60	66.7	81.5	5.0	60.0	10.0	47	107	0.108
5KP60A	66.7	73.7	5.0	60.0	10.0	52	97	0.108
5KP64	71.1	96.9	5.0	64.0	10.0	44	114	0.108
5KP64A	71.1	78.6	5.0	64.0	10.0	49	103	0.108
5KP70	77.6	95.1	5.0	70.0	10.0	40	125	0.108
5KP70A	77.6	86.0	5.0	70.0	10.0	44	113	0.108
5KP75	83.3	102	5.0	75.0	10.0	37	134	0.108
5KP75A	83.3	92.1	5.0	75.0	10.0	41	121	0.108
5KP78	86.7	106	5.0	78.0	10.0	36	139	0.108
5KP78A	86.7	95.8	5.0	78.0	10.0	40	126	0.108
5KP85	94.4	115	5.0	85.0	10.0	33	151	0.108
5KP85A	94.4	104	5.0	85.0	10.0	36	137	0.110
5KP90	100	122	5.0	90.0	10.0	31	160	0.110
5KP90A	100	111	5.0	90.0	10.0	34	146	0.110
5KP100	111	136	5.0	100	10.0	28	179	0.110
5KP100A	111	123	5.0	100	10.0	31	162	0.110
5KP110	122	149	5.0	110	10.0	26	196	0.112
5KP110A	122	135	5.0	110	10.0	28	177	0.112

**NOTES:**

1.  $V_{(BR)}$  measured after  $I_T$  applied for 300 $\mu\text{s}$ ,  $I_T$ =square wave pulse or equivalent
2. Surge current waveform and derated
3. For bidirectional types having  $V_{WM}$  of 10 volts and less, the  $I_D$  limit is doubled