

## 5KP SERIES

**V<sub>RM</sub> : 5.0 - 180 Volts**  
**PPK : 5000 Watts**

### FEATURES :

- \* 5000W Peak Pulse Power
- \* Excellent clamping capability
- \* Low incremental surge resistance
- \* Fast response time : typically less than 1.0 ps from 0 volt to V<sub>BR(min.)</sub>
- \* Typical I<sub>R</sub> less than 1μA above 10V

### MECHANICAL DATA

- \* Case : Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, Method 208 guaranteed
- \* Polarity : Cathode polarity band
- \* Mounting position : Any
- \* Weight : 2.1 grams

### DEVICES FOR BIPOLAR APPLICATIONS

For Bi-directional use C or CA Suffix  
 Electrical characteristics apply in both directions

### MAXIMUM RATINGS

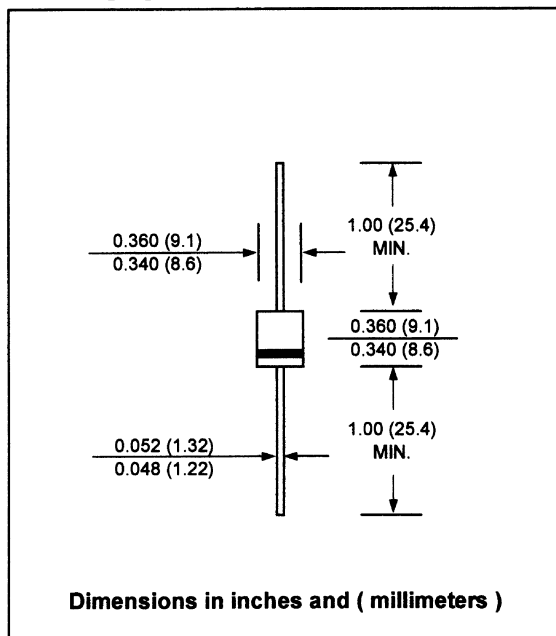
Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Pulse Power Dissipation at tp = 1ms (Note 1, Fig. 4)	P <sub>PK</sub>	Minimum 5000	W
Steady State Power Dissipation at T <sub>L</sub> = 75 °C Lead Lengths 0.375", (9.5mm) (Note 2)	P <sub>D</sub>	8.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I <sub>FSM</sub>	400	A
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to + 150	°C

### Notes:

- (1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
- (2) Mounted on Copper Leaf area of 0.79 in<sup>2</sup> (20mm<sup>2</sup>).
- (3) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum.

## TRANSIENT VOLTAGE SUPPRESSOR



## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ IT ( Note 1 )		Reverse Stand off Voltage	Maximum Reverse Leakage @ VRM	Maximum Peak Pulse Current (Note2)	Maximum Clamping Voltage @ IPPM	Maximum Temperature Coefficient of VBR (%/°C)	
	VBR (V)							IT
	Min.	Max.	(mA)	(V)	(μA)	(A)		(V)
5KP5.0	6.40	7.30	50	5.0	5000	520	0.057	
5KP5.0A	6.40	7.00	50	5.0	5000	543	0.057	
5KP6.0	6.67	8.15	50	6.0	5000	439	0.061	
5KP6.0A	6.67	7.37	50	6.0	5000	485	0.061	
5KP6.5	7.22	8.82	50	6.5	2000	407	0.065	
5KP6.5A	7.22	7.98	50	6.5	2000	447	0.065	
5KP7.0	7.78	9.51	5.0	7.0	1000	378	0.068	
5KP7.0A	7.78	8.60	5.0	7.0	1000	417	0.068	
5KP7.5	8.33	10.2	5.0	7.5	250	350	0.073	
5KP7.5A	8.33	9.21	5.0	7.5	250	388	0.073	
5KP8.0	8.89	10.9	5.0	8.0	150	333	0.075	
5KP8.0A	8.89	9.83	5.0	8.0	150	367	0.075	
5KP8.5	9.44	11.5	5.0	8.5	50	314	0.078	
5KP8.5A	9.44	10.4	5.0	8.5	50	347	0.078	
5KP9.0	10.0	12.2	5.0	9.0	20	295	0.081	
5KP9.0A	10.0	11.1	5.0	9.0	20	325	0.081	
5KP10	11.1	13.6	5.0	10	15	266	0.084	
5KP10A	11.1	12.3	5.0	10	15	294	0.084	
5KP11	12.2	14.9	5.0	11	10	249	0.086	
5KP11A	12.2	13.5	5.0	11	10	274	0.086	
5KP12	13.3	16.3	5.0	12	10	227	0.088	
5KP12A	13.3	14.7	5.0	12	10	251	0.088	
5KP13	14.4	17.6	5.0	13	10	210	0.090	
5KP13A	14.4	15.9	5.0	13	10	232	0.090	
5KP14	15.6	19.1	5.0	14	10	194	0.092	
5KP14A	15.6	17.2	5.0	14	10	215	0.092	
5KP15	16.7	20.4	5.0	15	10	188	0.094	
5KP15A	16.7	18.5	5.0	15	10	206	0.094	
5KP16	17.8	21.8	5.0	16	10	176	0.096	
5KP16A	17.8	19.7	5.0	16	10	192	0.096	
5KP17	18.9	23.1	5.0	17	10	164	0.097	
5KP17A	18.9	20.9	5.0	17	10	181	0.097	
5KP18	20.0	24.4	5.0	18	10	155	0.098	
5KP18A	20.0	22.1	5.0	18	10	172	0.098	
5KP20	22.2	27.1	5.0	20	10	139	0.099	
5KP20A	22.2	24.5	5.0	20	10	154	0.099	
5KP22	24.4	29.8	5.0	22	10	127	0.100	
5KP22A	24.4	26.9	5.0	22	10	141	0.100	
5KP24	26.7	32.6	5.0	24	10	116	0.101	
5KP24A	26.7	29.5	5.0	24	10	128	0.101	
5KP26	28.9	35.3	5.0	26	10	107	0.101	
5KP26A	28.9	31.9	5.0	26	10	119	0.101	
5KP28	31.1	38.0	5.0	28	10	99	0.102	
5KP28A	31.1	34.4	5.0	28	10	110	0.102	
5KP30	33.3	40.7	5.0	30	10	93	0.103	
5KP30A	33.3	36.8	5.0	30	10	103	0.103	
5KP33	36.7	44.9	5.0	33	10	85	0.104	
5KP33A	36.7	40.6	5.0	33	10	94	0.104	

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

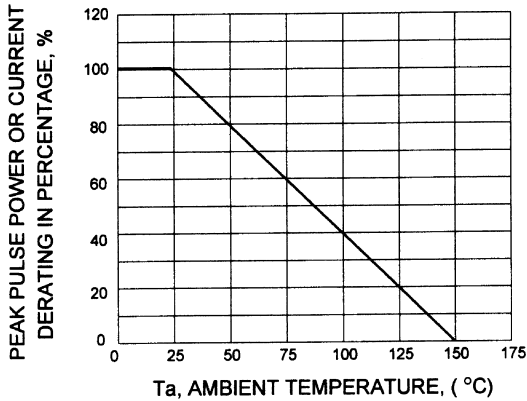
TYPE	Breakdown Voltage @ $I_T$ ( Note 1 )			Reverse Stand off Voltage $V_{RM}$ (V)	Maximum Reverse Leakage @ $V_{RM}$ $I_R$ ( $\mu A$ )	Maximum Peak Pulse Current (Note2) $I_{PPM}$ (A)	Maximum Clamping Voltage @ $I_{PPM}$ $V_C$ (V)	Maximum Temperature Coefficient of $V_{BR}$ (% $^{\circ}C$ )
	$V_{BR}$ (V)		$I_T$ (mA)					
	Min.	Max.						
5KP36	40.0	48.9	5.0	36	10	78	64.3	0.104
5KP36A	40.0	44.2	5.0	36	10	86	58.1	0.104
5KP40	44.4	54.3	5.0	40	10	70	71.4	0.105
5KP40A	44.4	49.1	5.0	40	10	78	64.5	0.105
5KP43	47.8	58.4	5.0	43	10	65	76.7	0.105
5KP43A	47.8	52.8	5.0	43	10	72	69.4	0.105
5KP45	50.0	61.1	5.0	45	10	62	80.3	0.106
5KP45A	50.0	55.3	5.0	45	10	69	72.7	0.106
5KP48	53.3	65.2	5.0	48	10	58	85.5	0.106
5KP48A	53.3	58.9	5.0	48	10	65	77.4	0.106
5KP51	56.7	69.3	5.0	51	10	55	91.1	0.107
5KP51A	56.7	62.7	5.0	51	10	61	82.4	0.107
5KP54	60.0	73.3	5.0	54	10	52	96.3	0.107
5KP54A	60.0	66.3	5.0	54	10	57	87.1	0.107
5KP56	62.2	76.1	5.0	56	10	50	100	0.107
5KP56A	62.2	68.8	5.0	56	10	55	91	0.107
5KP58	64.4	78.7	5.0	58	10	49	103	0.107
5KP58A	64.4	71.2	5.0	58	10	53	94	0.107
5KP60	66.7	81.5	5.0	60	10	47	107	0.108
5KP60A	66.7	73.7	5.0	60	10	52	97	0.108
5KP64	71.1	96.9	5.0	64	10	44	114	0.108
5KP64A	71.1	78.6	5.0	64	10	49	103	0.108
5KP70	77.6	95.1	5.0	70	10	40	125	0.108
5KP70A	77.6	86.0	5.0	70	10	44	113	0.108
5KP75	83.3	102	5.0	75	10	37	134	0.108
5KP75A	83.3	92.1	5.0	75	10	41	121	0.108
5KP78	86.7	106	5.0	78	10	36	139	0.108
5KP78A	86.7	95.8	5.0	78	10	40	126	0.108
5KP85	94.4	115	5.0	85	10	33	151	0.108
5KP85A	94.4	104	5.0	85	10	36	137	0.110
5KP90	100	122	5.0	90	10	31	160	0.110
5KP90A	100	111	5.0	90	10	34	146	0.110
5KP100	111	136	5.0	100	10	28	179	0.110
5KP100A	111	123	5.0	100	10	31	162	0.110
5KP110	122	149	5.0	110	10	26	196	0.112
5KP110A	122	135	5.0	110	10	28	177	0.112
5KP120	133	163	5.0	120	10	24	211	0.112
5KP120A	133	147	5.0	120	10	26	194	0.112
5KP150	167	204	5.0	150	10	19	263	0.112
5KP150A	167	184	5.0	150	10	21	242	0.112
5KP160	178	217	5.0	160	10	18	281	0.114
5KP160A	178	196	5.0	160	10	19	258	0.114
5KP180	200	244	5.0	180	10	16	316	0.114
5KP180A	200	221	5.0	180	10	17	290	0.114

### Notes:

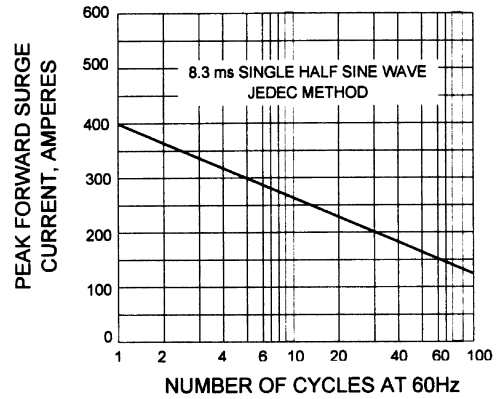
- (1)  $V_{BR}$  measured after  $I_T$  applied for 300  $\mu s.$ ,  $I_T$  = square wave pulse or equivalent.
- (2) Surge Current waveform per Fig. 3 and Derate per Fig. 2
- (3)  $V_F$  = 3.5 Volts max. for devices of  $V_R$  < 100 V, and  $V_F$  = 5 Volts max. for devices of  $V_R$  > 100 V.
- (4) For Bi-directional devices having  $V_R$  of 10 Volts and under the  $I_R$  limit is doubled.

## RATING AND CHARACTERISTIC CURVES ( 5KP SERIES )

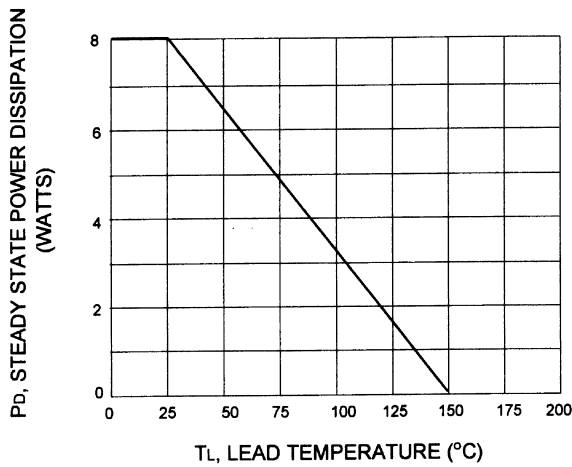
**FIG.1 - PULSE DERATING CURVE**



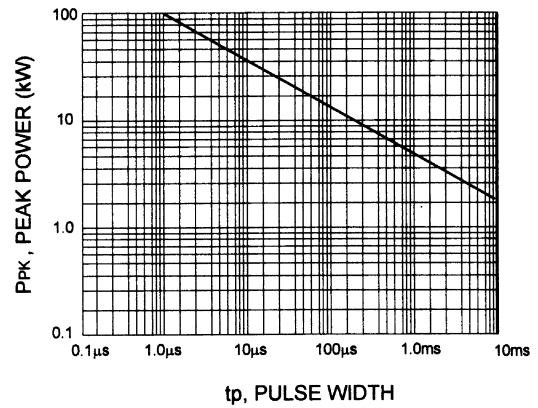
**FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



**FIG.3 - STEADY STATE POWER DERATING**



**FIG.4 - PEAK PULSE POWER RATING CURVE**



**FIG.5 - PULSE WAVEFORM**

