

# 5000W Transient Voltage Suppressor



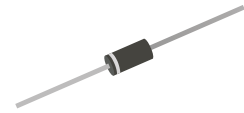
SMD Diodes Specialist

## 5KP-G Series

Stand-off Voltage: 6.8V ~ 220V

Power Dissipation: 5000 Watts

RoHS Device

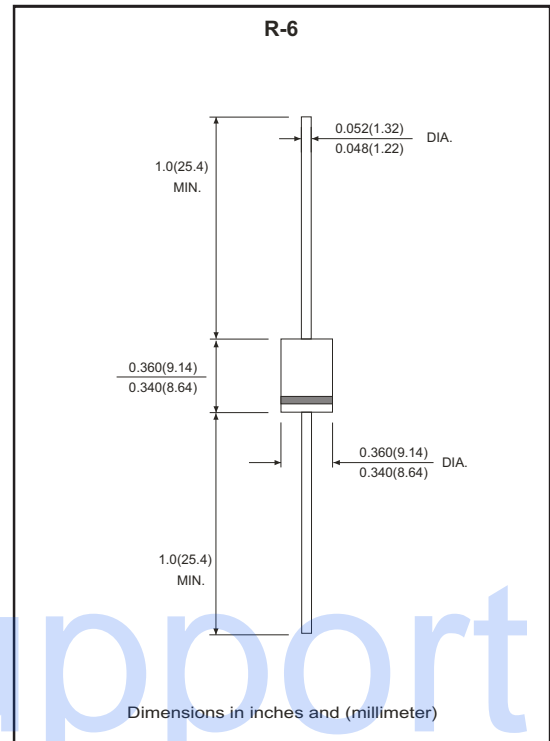


### Features

- Glass passivated chip.
- Low leakage.
- Uni and Bidirection unit.
- Excellent clamping capability.
- The plastic material has UL recognition 94V-0.
- Fast response time.

### Mechanical Data

- Case: Molded plastic R-6
- Polarity: By cathode band denotes uni-directional device, none cathode band denotes bi-directional device
- Weight: 2.1 grams



### Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.  
Single phase, half wave, 60Hz, resistive or inductive loaded.  
For capacitive load, derated current by 20%.

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000µs waveform (Note 1)	P <sub>PP</sub>	5000	W
Peak pulse current with a 10/1000µs waveform (Note 1)	I <sub>PP</sub>	See Next Table	W
Power dissipation on infinite heatsink at T <sub>L</sub> =75 °C	P <sub>D</sub>	8.0	W
Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 2)	I <sub>FSM</sub>	500	A
Maximum instantaneous forward voltage at 100A for uni-directional devices only (Note 3)	V <sub>F</sub>	3.5 / 5.0	V
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

NTOES:

- (1) Non-repetitive current pulse, per fig.5 and derated above T<sub>A</sub>=25 °C per fig. 1.
- (2) Measured on 8.3 ms single half sine wave of equivalent square wave, duty cycle=4 pulses per minute maximum.
- (3) V<sub>F</sub><3.5V for devices of V<sub>BR</sub><200V and V<sub>F</sub><5.0V for devices of V<sub>BR</sub>>201V

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## RATING AND CHARACTERISTIC (5KP-G Series)

Part No.		Absolute Maximum Rating (Ta=25 °C)					Electrical Characteristics (Ta=25 °C)			Marking Code.	
Uni	Bi	V <sub>RWM</sub>	V <sub>BR</sub> Min.	V <sub>BR</sub> Max.	I <sub>T</sub>	I <sub>FSM</sub>	Max. V <sub>c</sub> @I <sub>PPM</sub>		Max. I <sub>R</sub> @V <sub>RWM</sub>	Uni	Bi
		(V)	(V)	(V)	(mA)	(A)@8.3ms	(V)	I <sub>PPM</sub> (A)	uA		
5KP5.0-G	5KP5.0C-G	5.0	6.40	7.30	10	500	9.6	520.83	800	5KP5.0	5KP5.0C
5KP5.0A-G	5KP5.0CA-G	5.0	6.40	7.00	10	500	9.2	543.48	800	5KP5.0A	5KP5.0CA
5KP6.0-G	5KP6.0C-G	6.0	6.67	8.15	10	500	11.4	438.60	800	5KP6.0	5KP6.0C
5KP6.0A-G	5KP6.0CA-G	6.0	6.67	7.37	10	500	10.3	485.44	800	5KP6.0A	5KP6.0CA
5KP6.5-G	5KP6.5C-G	6.5	7.22	8.82	10	500	12.3	406.50	500	5KP6.5	5KP6.5C
5KP6.5A-G	5KP6.5CA-G	6.5	7.22	7.98	10	500	11.2	446.43	500	5KP6.5A	5KP6.5CA
5KP7.0-G	5KP7.0C-G	7.0	7.78	9.51	10	500	13.3	375.94	200	5KP7.0	5KP7.0C
5KP7.0A-G	5KP7.0CA-G	7.0	7.78	8.60	10	500	12.0	416.67	200	5KP7.0A	5KP7.0CA
5KP7.5-G	5KP7.5C-G	7.5	8.33	10.20	1.0	500	14.3	349.65	100	5KP7.5	5KP7.5C
5KP7.5A-G	5KP7.5CA-G	7.5	8.33	9.21	1.0	500	12.9	387.60	100	5KP7.5A	5KP7.5CA
5KP8.0-G	5KP8.0C-G	8.0	8.89	10.90	1.0	500	15.0	333.33	50	5KP8.0	5KP8.0C
5KP8.0A-G	5KP8.0CA-G	8.0	8.89	9.83	1.0	500	13.6	367.65	50	5KP8.0A	5KP8.0CA
5KP8.5-G	5KP8.5C-G	8.5	9.44	11.50	1.0	500	15.9	314.47	20	5KP8.5	5KP8.5C
5KP8.5A-G	5KP8.5CA-G	8.5	9.44	10.40	1.0	500	14.4	347.22	20	5KP8.5A	5KP8.5CA
5KP9.0-G	5KP9.0C-G	9.0	10.00	12.20	1.0	500	16.9	295.86	10	5KP9.0	5KP9.0C
5KP9.0A-G	5KP9.0CA-G	9.0	10.00	11.10	1.0	500	15.4	324.68	10	5KP9.0A	5KP9.0CA
5KP10-G	5KP10C-G	10.0	11.10	13.60	1.0	500	18.8	265.96	5	5KP10	5KP10C
5KP10A-G	5KP10CA-G	10.0	11.10	12.30	1.0	500	17.0	294.12	5	5KP10A	5KP10CA
5KP11-G	5KP11C-G	11.0	12.20	14.90	1.0	500	20.1	248.76	5	5KP11	5KP11C
5KP11A-G	5KP11CA-G	11.0	12.20	13.50	1.0	500	18.2	274.73	5	5KP11A	5KP11CA
5KP12-G	5KP12C-G	12.0	13.30	16.30	1.0	500	22.0	227.27	5	5KP12	5KP12C
5KP12A-G	5KP12CA-G	12.0	13.30	14.70	1.0	500	19.9	251.26	5	5KP12A	5KP12CA
5KP13-G	5KP13C-G	13.0	14.40	17.60	1.0	500	23.8	210.08	5	5KP13	5KP13C
5KP13A-G	5KP13CA-G	13.0	14.40	15.90	1.0	500	21.5	232.56	5	5KP13A	5KP13CA
5KP14-G	5KP14C-G	14.0	15.60	19.10	1.0	500	25.8	193.80	5	5KP14	5KP14C
5KP14A-G	5KP14CA-G	14.0	15.60	17.20	1.0	500	23.2	215.52	5	5KP14A	5KP14CA
5KP15-G	5KP15C-G	15.0	16.70	20.40	1.0	500	26.9	185.87	5	5KP15	5KP15C
5KP15A-G	5KP15CA-G	15.0	16.70	18.50	1.0	500	24.4	204.92	5	5KP15A	5KP15CA
5KP16-G	5KP16C-G	16.0	17.80	21.80	1.0	500	28.8	173.61	5	5KP16	5KP16C
5KP16A-G	5KP16CA-G	16.0	17.80	19.70	1.0	500	26.0	192.31	5	5KP16A	5KP16CA
5KP17-G	5KP17C-G	17.0	18.90	23.10	1.0	500	30.5	163.93	5	5KP17	5KP17C
5KP17A-G	5KP17CA-G	17.0	18.90	20.90	1.0	500	27.6	181.16	5	5KP17A	5KP17CA
5KP18-G	5KP18C-G	18.0	20.00	24.40	1.0	500	32.2	155.28	5	5KP18	5KP18C
5KP18A-G	5KP18CA-G	18.0	20.00	22.10	1.0	500	29.2	171.23	5	5KP18A	5KP18CA
5KP20-G	5KP20C-G	20.0	22.20	27.10	1.0	500	35.8	139.66	5	5KP20	5KP20C
5KP20A-G	5KP20CA-G	20.0	22.20	24.50	1.0	500	32.4	154.32	5	5KP20A	5KP20CA
5KP22-G	5KP22C-G	22.0	24.40	29.80	1.0	500	39.4	126.90	5	5KP22	5KP22C
5KP22A-G	5KP22CA-G	22.0	24.40	26.90	1.0	500	35.5	140.85	5	5KP22A	5KP22CA
5KP24-G	5KP24C-G	24.0	26.70	32.60	1.0	500	43.0	116.28	5	5KP24	5KP24C
5KP24A-G	5KP24CA-G	24.0	26.70	29.50	1.0	500	38.9	128.53	5	5KP24A	5KP24CA
5KP26-G	5KP26C-G	26.0	28.90	35.30	1.0	500	46.6	107.30	5	5KP26	5KP26C
5KP26A-G	5KP26CA-G	26.0	28.90	31.90	1.0	500	42.1	118.76	5	5KP26A	5KP26CA
5KP28-G	5KP28C-G	28.0	31.10	38.00	1.0	500	50.1	100.00	5	5KP28	5KP28C
5KP28A-G	5KP28CA-G	28.0	31.10	34.40	1.0	500	45.4	110.13	5	5KP28A	5KP28CA

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Uni	Bi	V <sub>RWM</sub>	V <sub>BR</sub> Min.	V <sub>BR</sub> Max.	I <sub>T</sub>	I <sub>FSM</sub>	Max. V <sub>c</sub> @I <sub>PPM</sub>		Max. I <sub>R</sub> @V <sub>WM</sub>	Uni	Bi
		(V)	(V)	(V)	(mA)	(A)@8.3ms	(V)	I <sub>PPM</sub> (A)	uA		
5KP30-G	5KP30C-G	30.0	33.30	40.70	1.0	500	53.5	93.46	5	5KP30	5KP30C
5KP30A-G	5KP30CA-G	30.0	33.30	36.80	1.0	500	48.4	103.31	5	5KP30A	5KP30CA
5KP33-G	5KP33C-G	33.0	36.70	44.90	1.0	500	59.0	84.75	5	5KP33	5KP33C
5KP33A-G	5KP33CA-G	33.0	36.70	40.60	1.0	500	53.3	93.81	5	5KP33A	5KP33CA
5KP36-G	5KP36C-G	36.0	40.00	48.90	1.0	500	64.3	77.76	5	5KP36	5KP36C
5KP36A-G	5KP36CA-G	36.0	40.00	44.20	1.0	500	58.1	86.06	5	5KP36A	5KP36CA
5KP40-G	5KP40C-G	40.0	44.40	54.30	1.0	500	71.4	70.03	5	5KP40	5KP40C
5KP40A-G	5KP40CA-G	40.0	44.40	49.10	1.0	500	64.5	77.52	5	5KP40A	5KP40CA
5KP43-G	5KP43C-G	43.0	47.80	58.40	1.0	500	76.7	65.19	5	5KP43	5KP43C
5KP43A-G	5KP43CA-G	43.0	47.80	52.80	1.0	500	69.4	72.05	5	5KP43A	5KP43CA
5KP45-G	5KP45C-G	45.0	50.00	61.10	1.0	500	80.3	62.27	5	5KP45	5KP45C
5KP45A-G	5KP45CA-G	45.0	50.00	55.30	1.0	500	72.7	68.78	5	5KP45A	5KP45CA
5KP48-G	5KP48C-G	48.0	53.30	65.10	1.0	500	85.5	58.48	5	5KP48	5KP48C
5KP48A-G	5KP48CA-G	48.0	53.30	58.90	1.0	500	77.4	64.60	5	5KP48A	5KP48CA
5KP51-G	5KP51C-G	51.0	56.70	69.30	1.0	500	91.1	54.88	5	5KP51	5KP51C
5KP51A-G	5KP51CA-G	51.0	56.70	62.70	1.0	500	82.4	60.68	5	5KP51A	5KP51CA
5KP54-G	5KP54C-G	54.0	60.00	73.30	1.0	500	96.3	51.92	5	5KP54	5KP54C
5KP54A-G	5KP54CA-G	54.0	60.00	66.30	1.0	500	87.1	57.41	5	5KP54A	5KP54CA
5KP58-G	5KP58C-G	58.0	64.40	78.70	1.0	500	103.0	48.54	5	5KP58	5KP58C
5KP58A-G	5KP58CA-G	58.0	64.40	71.20	1.0	500	93.6	53.42	5	5KP58A	5KP58CA
5KP60-G	5KP60C-G	60.0	66.70	81.50	1.0	500	107.0	46.73	5	5KP60	5KP60C
5KP60A-G	5KP60CA-G	60.0	66.70	73.70	1.0	500	96.8	51.65	5	5KP60A	5KP60CA
5KP64-G	5KP64C-G	64.0	71.10	86.90	1.0	500	114.0	43.86	5	5KP64	5KP64C
5KP64A-G	5KP64CA-G	64.0	71.10	78.60	1.0	500	103.0	48.54	5	5KP64A	5KP64CA
5KP70-G	5KP70C-G	70.0	77.80	95.10	1.0	500	125.0	40.00	5	5KP70	5KP70C
5KP70A-G	5KP70CA-G	70.0	77.80	86.00	1.0	500	113.0	44.25	5	5KP70A	5KP70CA
5KP75-G	5KP75C-G	75.0	83.30	102.00	1.0	500	134.0	37.31	5	5KP75	5KP75C
5KP75A-G	5KP75CA-G	75.0	83.30	92.10	1.0	500	121.0	41.32	5	5KP75A	5KP75CA
5KP78-G	5KP78C-G	78.0	86.70	106.00	1.0	500	139.0	35.97	5	5KP78	5KP78C
5KP78A-G	5KP78CA-G	78.0	86.70	95.80	1.0	500	126.0	39.68	5	5KP78A	5KP78CA
5KP85-G	5KP85C-G	85.0	94.40	115.00	1.0	500	151.0	33.11	5	5KP85	5KP85C
5KP85A-G	5KP85CA-G	85.0	94.40	104.00	1.0	500	137.0	36.50	5	5KP85A	5KP85CA
5KP90-G	5KP90C-G	90.0	100.00	122.00	1.0	500	160.0	31.25	5	5KP90	5KP90C
5KP90A-G	5KP90CA-G	90.0	100.00	111.00	1.0	500	146.0	34.25	5	5KP90A	5KP90CA
5KP100-G	5KP100C-G	100.0	111.00	136.00	1.0	500	179.0	27.93	5	5KP100	5KP100C
5KP100A-G	5KP100CA-G	100.0	111.00	123.00	1.0	500	162.0	30.86	5	5KP100A	5KP100CA
5KP110-G	5KP110C-G	110.0	122.00	149.00	1.0	500	196.0	25.51	5	5KP110	5KP110C
5KP110A-G	5KP110CA-G	110.0	122.00	135.00	1.0	500	177.0	28.25	5	5KP110A	5KP110CA
5KP120-G	5KP120C-G	120.0	133.00	163.00	1.0	500	214.0	23.36	5	5KP120	5KP120C
5KP120A-G	5KP120CA-G	120.0	133.00	147.00	1.0	500	193.0	25.91	5	5KP120A	5KP120CA
5KP130-G	5KP130C-G	130.0	144.00	176.00	1.0	500	230.0	21.65	5	5KP130	5KP130C
5KP130A-G	5KP130CA-G	130.0	144.00	159.00	1.0	500	209.0	23.92	5	5KP130A	5KP130CA
5KP150-G	5KP150C-G	150.0	167.00	204.00	1.0	500	268.0	18.66	5	5KP150	5KP150C
5KP150A-G	5KP150CA-G	150.0	167.00	185.00	1.0	500	243.0	20.58	5	5KP150A	5KP150CA

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Uni	Bi	V <sub>RWM</sub>	V <sub>BR</sub> Min.	V <sub>BR</sub> Max.	I <sub>T</sub>	I <sub>FSM</sub>	Max. V <sub>C</sub> @I <sub>PPM</sub>		Max. I <sub>R</sub> @V <sub>RWM</sub>	Uni	Bi
		(V)	(V)	(V)	(mA)	(A)@8.3mS	(V)	I <sub>PPM</sub> (A)	uA		
5KP160-G	5KP160C-G	160.0	178.00	218.00	1.0	500	287.0	17.42	5	5KP160	5KP160C
5KP160A-G	5KP160CA-G	160.0	178.00	197.00	1.0	500	259.0	19.31	5	5KP160A	5KP160CA
5KP170-G	5KP170C-G	170.0	189.00	231.00	1.0	500	304.0	16.45	5	5KP170	5KP170C
5KP170A-G	5KP170CA-G	170.0	189.00	209.00	1.0	500	275.0	18.18	5	5KP170A	5KP170CA
5KP180-G	5KP180C-G	180.0	200.16	244.80	1.0	500	322.2	15.52	5	5KP180	5KP180C
5KP180A-G	5KP180CA-G	180.0	200.00	220.00	1.0	500	291.6	17.15	5	5KP180A	5KP180CA
5KP190-G	5KP190C-G	190.0	211.28	258.40	1.0	500	340.1	14.70	5	5KP190	5KP190C
5KP190A-G	5KP190CA-G	190.0	211.00	232.00	1.0	500	307.8	16.24	5	5KP190A	5KP190CA

**NOTES:**

1. Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V<sub>R</sub> of 10 Volts and under, the I<sub>R</sub> Limit is double

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## RATING AND CHARACTERISTIC (5KP-G Series)

Fig.1 Pulse Derating Curve

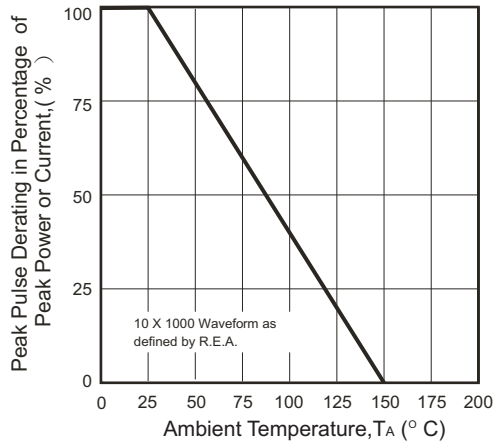


Fig.2 Maximum Non-Repetitive Surge Current

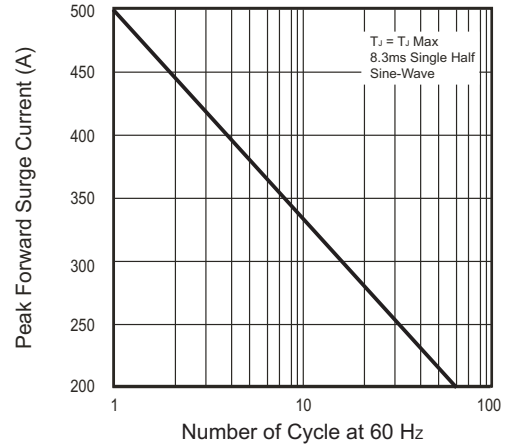


Fig.3 Steady State Power Derating Curve

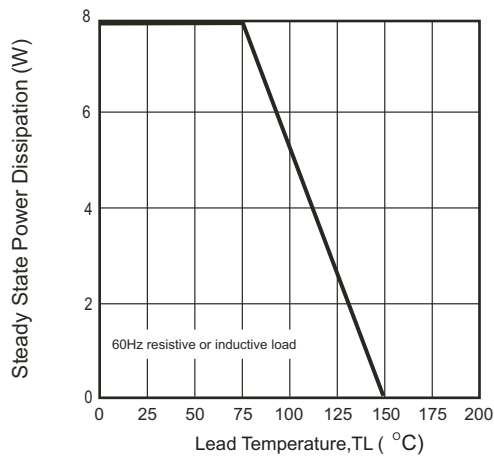


Fig.4 Peak Pulse Power Rating Curve

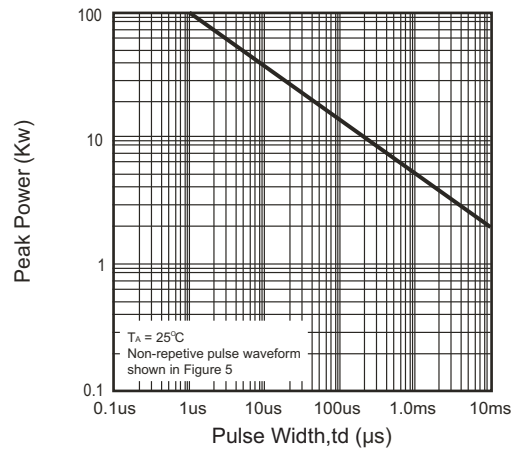


Fig.5 Pulse Waveform

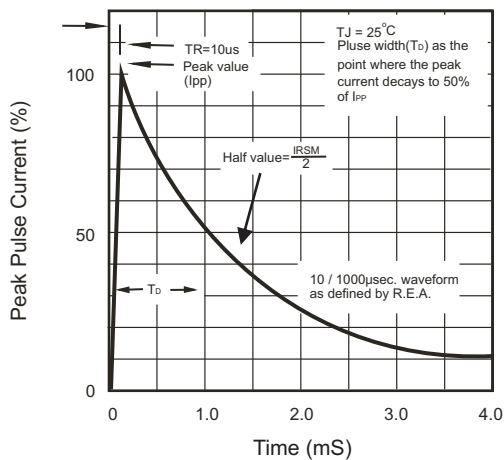
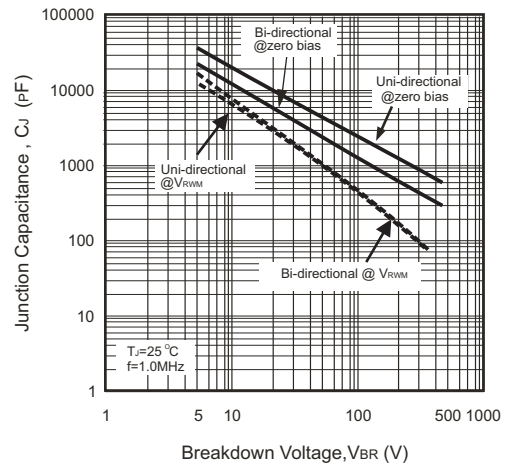


Fig.4 Typical Junction Capacitance



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