



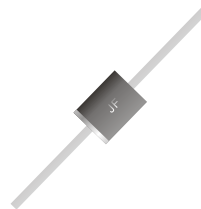
SEMICONDUCTOR

# 5KP Series

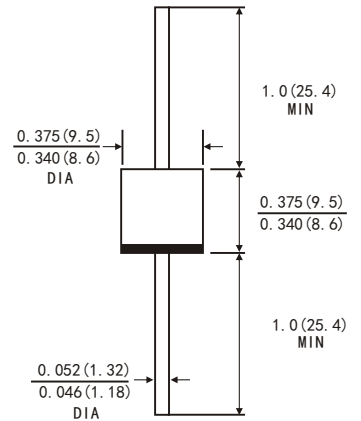
TRANSIENT VOLTAGE SUPPRESSOR  
PEAK PULSE POWER-5000 Watts

## FEATURES

- 5000 Watts Pulse capability
- Excellent clamping capability
- IEC 61000-4-2 ESD 30KV (Air), 30KV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- Fast response time
- High temperature soldering guaranteed: 260°C/10 seconds at terminals
- Component in accordance to RoHS 2011/65/EU



R-6



Dimensions in inches and (millimeters)

## MECHANICAL DATA

- Case: R-6 Molded Plastic
- Terminals: Solder Plated
- Mounting Position: Any
- Polarity: By cathode band denotes uni-directional device,
- none cathode band denotes bi-directional device.

## DEVICES FOR BIDIRECTIONAL APPLICATIONS

1. For bi-directional use C suffix for Types .
2. Electrical characteristics apply in both directions.

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, FIG.1)	$P_{PPM}$	Min 5000	W
Power Dissipation on Infinite Heat Sink at $T_L=75^\circ\text{C}$	$P_D$	8.0	W
Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)	$I_{PPM}$	See Table 1	A
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2)	$I_{FSM}$	300	A
Operating Junction Temperature Range	$T_J$	-55 to 150	°C
Storage Temperature Range	$T_{STG}$	-55 to 150	°C

Note: 1.Non repetitive current pulse , per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.

2.Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum

# RATINGS AND CHARACTERISTIC CURVES (5KP Series)

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I <sub>T</sub>	Breakdown Voltage Max. @ I <sub>T</sub>	Test Current	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current	Reverse Leakage @V <sub>RMW</sub>
(Uni)	(Bi)	V <sub>RMW</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	I <sub>R</sub> ( $\mu$ A)
5KP5.0A	5KP5.0CA	5.0	6.40	7.00	50	9.2	554.3	5000
5KP6.0A	5KP6.0CA	6.0	6.67	7.37	50	10.3	495.1	5000
5KP6.5A	5KP6.5CA	6.5	7.22	7.98	50	11.2	455.4	2000
5KP7.0A	5KP7.0CA	7.0	7.78	8.60	50	12.0	425.0	1000
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	5	12.9	395.3	250
5KP8.0A	5KP8.0CA	8.0	8.89	9.83	5	13.6	375.0	150
5KP8.5A	5KP8.5CA	8.5	9.44	10.40	5	14.4	354.2	50
5KP9.0A	5KP9.0CA	9.0	10.00	11.10	5	15.4	331.2	20
5KP10A	5KP10CA	10.0	11.10	12.30	5	17.0	300.0	15
5KP11A	5KP11CA	11.0	12.20	13.50	5	18.2	280.2	2
5KP12A	5KP12CA	12.0	13.30	14.70	5	19.9	256.3	2
5KP13A	5KP13CA	13.0	14.40	15.90	5	21.5	237.2	2
5KP14A	5KP14CA	14.0	15.60	17.20	5	23.2	219.8	2
5KP15A	5KP15CA	15.0	16.70	18.50	5	24.4	209.0	2
5KP16A	5KP16CA	16.0	17.80	19.70	5	26.0	196.2	2
5KP17A	5KP17CA	17.0	18.90	20.90	5	27.6	184.8	2
5KP18A	5KP18CA	18.0	20.00	22.10	5	29.2	174.7	2
5KP20A	5KP20CA	20.0	22.20	24.50	5	32.4	157.4	2
5KP22A	5KP22CA	22.0	24.40	26.90	5	35.5	143.7	2
5KP24A	5KP24CA	24.0	26.70	29.50	5	38.9	131.1	2
5KP26A	5KP26CA	26.0	28.90	31.90	5	42.1	121.1	2
5KP28A	5KP28CA	28.0	31.10	34.40	5	45.4	112.3	2
5KP30A	5KP30CA	30.0	33.30	36.80	5	48.4	105.4	2
5KP33A	5KP33CA	33.0	36.70	40.60	5	53.3	95.7	2
5KP36A	5KP36CA	36.0	40.00	44.20	5	58.1	87.8	2
5KP40A	5KP40CA	40.0	44.40	49.10	5	64.5	79.1	2
5KP43A	5KP43CA	43.0	47.80	52.80	5	69.4	73.5	2
5KP45A	5KP45CA	45.0	50.00	55.30	5	72.7	70.2	2
5KP48A	5KP48CA	48.0	53.30	58.90	5	77.4	65.9	2
5KP51A	5KP51CA	51.0	56.70	62.70	5	82.4	61.9	2
5KP54A	5KP54CA	54.0	60.00	66.30	5	87.1	58.6	2
5KP58A	5KP58CA	58.0	64.40	71.20	5	93.6	54.5	2
5KP60A	5KP60CA	60.0	66.70	73.70	5	96.8	52.7	2
5KP64A	5KP64CA	64.0	71.10	78.60	5	103.0	49.5	2
5KP70A	5KP70CA	70.0	77.80	86.00	5	113.0	45.1	2
5KP75A	5KP75CA	75.0	83.30	92.10	5	121.0	42.1	2
5KP78A	5KP78CA	78.0	86.70	95.80	5	126.0	40.5	2
5KP85A	5KP85CA	85.0	94.40	104.00	5	137.0	37.2	2
5KP90A	5KP90CA	90.0	100.00	111.00	5	146.0	34.9	2
5KP100A	5KP100CA	100.0	111.00	123.00	5	162.0	31.5	2

※ For Bi-directional type having V<sub>RMW</sub> of 10 Volts and less, the I<sub>R</sub> limit is double.

※ For parts without A, the V<sub>BR</sub> is  $\pm$  10% and V<sub>C</sub> is 5% higher than with A parts.

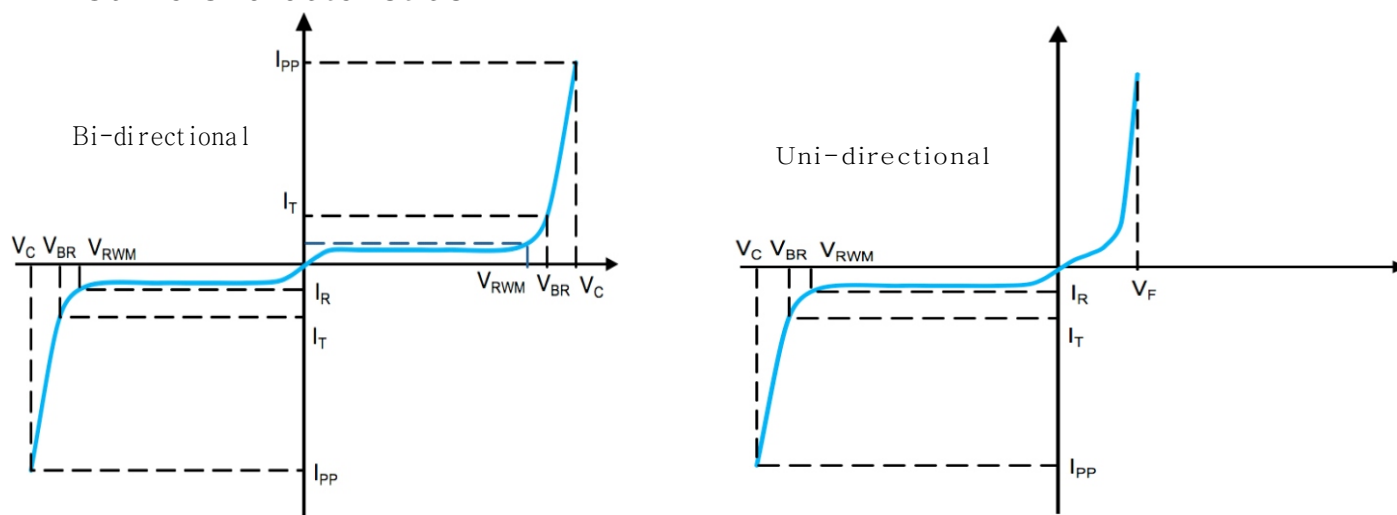
## RATINGS AND CHARACTERISTIC CURVES (5KP Series)

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @ $I_T$	Breakdown Voltage Max. @ $I_T$	Test Current	Maximum Clamping Voltage @ $I_{PP}$	Peak Pulse Current	Reverse Leakage @ $V_{RWM}$
(Uni)	(Bi)	$V_{RWM}(V)$	$V_{BR\ MIN}(V)$	$V_{BR\ MAX}(V)$	$I_T\ (mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
5KP110A	5KP110CA	110.0	122.00	135.00	5	177.0	28.8	2
5KP120A	5KP120CA	120.0	133.00	147.00	5	193.0	26.4	2
5KP130A	5KP130CA	130.0	144.00	159.00	5	209.0	24.4	2
5KP150A	5KP150CA	150.0	167.00	185.00	5	243.0	21.0	2
5KP160A	5KP160CA	160.0	178.00	197.00	5	259.0	19.7	2
5KP170A	5KP170CA	170.0	189.00	209.00	5	275.0	18.5	2
5KP180A	5KP180CA	180.0	200.00	221.00	5	289.0	17.6	2
5KP190A	5KP190CA	190.0	211.00	233.00	5	310.0	16.5	2
5KP200A	5KP200CA	200.0	222.00	246.00	5	329.2	15.5	2
5KP210A	5KP210CA	210.0	233.00	258.00	5	349.5	14.6	2
5KP220A	5KP220CA	220.0	244.00	270.00	5	371.1	13.7	2

※ For Bi-directional type having  $V_{RWM}$  of 10 Volts and less, the  $I_R$  limit is double.

※ For parts without A, the  $V_{BR}$  is  $\pm 10\%$  and  $V_C$  is 5% higher than with A parts.

### I-V Curve Characteristics



- $P_{PPM}$  Peak Pulse Power Dissipation - Max power dissipation
- $V_{RWM}$  Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation
- $V_{BR}$  Breakdown Voltage – Maximum voltage that flows through the TVS at a specified current ( $I_T$ )
- $V_C$  Clamping Voltage – Peak voltage measured across the TVS at a specified  $I_{PPM}$  (peak impulse current)
- $I_R$  Reverse Leakage Current – Current measured at  $V_R$
- $V_F$  Forward Voltage Drop for Uni-directional

# RATINGS AND CHARACTERISTIC CURVES (5KP Series)

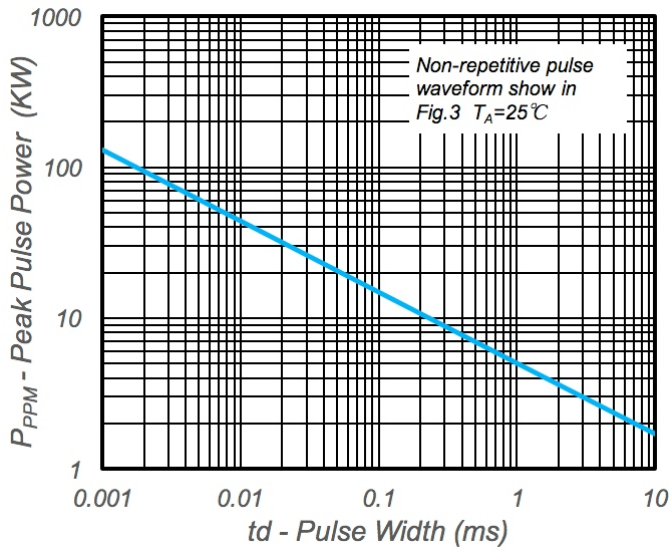


Fig.1 - Peak Pulse Power Rating

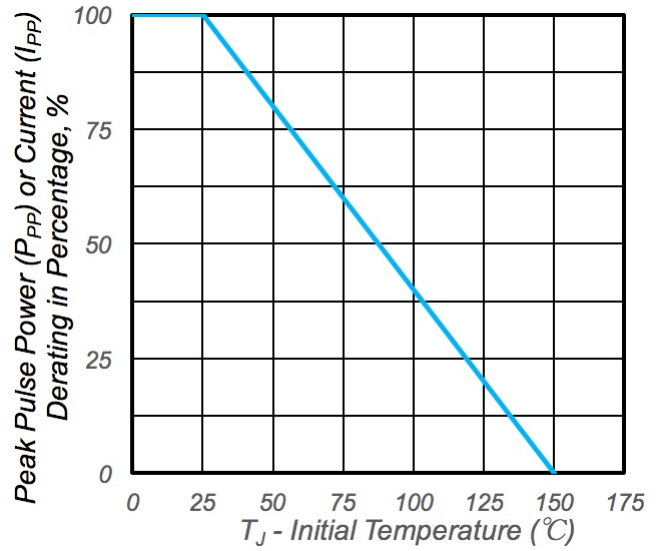


Fig.2 - Pulse Derating Curve

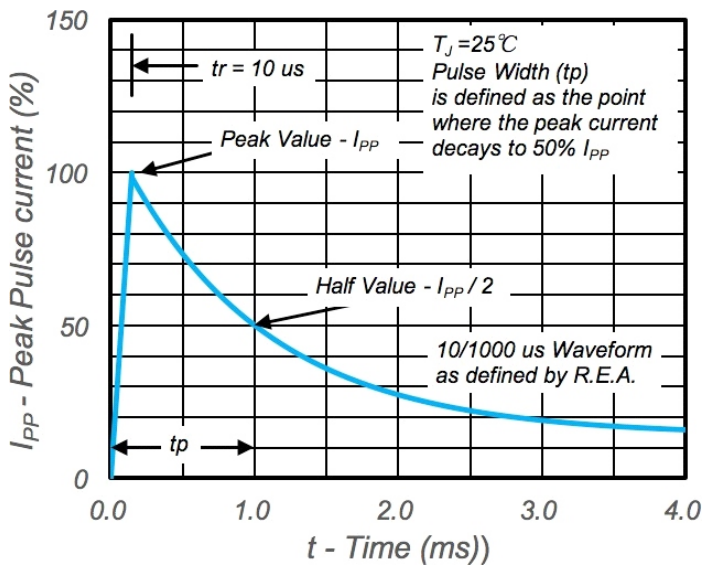


Fig.3 - Pulse Waveform

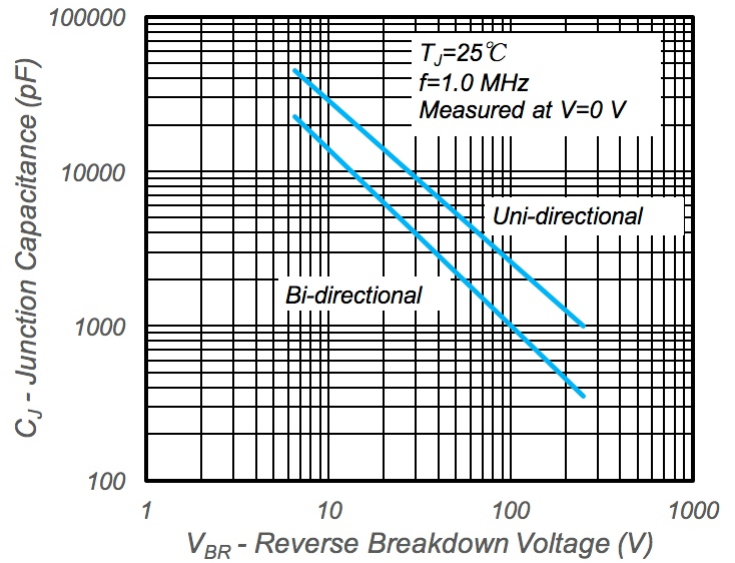


Fig.4 - Typical Junction Capacitance