



5KP SERIES

TRANSIENT VOLTAGE SUPPRESSORS

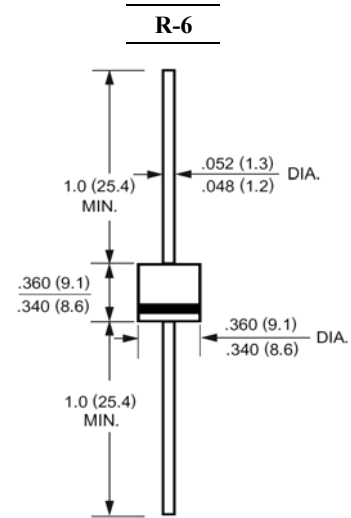
WORKING VOLTAGE: 5.0 to 440 VOLTS
PEAK PULSE POWER: 5000 WATTS

FEATURES

- Glass passivated chip
- Uni and Bidirectional unit
- 5000W peak pulse power capability with a 10/1000µs waveform, repetitive rate (duty cycle): 0.01%
- Excellent clamping capability
- Low leakage
- Very fast response time
- Suffix "H" indicates Halogen-free parts, ex. 5KP5.0AH

MECHANICAL DATA

Case : Molded plastic, R-6
 Epoxy : UL 94V-O rate flame retardant
 Lead : Solderable per MIL-STD-202, method 208 guaranteed
 Polarity : Color band denotes cathode end except bipolar
 Mounting position : Any



Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics

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

Parameter	Symbols	Limit	Units
Peak power dissipation with a 10/1000µs waveform ⁽¹⁾	P _{PP}	5000	W
Peak pulse current with a 10/1000µs waveform ⁽¹⁾	I _{PP}	See Next Table	A
Power dissipation on infinite heatsink at T _L = 75 °C	P _D	8.0	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I _{FSM}	400	A
Maximum instantaneous forward voltage at 100 A for unidirectional only ⁽³⁾	V _F	3.5 / 5.0	V
Operating junction and storage temperature range	T _J , T _{stg}	-55 to +150	°C

NOTES:

- (1) Non-repetitive current pulse per Fig.5 and derated above T_A= 25 °C per Fig.1
- (2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
- (3) V_F<3.5V for devices of V_{BR}<200V and V_F<5.0V for devices of V_{BR}>201V



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Device Type (Uni)	Device Type (Bi)	Breakdown Voltage $V_{BR}@I_T$			Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Leakage $V_{RWM}@I_R$ (μ A)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage $V_C@I_{PP}$ (V)
		Min (V)	Max (V)	I_T (mA)				
5KP5.0	5KP5.0C	6.40	7.30	50	5.0	5000	520.83	9.6
5KP5.0A	5KP5.0CA	6.40	7.00	50	5.0	5000	543.48	9.2
5KP6.0	5KP6.0C	6.67	8.15	50	6.0	5000	438.60	11.4
5KP6.0A	5KP6.0CA	6.67	7.37	50	6.0	5000	485.44	10.3
5KP6.5	5KP6.5C	7.22	8.82	50	6.5	2000	406.50	12.3
5KP6.5A	5KP6.5CA	7.22	7.98	50	6.5	2000	446.43	11.2
5KP7.0	5KP7.0C	7.78	9.51	50	7.0	1000	375.94	13.3
5KP7.0A	5KP7.0CA	7.78	8.60	50	7.0	1000	416.67	12.0
5KP7.5	5KP7.5C	8.33	10.20	5	7.5	250	349.65	14.3
5KP7.5A	5KP7.5CA	8.33	9.21	5	7.5	250	387.60	12.9
5KP8.0	5KP8.0C	8.89	10.90	5	8.0	150	333.33	15.0
5KP8.0A	5KP8.0CA	8.89	9.83	5	8.0	150	367.65	13.6
5KP8.5	5KP8.5C	9.44	11.50	5	8.5	50	314.47	15.9
5KP8.5A	5KP8.5CA	9.44	10.40	5	8.5	50	347.22	14.4
5KP9.0	5KP9.0C	10.00	12.20	5	9.0	20	295.86	16.9
5KP9.0A	5KP9.0CA	10.00	11.10	5	9.0	20	324.68	15.4
5KP10	5KP10C	11.10	13.60	5	10.0	15	265.96	18.8
5KP10A	5KP10CA	11.10	12.30	5	10.0	15	294.12	17.0
5KP11	5KP11C	12.20	14.90	5	11.0	2	248.76	20.1
5KP11A	5KP11CA	12.20	13.50	5	11.0	2	274.73	18.2
5KP12	5KP12C	13.30	16.30	5	12.0	2	227.27	22.0
5KP12A	5KP12CA	13.30	14.70	5	12.0	2	251.26	19.9
5KP13	5KP13C	14.40	17.60	5	13.0	2	210.08	23.8
5KP13A	5KP13CA	14.40	15.90	5	13.0	2	232.56	21.5
5KP14	5KP14C	15.60	19.10	5	14.0	2	193.80	25.8
5KP14A	5KP14CA	15.60	17.20	5	14.0	2	215.52	23.2
5KP15	5KP15C	16.70	20.40	5	15.0	2	185.87	26.9
5KP15A	5KP15CA	16.70	18.50	5	15.0	2	204.92	24.4
5KP16	5KP16C	17.80	21.80	5	16.0	2	173.61	28.8
5KP16A	5KP16CA	17.80	19.70	5	16.0	2	192.31	26.0
5KP17	5KP17C	18.90	23.10	5	17.0	2	163.93	30.5
5KP17A	5KP17CA	18.90	20.90	5	17.0	2	181.16	27.6
5KP18	5KP18C	20.00	24.40	5	18.0	2	155.28	32.2
5KP18A	5KP18CA	20.00	22.10	5	18.0	2	171.23	29.2
5KP19	5KP19C	21.13	25.80	5	19.0	2	147.02	34.0
5KP19A	5KP19CA	21.10	23.30	5	19.0	2	162.44	30.8
5KP20	5KP20C	22.20	27.10	5	20.0	2	139.66	35.8
5KP20A	5KP20CA	22.20	24.50	5	20.0	2	154.32	32.4
5KP22	5KP22C	24.40	29.80	5	22.0	2	126.90	39.4
5KP22A	5KP22CA	24.40	26.90	5	22.0	2	140.85	35.5
5KP24	5KP24C	26.70	32.60	5	24.0	2	116.28	43.0
5KP24A	5KP24CA	26.70	29.50	5	24.0	2	128.53	38.9
5KP26	5KP26C	28.90	35.30	5	26.0	2	107.30	46.6
5KP26A	5KP26CA	28.90	31.90	5	26.0	2	118.76	42.1



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Device Type (Uni)	Device Type (Bi)	Breakdown Voltage $V_{BR}@I_T$			Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Leakage $V_{RWM}@I_R$ (μ A)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage $V_C@I_{PP}$ (V)
		Min (V)	Max (V)	I_T (mA)				
5KP28	5KP28C	31.10	38.00	5	28.0	2	100.00	50.0
5KP28A	5KP28CA	31.10	34.40	5	28.0	2	110.13	45.4
5KP30	5KP30C	33.30	40.70	5	30.0	2	93.46	53.5
5KP30A	5KP30CA	33.30	36.80	5	30.0	2	103.31	48.4
5KP33	5KP33C	36.70	44.90	5	33.0	2	84.75	59.0
5KP33A	5KP33CA	36.70	40.60	5	33.0	2	93.81	53.3
5KP36	5KP36C	40.00	48.90	5	36.0	2	77.76	64.3
5KP36A	5KP36CA	40.00	44.20	5	36.0	2	86.06	58.1
5KP40	5KP40C	44.40	54.30	5	40.0	2	70.03	71.4
5KP40A	5KP40CA	44.40	49.10	5	40.0	2	77.52	64.5
5KP43	5KP43C	47.80	58.40	5	43.0	2	65.19	76.7
5KP43A	5KP43CA	47.80	52.80	5	43.0	2	72.05	69.4
5KP45	5KP45C	50.00	61.10	5	45.0	2	62.27	80.3
5KP45A	5KP45CA	50.00	55.30	5	45.0	2	68.78	72.7
5KP48	5KP48C	53.30	65.10	5	48.0	2	58.48	85.5
5KP48A	5KP48CA	53.30	58.90	5	48.0	2	64.60	77.4
5KP51	5KP51C	56.70	69.30	5	51.0	2	54.88	91.1
5KP51A	5KP51CA	56.70	62.70	5	51.0	2	60.68	82.4
5KP54	5KP54C	60.00	73.30	5	54.0	2	51.92	96.3
5KP54A	5KP54CA	60.00	66.30	5	54.0	2	57.41	87.1
5KP58	5KP58C	64.40	78.70	5	58.0	2	48.54	103.0
5KP58A	5KP58CA	64.40	71.20	5	58.0	2	53.42	93.6
5KP60	5KP60C	66.70	81.50	5	60.0	2	46.73	107.0
5KP60A	5KP60CA	66.70	73.70	5	60.0	2	51.65	96.8
5KP64	5KP64C	71.10	86.90	5	64.0	2	43.86	114.0
5KP64A	5KP64CA	71.10	78.60	5	64.0	2	48.54	103.0
5KP70	5KP70C	77.80	95.10	5	70.0	2	40.00	125.0
5KP70A	5KP70CA	77.80	86.00	5	70.0	2	44.25	113.0
5KP75	5KP75C	83.30	102.00	5	75.0	2	37.31	134.0
5KP75A	5KP75CA	83.30	92.10	5	75.0	2	41.32	121.0
5KP78	5KP78C	86.70	106.00	5	78.0	2	35.97	139.0
5KP78A	5KP78CA	86.70	95.80	5	78.0	2	39.68	126.0
5KP80	5KP80C	88.96	108.80	5	80.0	2	34.92	143.2
5KP80A	5KP80CA	88.80	97.60	5	80.0	2	38.58	129.6
5KP85	5KP85C	94.40	115.00	5	85.0	2	33.11	151.0
5KP85A	5KP85CA	94.40	104.00	5	85.0	2	36.50	137.0
5KP90	5KP90C	100.00	122.00	5	90.0	2	31.25	160.0
5KP90A	5KP90CA	100.00	111.00	5	90.0	2	34.25	146.0
5KP100	5KP100C	111.00	136.00	5	100.0	2	27.93	179.0
5KP100A	5KP100CA	111.00	123.00	5	100.0	2	30.86	162.0
5KP110	5KP110C	122.00	149.00	5	110.0	2	25.51	196.0
5KP110A	5KP110CA	122.00	135.00	5	110.0	2	28.25	177.0



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		Min (V)	Max (V)	I_T (mA)				
5KP120	5KP120C	133.00	163.00	5	120.0	2	23.36	214.0
5KP120A	5KP120CA	133.00	147.00	5	120.0	2	25.91	193.0
5KP130	5KP130C	144.00	176.00	5	130.0	2	21.65	231.0
5KP130A	5KP130CA	144.00	159.00	5	130.0	2	23.92	209.0
5KP140	5KP140C	155.68	190.40	5	140.0	2	19.95	250.6
5KP140A	5KP140CA	155.00	171.00	5	140.0	2	22.05	226.8
5KP150	5KP150C	167.00	204.00	5	150.0	2	18.66	268.0
5KP150A	5KP150CA	167.00	185.00	5	150.0	2	20.58	243.0
5KP160	5KP160C	178.00	218.00	5	160.0	2	17.42	287.0
5KP160A	5KP160CA	178.00	197.00	5	160.0	2	19.31	259.0
5KP170	5KP170C	189.00	231.00	5	170.0	2	16.45	304.0
5KP170A	5KP170CA	189.00	209.00	5	170.0	2	18.18	275.0
5KP180	5KP180C	200.16	244.80	5	180.0	2	15.52	322.2
5KP180A	5KP180CA	200.00	220.00	5	180.0	2	17.15	291.6
5KP190	5KP190C	211.28	258.40	5	190.0	2	14.70	340.1
5KP190A	5KP190CA	211.00	232.00	5	190.0	2	16.24	307.8
5KP200A	5KP200CA	224.00	247.00	5	200.0	2	15.43	324.0
5KP210A	5KP210CA	233.00	258.00	5	210.0	2	14.31	349.5
5KP220A	5KP220CA	246.00	272.00	5	220.0	2	14.04	356.0
5KP250A	5KP250CA	279.00	309.00	5	250.0	2	12.35	405.0
5KP300A	5KP300CA	335.00	371.00	5	300.0	2	10.29	486.0
5KP350A	5KP350CA	391.00	432.00	5	350.0	2	8.82	567.0
5KP400A	5KP400CA	447.00	494.00	5	400.0	2	7.72	648.0
5KP440A	5KP440CA	492.00	543.00	5	440.0	2	7.01	713.0

Note

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_R of 10 volts and under, the I_R limit is double



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RATINGS AND CHARACTERISTIC CURVES

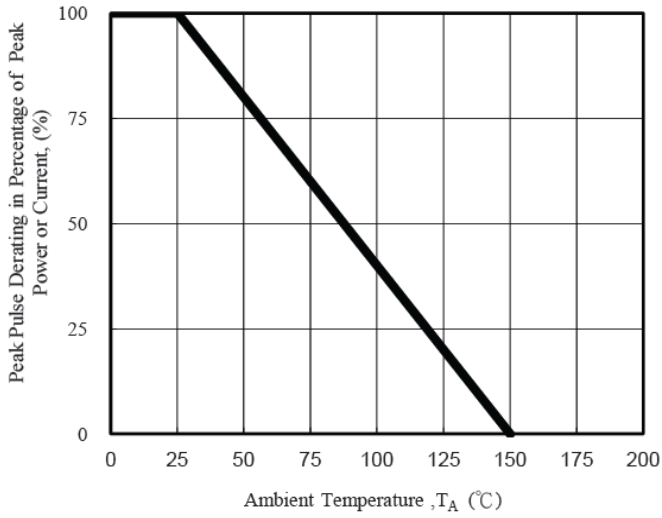


Fig. 1 - Pulse Derating Curve

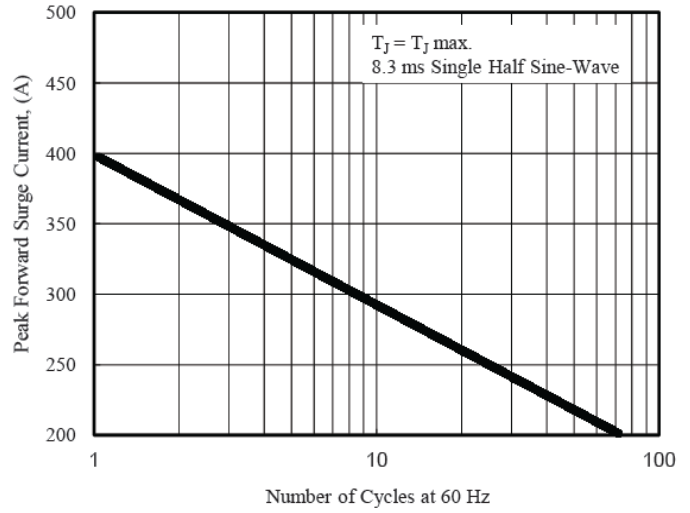


Fig. 2 - Maximum Non-Repetitive Surge Current

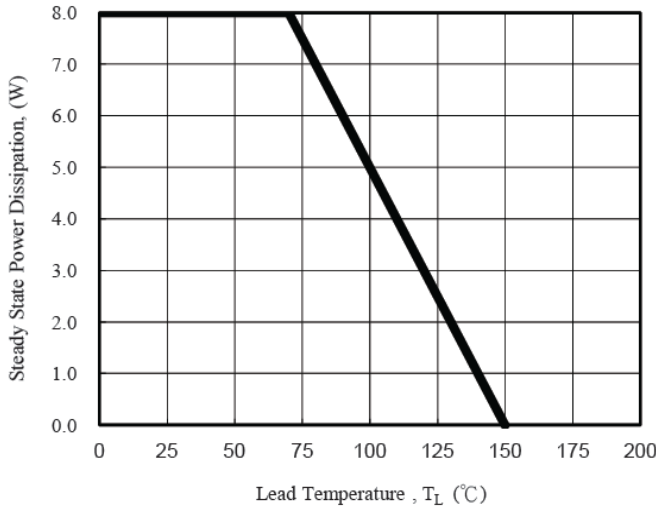


Fig. 3 - Steady State Power Derating Curve

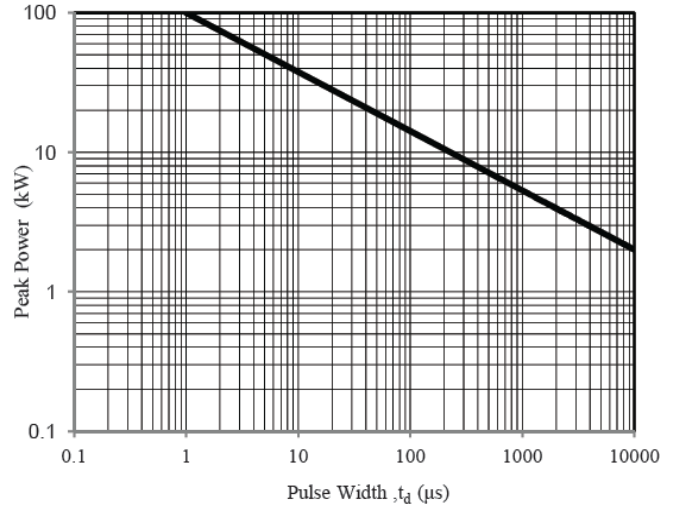


Fig. 4 - Peak Pulse Power Rating Curve

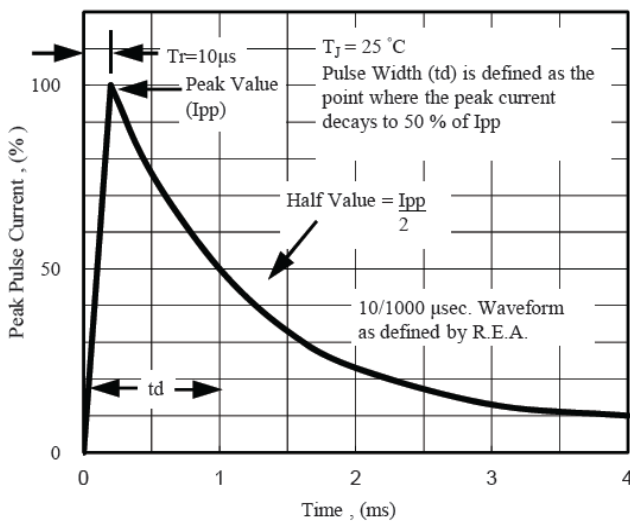


Fig. 5 - Pulse Waveform

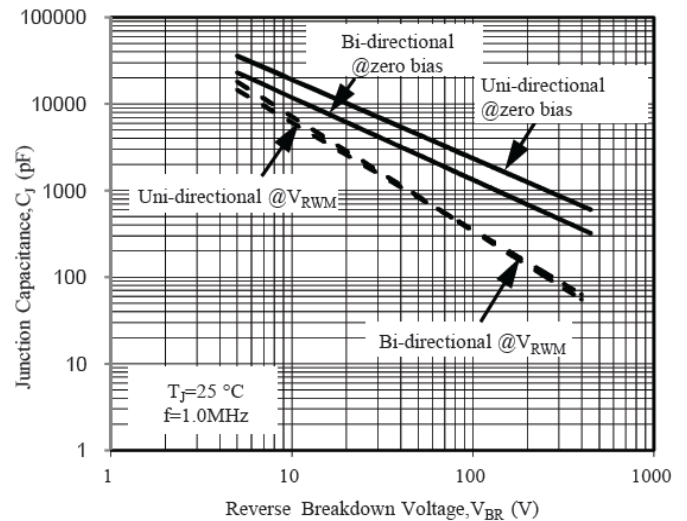


Fig. 6 - Typical Junction Capacitance