



3KP SERIES

TRANSIENT VOLTAGE SUPPRESSORS

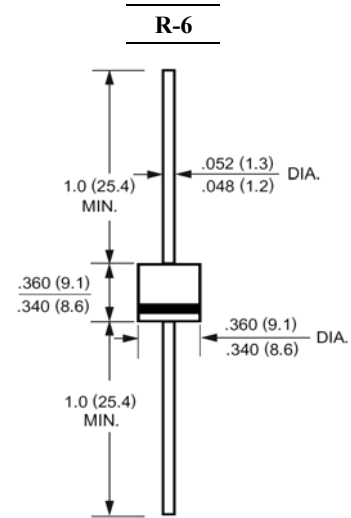
WORKING VOLTAGE: 5.0 to 440 VOLTS
PEAK PULSE POWER: 3000 WATTS

FEATURES

- Glass passivated chip
- Uni and Bidirectional unit
- 3000W 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. 3KP5.0AH

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}	3000	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	6.5	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾	I _{FSM}	300	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)				
3KP5.0	3KP5.0C	6.40	7.30	50	5.0	5000	312.50	9.6
3KP5.0A	3KP5.0CA	6.40	7.00	50	5.0	5000	326.09	9.2
3KP6.0	3KP6.0C	6.67	8.15	50	6.0	5000	263.16	11.4
3KP6.0A	3KP6.0CA	6.67	7.37	50	6.0	5000	291.26	10.3
3KP6.5	3KP6.5C	7.22	8.82	50	6.5	2000	243.90	12.3
3KP6.5A	3KP6.5CA	7.22	7.98	50	6.5	2000	267.86	11.2
3KP7.0	3KP7.0C	7.78	9.51	50	7.0	1000	225.56	13.3
3KP7.0A	3KP7.0CA	7.78	8.60	50	7.0	1000	250.00	12.0
3KP7.5	3KP7.5C	8.33	10.20	5	7.5	250	209.79	14.3
3KP7.5A	3KP7.5CA	8.33	9.21	5	7.5	250	232.56	12.9
3KP8.0	3KP8.0C	8.89	10.90	5	8.0	150	200.00	15.0
3KP8.0A	3KP8.0CA	8.89	9.83	5	8.0	150	220.59	13.6
3KP8.5	3KP8.5C	9.44	11.50	5	8.5	50	188.68	15.9
3KP8.5A	3KP8.5CA	9.44	10.40	5	8.5	50	208.33	14.4
3KP9.0	3KP9.0C	10.00	12.20	5	9.0	20	177.51	16.9
3KP9.0A	3KP9.0CA	10.00	11.10	5	9.0	20	194.81	15.4
3KP10	3KP10C	11.10	13.60	5	10.0	15	159.57	18.8
3KP10A	3KP10CA	11.10	12.30	5	10.0	15	176.47	17.0
3KP11	3KP11C	12.20	14.90	5	11.0	2	149.25	20.1
3KP11A	3KP11CA	12.20	13.50	5	11.0	2	164.84	18.2
3KP12	3KP12C	13.30	16.30	5	12.0	2	136.36	22.0
3KP12A	3KP12CA	13.30	14.70	5	12.0	2	150.75	19.9
3KP13	3KP13C	14.40	17.60	5	13.0	2	126.05	23.8
3KP13A	3KP13CA	14.40	15.90	5	13.0	2	139.53	21.5
3KP14	3KP14C	15.60	19.10	5	14.0	2	116.28	25.8
3KP14A	3KP14CA	15.60	17.20	5	14.0	2	129.31	23.2
3KP15	3KP15C	16.70	20.40	5	15.0	2	111.52	26.9
3KP15A	3KP15CA	16.70	18.50	5	15.0	2	122.95	24.4
3KP16	3KP16C	17.80	21.80	5	16.0	2	104.17	28.8
3KP16A	3KP16CA	17.80	19.70	5	16.0	2	115.38	26.0
3KP17	3KP17C	18.90	23.10	5	17.0	2	98.36	30.5
3KP17A	3KP17CA	18.90	20.90	5	17.0	2	108.70	27.6
3KP18	3KP18C	20.00	24.40	5	18.0	2	93.17	32.2
3KP18A	3KP18CA	20.00	22.10	5	18.0	2	102.74	29.2
3KP19	3KP19C	21.10	25.76	5	19.0	2	88.21	34.0
3KP19A	3KP19CA	21.10	23.30	5	19.0	2	97.47	30.8
3KP20	3KP20C	22.20	27.10	5	20.0	2	83.80	35.8
3KP20A	3KP20CA	22.20	24.50	5	20.0	2	92.59	32.4
3KP22	3KP22C	24.40	29.80	5	22.0	2	76.14	39.4
3KP22A	3KP22CA	24.40	26.90	5	22.0	2	84.51	35.5
3KP24	3KP24C	26.70	32.60	5	24.0	2	69.77	43.0
3KP24A	3KP24CA	26.70	29.50	5	24.0	2	77.12	38.9
3KP26	3KP26C	28.90	35.30	5	26.0	2	64.38	46.6
3KP26A	3KP26CA	28.90	31.90	5	26.0	2	71.26	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)				
3KP28	3KP28C	31.10	38.00	5	28.0	2	60.00	50.0
3KP28A	3KP28CA	31.10	34.40	5	28.0	2	66.08	45.4
3KP30	3KP30C	33.30	40.70	5	30.0	2	56.07	53.5
3KP30A	3KP30CA	33.30	36.80	5	30.0	2	61.98	48.4
3KP33	3KP33C	36.70	44.90	5	33.0	2	50.85	59.0
3KP33A	3KP33CA	36.70	40.60	5	33.0	2	56.29	53.3
3KP36	3KP36C	40.00	48.90	5	36.0	2	46.66	64.3
3KP36A	3KP36CA	40.00	44.20	5	36.0	2	51.64	58.1
3KP40	3KP40C	44.40	54.30	5	40.0	2	42.02	71.4
3KP40A	3KP40CA	44.40	49.10	5	40.0	2	46.51	64.5
3KP43	3KP43C	47.80	58.40	5	43.0	2	39.11	76.7
3KP43A	3KP43CA	47.80	52.80	5	43.0	2	43.23	69.4
3KP45	3KP45C	50.00	61.10	5	45.0	2	37.36	80.3
3KP45A	3KP45CA	50.00	55.30	5	45.0	2	41.27	72.7
3KP48	3KP48C	53.30	65.10	5	48.0	2	35.09	85.5
3KP48A	3KP48CA	53.30	58.90	5	48.0	2	38.76	77.4
3KP51	3KP51C	56.70	69.30	5	51.0	2	32.93	91.1
3KP51A	3KP51CA	56.70	62.70	5	51.0	2	36.41	82.4
3KP54	3KP54C	60.00	73.30	5	54.0	2	31.15	96.3
3KP54A	3KP54CA	60.00	66.30	5	54.0	2	34.44	87.1
3KP58	3KP58C	64.40	78.70	5	58.0	2	29.13	103.0
3KP58A	3KP58CA	64.40	71.20	5	58.0	2	32.05	93.6
3KP60	3KP60C	66.70	81.50	5	60.0	2	28.04	107.0
3KP60A	3KP60CA	66.70	73.70	5	60.0	2	30.99	96.8
3KP64	3KP64C	71.10	86.90	5	64.0	2	26.32	114.0
3KP64A	3KP64CA	71.10	78.60	5	64.0	2	29.13	103.0
3KP70	3KP70C	77.80	95.10	5	70.0	2	24.00	125.0
3KP70A	3KP70CA	77.80	86.00	5	70.0	2	26.55	113.0
3KP75	3KP75C	83.30	102.00	5	75.0	2	22.39	134.0
3KP75A	3KP75CA	83.30	92.10	5	75.0	2	24.79	121.0
3KP78	3KP78C	86.70	106.00	5	78.0	2	21.58	139.0
3KP78A	3KP78CA	86.70	95.80	5	78.0	2	23.81	126.0
3KP80	3KP80C	88.96	108.80	5	80.0	2	20.95	143.2
3KP80A	3KP80CA	88.80	97.60	5	80.0	2	23.15	129.6
3KP85	3KP85C	94.40	115.00	5	85.0	2	19.87	151.0
3KP85A	3KP85CA	94.40	104.00	5	85.0	2	21.90	137.0
3KP90	3KP90C	100.00	122.00	5	90.0	2	18.75	160.0
3KP90A	3KP90CA	100.00	111.00	5	90.0	2	20.55	146.0
3KP100	3KP100C	111.00	136.00	5	100.0	2	16.76	179.0
3KP100A	3KP100CA	111.00	123.00	5	100.0	2	18.52	162.0
3KP110	3KP110C	122.00	149.00	5	110.0	2	15.31	196.0
3KP110A	3KP110CA	122.00	135.00	5	110.0	2	16.95	177.0



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		Min (V)	Max (V)	I_T (mA)				
3KP120	3KP120C	133.00	163.00	5	120.0	2	14.02	214.0
3KP120A	3KP120CA	133.00	147.00	5	120.0	2	15.54	193.0
3KP130	3KP130C	144.00	176.00	5	130.0	2	12.99	231.0
3KP130A	3KP130CA	144.00	159.00	5	130.0	2	14.35	209.0
3KP140	3KP140C	155.68	190.40	5	140.0	2	11.97	250.6
3KP140A	3KP140CA	155.00	171.00	5	140.0	2	13.23	226.8
3KP150	3KP150C	167.00	204.00	5	150.0	2	11.19	268.0
3KP150A	3KP150CA	167.00	185.00	5	150.0	2	12.35	243.0
3KP160	3KP160C	178.00	218.00	5	160.0	2	10.45	287.0
3KP160A	3KP160CA	178.00	197.00	5	160.0	2	11.58	259.0
3KP170	3KP170C	189.00	231.00	5	170.0	2	9.87	304.0
3KP170A	3KP170CA	189.00	209.00	5	170.0	2	10.91	275.0
3KP180	3KP180C	200.16	244.80	5	180.0	2	9.31	322.2
3KP180A	3KP180CA	200.00	220.00	5	180.0	2	10.29	291.6
3KP190	3KP190C	211.28	258.40	5	190.0	2	8.82	340.1
3KP190A	3KP190CA	211.00	232.00	5	190.0	2	9.75	307.8
3KP200A	3KP200CA	224.00	247.00	5	200.0	2	9.26	324.0
3KP210A	3KP210CA	233.00	258.00	5	210.0	2	8.58	349.5
3KP220A	3KP220CA	246.00	272.00	5	220.0	2	8.43	356.0
3KP250A	3KP250CA	279.00	309.00	5	250.0	2	7.41	405.0
3KP300A	3KP300CA	335.00	371.00	5	300.0	2	6.17	486.0
3KP350A	3KP350CA	391.00	432.00	5	350.0	2	5.29	567.0
3KP400A	3KP400CA	447.00	494.00	5	400.0	2	4.63	648.0
3KP440A	3KP440CA	492.00	543.00	5	440.0	2	4.21	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

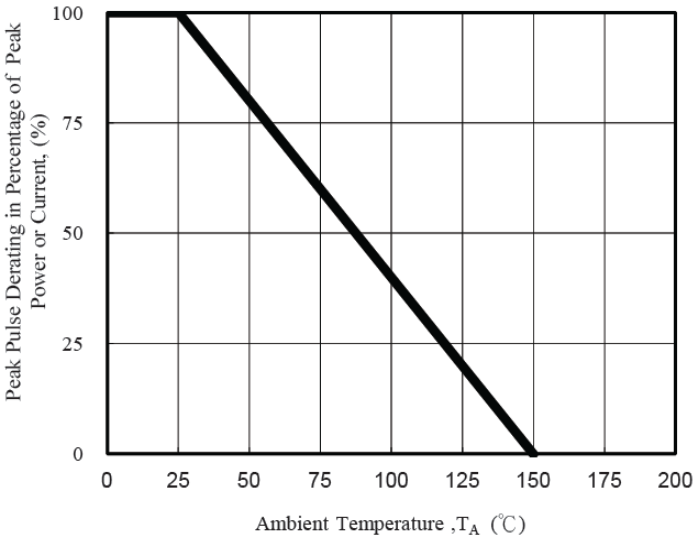


Fig. 1 - Pulse Derating Curve

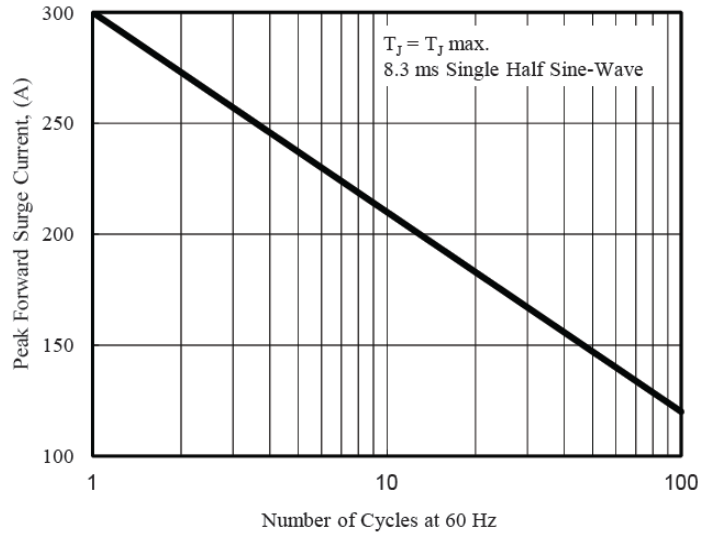


Fig. 2 - Maximum Non-Repetitive Surge Current

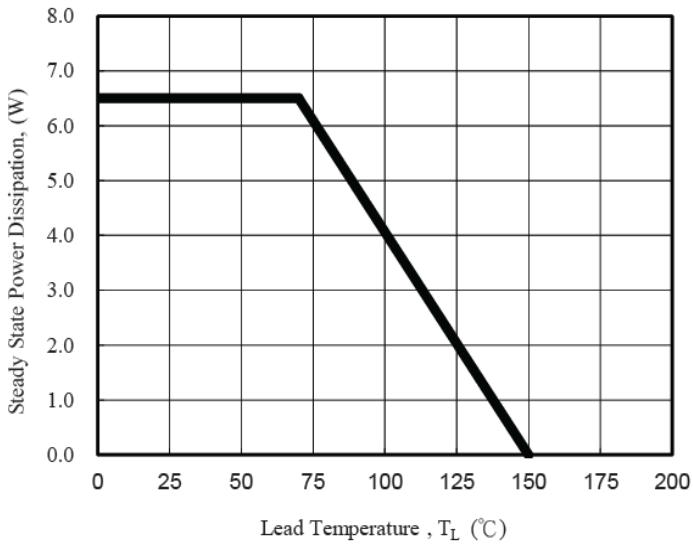


Fig. 3 - Steady State Power Derating Curve

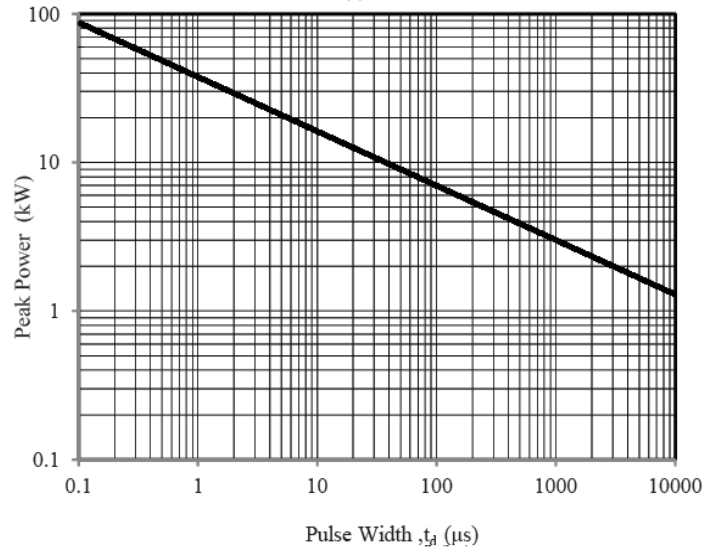


Fig. 4 - Peak Pulse Power Rating Curve

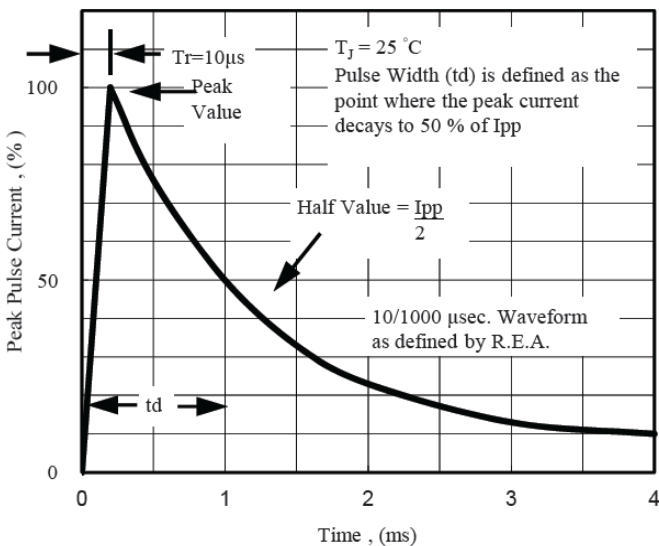


Fig. 5 - Pulse Waveform

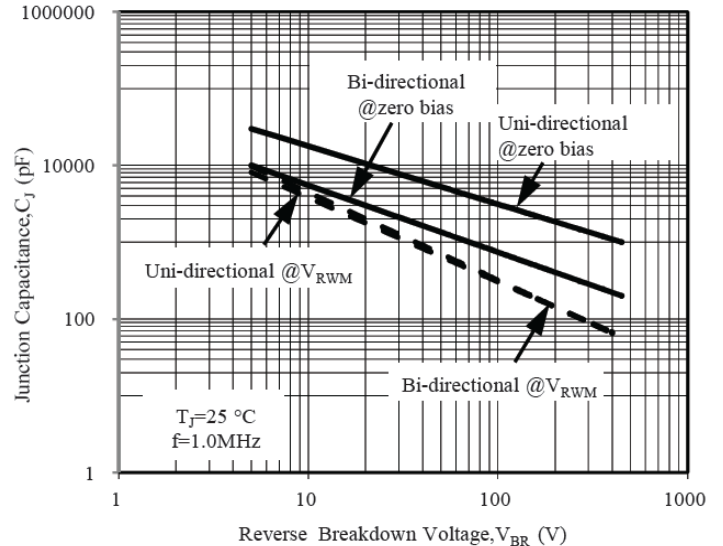


Fig. 6 - Typical Junction Capacitance