

5KP Series



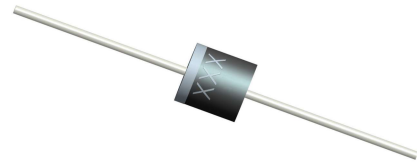
Transient Voltage Suppressor

Working Peak Reverse Voltage: 5.0 to 440 Volts

Power Dissipation: 5000Watts

RoHS Device

Halogen Free

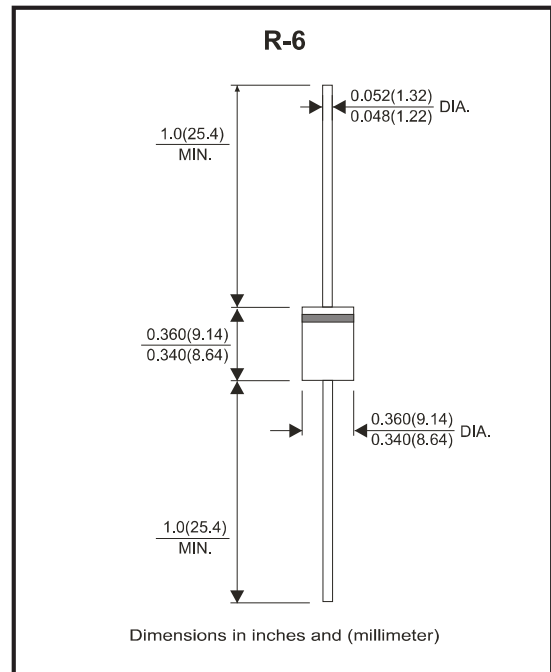


Features

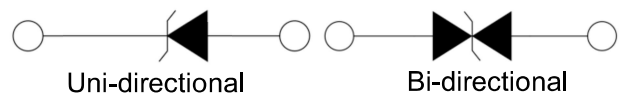
- Glass passivated chip.
- 5000W peak pulse power capability with a 10/1000s waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability .
- Very fast response time.

Mechanical Data

- Case: Molded plastic.
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-202, method 208 guaranteed.
- Polarity: Color band denotes cathode end except Bipolar.
- Mounting position: Any



Circuit Diagram



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 _{PP}	5000	W
Peak pulse current with a 10/1000μs waveform (Note 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, 8.3ms single half sine-wave unidirectional only (Note 2)	I _{FSM}	500	A
Maximum instantaneous forward voltage at 100A for uni-directional devices only (Note 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 of 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

Company reserves the right to improve product design , functions and reliability without notice.

Rev:1.0

5KP Series



Electrical Characteristics (at TA=25°C, unless otherwise specified)

Part No.	Breakdown voltage VBR @ IT			Maximum Reverse Leakage @VRWM IR (uA)	Working Peak Reverse Voltage VRWM (V)	Maximum Reverse Surge Current IPP (A)	Maximum Clamping Voltage @IPP VC (V)	Marking Code	
	Min. (V)	Max. (V)	IT (mA)					UNI	BI
5KP5.0(C)A	6.40	7.00	50	5000	5.0	543.48	9.2	5KP5.0A	5KP5.0CA
5KP6.0(C)A	6.67	7.37	50	5000	6.0	485.44	10.3	5KP6.0A	5KP6.0CA
5KP6.5(C)A	7.22	7.98	50	2000	7.0	446.43	11.2	5KP6.5A	5KP6.5CA
5KP7.0(C)A	7.78	8.60	50	1000	7.0	416.67	12.0	5KP7.0A	5KP7.0CA
5KP7.5(C)A	8.33	9.21	5	250	8.0	387.60	12.9	5KP7.5A	5KP7.5CA
5KP8.0(C)A	8.89	9.83	5	150	8.0	367.65	13.6	5KP8.0A	5KP8.0CA
5KP8.5(C)A	9.44	10.40	5	50	9.0	347.22	14.4	5KP8.5A	5KP8.5CA
5KP9.0(C)A	10.00	11.10	5	20	9.0	324.68	15.4	5KP9.0A	5KP9.0CA
5KP10(C)A	11.10	12.30	5	15	10.0	294.12	17.0	5KP10A	5KP10CA
5KP11(C)A	12.20	13.50	5	2	11.0	274.73	18.2	5KP11A	5KP11CA
5KP12(C)A	13.30	14.70	5	2	12.0	251.26	19.9	5KP12A	5KP12CA
5KP13(C)A	14.40	15.90	5	2	13.0	232.56	21.5	5KP13A	5KP13CA
5KP14(C)A	15.60	17.20	5	2	14.0	215.52	23.2	5KP14A	5KP14CA
5KP15(C)A	16.70	18.50	5	2	15.0	204.92	24.4	5KP15A	5KP15CA
5KP16(C)A	17.80	19.70	5	2	16.0	192.31	26.0	5KP16A	5KP16CA
5KP17(C)A	18.90	20.90	5	2	17.0	181.16	27.6	5KP17A	5KP17CA
5KP18(C)A	20.00	22.10	5	2	18.0	171.23	29.2	5KP18A	5KP18CA
5KP19(C)A	21.10	23.30	5	2	19.0	162.44	30.8	5KP19A	5KP19CA
5KP20(C)A	22.20	24.50	5	2	20.0	154.32	32.4	5KP20A	5KP20CA
5KP22(C)A	24.40	26.90	5	2	22.0	140.85	35.5	5KP22A	5KP22CA
5KP24(C)A	26.70	29.50	5	2	24.0	128.53	38.9	5KP24A	5KP24CA
5KP26(C)A	28.90	31.90	5	2	26.0	118.76	42.1	5KP26A	5KP26CA
5KP28(C)A	31.10	34.40	5	2	28.0	110.13	45.4	5KP28A	5KP28CA
5KP30(C)A	33.30	36.80	5	2	30.0	103.31	48.4	5KP30A	5KP30CA
5KP33(C)A	36.70	40.60	5	2	33.0	93.81	53.3	5KP33A	5KP33CA
5KP36(C)A	40.00	44.20	5	2	36.0	86.06	58.1	5KP36A	5KP36CA
5KP40(C)A	44.40	49.10	5	2	40.0	77.52	64.5	5KP40A	5KP40CA
5KP43(C)A	47.80	52.80	5	2	43.0	72.05	69.4	5KP43A	5KP43CA
5KP45(C)A	50.00	55.30	5	2	45.0	68.78	72.7	5KP45A	5KP45CA
5KP48(C)A	53.30	58.90	5	2	48.0	64.60	77.4	5KP48A	5KP48CA
5KP51(C)A	56.70	62.70	5	2	51.0	60.68	82.4	5KP51A	5KP51CA
5KP54(C)A	60.00	66.30	5	2	54.0	57.41	87.1	5KP54A	5KP54CA
5KP58(C)A	64.40	71.20	5	2	58.0	53.42	93.6	5KP58A	5KP58CA
5KP60(C)A	66.70	73.70	5	2	60.0	51.65	96.8	5KP60A	5KP60CA
5KP64(C)A	71.10	78.60	5	2	64.0	48.54	103.0	5KP64A	5KP64CA
5KP70(C)A	77.80	86.00	5	2	70.0	44.25	113.0	5KP70A	5KP70CA
5KP75(C)A	83.30	92.10	5	2	75.0	41.32	121.0	5KP75A	5KP75CA
5KP78(C)A	86.70	95.80	5	2	78.0	39.68	126.0	5KP78A	5KP78CA
5KP80(C)A	88.80	97.60	5	2	80.0	38.58	129.6	5KP80A	5KP80CA
5KP85(C)A	94.40	104.00	5	2	85.0	36.50	137.0	5KP85A	5KP85CA

Note: 1) Suffix A denotes 5% tolerance devices.

2) Add suffix "C" or "CA" after part number to specify Bi-directional devices.

3) For Bi-Directional devices having VR of 10 volts and under, the IR limit is double.

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Rev:1.0

Electrical Characteristics (at TA=25°C, unless otherwise specified)

Part No.	Breakdown voltage V _{BR} @ I _T			Maximum Reverse Leakage @V _{RWM} I _R (uA)	Working Peak Reverse Voltage V _{RWM} (V)	Maximum Reverse Surge Current I _{PP} (A)	Maximum Clamping Voltage @I _{PP} V _C (V)	Marking Code	
	Min. (V)	Max. (V)	I _T (mA)					UNI	BI
5KP90(C)A	100.00	111.00	5	2	90.0	34.25	146.0	5KP90A	5KP90CA
5KP100(C)A	111.00	123.00	5	2	100.0	30.86	162.0	5KP100A	5KP100CA
5KP110(C)A	122.00	135.00	5	2	110.0	28.25	177.0	5KP110A	5KP110CA
5KP120(C)A	133.00	147.00	5	2	120.0	25.91	193.0	5KP120A	5KP120CA
5KP130(C)A	144.00	159.00	5	2	130.0	23.92	209.0	5KP130A	5KP130CA
5KP140(C)A	155.00	171.00	5	2	140.0	22.05	226.8	5KP140A	5KP140CA
5KP150(C)A	167.00	185.00	5	2	150.0	20.58	243.0	5KP150A	5KP150CA
5KP160(C)A	178.00	197.00	5	2	160.0	19.31	259.0	5KP160A	5KP160CA
5KP170(C)A	189.00	209.00	5	2	170.0	18.18	275.0	5KP170A	5KP170CA
5KP180(C)A	200.00	220.00	5	2	180.0	17.15	291.6	5KP180A	5KP180CA
5KP190(C)A	211.00	232.00	5	2	190.0	16.24	307.8	5KP190A	5KP190CA
5KP200(C)A	224.00	247.00	5	2	200.0	15.43	324.0	5KP200A	5KP200CA
5KP210(C)A	233.00	258.00	5	2	210.0	14.31	349.5	5KP210A	5KP210CA
5KP220(C)A	246.00	272.00	5	2	220.0	14.04	356.0	5KP220A	5KP220CA
5KP250(C)A	279.00	309.00	5	2	250.0	12.35	405.0	5KP250A	5KP250CA
5KP300(C)A	335.00	371.00	5	2	300.0	10.29	486.0	5KP300A	5KP300CA
5KP350(C)A	391.00	432.00	5	2	350.0	8.82	567.0	5KP350A	5KP350CA
5KP400(C)A	447.00	494.00	5	2	400.0	7.72	648.0	5KP400A	5KP400CA
5KP440(C)A	492.00	543.00	5	2	440.0	7.01	713.0	5KP440A	5KP440CA

Note: 1) Suffix A denotes 5% tolerance devices.
 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.

Fig.1 - Pulse Derating Curve

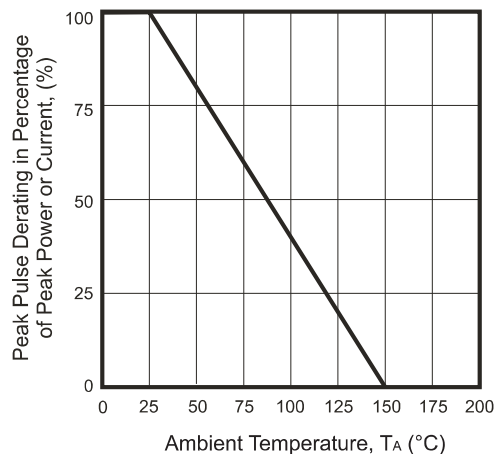


Fig.2 - Maximum Non-Repetitive Surge Current

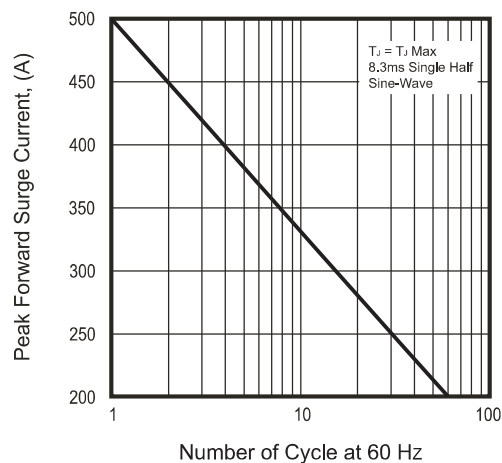


Fig.3 - Steady State Power Derating Curve

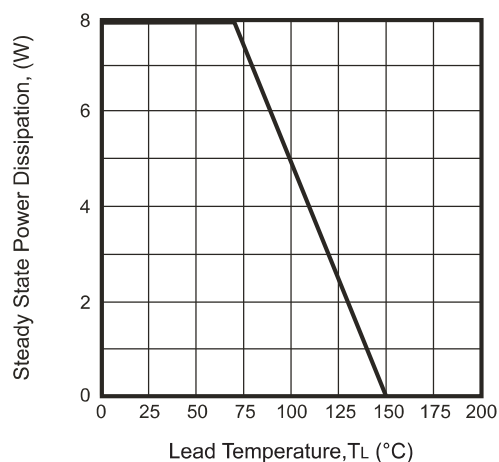


Fig.4- Peak Pulse Power Rating Curve

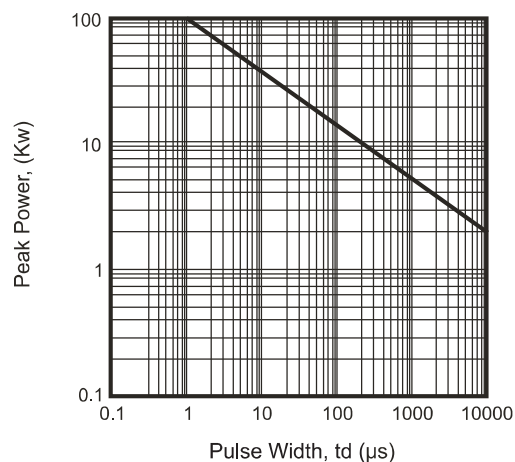


Fig.5 - Pulse Waveform

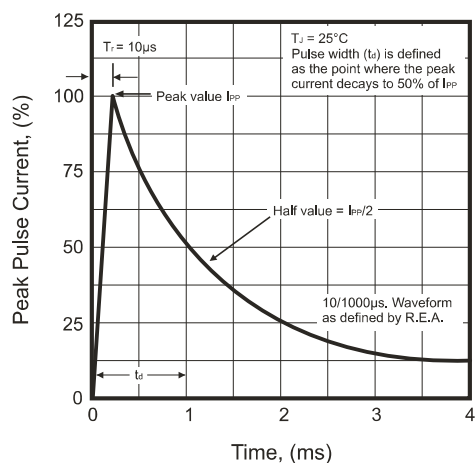
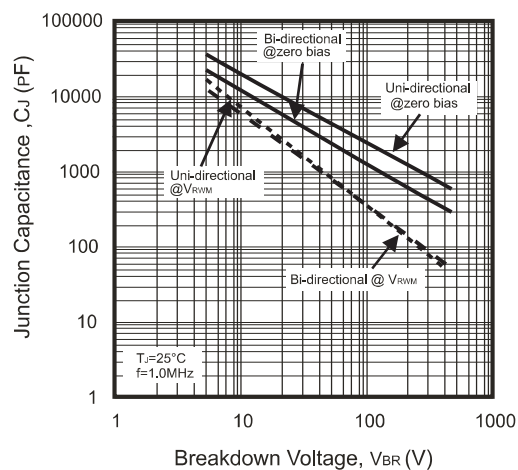
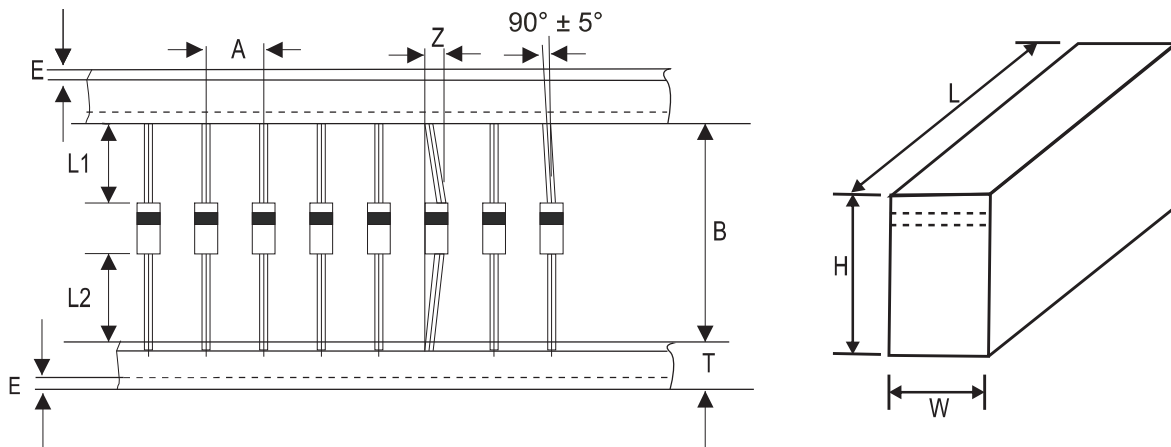


Fig.6 - Typical Junction Capacitance



Taping Specification For Axial Lead Diodes



R-6	SYMBOL	A	B	Z	T	E
	(mm)	10.00 ± 0.50	52.40 ± 1.50	1.60 (max)	6.00 ± 0.40	3.00 (max)
	(inch)	0.394 ± 0.020	2.063 ± 0.059	0.063 (max)	0.236 ± 0.016	0.118 (max)

R-6	SYMBOL	L1-L2	L	W	H
	(mm)	1.00 (max)	260 ± 5.00	75.00 ± 5.00	145.00 ± 5.00
	(inch)	0.039 (max)	10.236 ± 0.197	2.953 ± 0.197	5.709 ± 0.197

Standard Packaging

Case Type	AMMO PACK	
	BOX (pcs)	CARTON (pcs)
R-6	250	3,750