

# P6KExxC SERIES

## BI-DIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

**V<sub>BR</sub> : 6.8 - 600 Volts**

**PPK : 600 Watts**

### FEATURES :

- \* Glass passivated junction chip
- \* 600W surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time : typically less than 1.0 ps from 0 volt to V<sub>BR(min.)</sub>
- \* Typical I<sub>R</sub> less than 1μA above 10V
- \* **Pb / RoHS Free**

### MECHANICAL DATA :

- \* Case : DO-15 Molded plastic
- \* Epoxy : UL94V-0 rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, Method 208 guaranteed
- \* Mounting position : Any
- \* Weight : 0.4 gram

### DEVICES FOR UNIPOLAR APPLICATIONS

For uni-directional without "C"  
Electrical characteristics apply in both directions

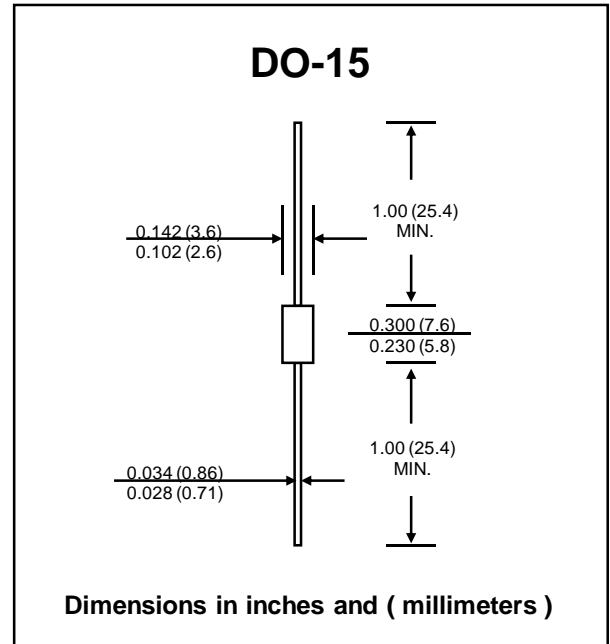
### MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Power Dissipation at Ta = 25 °C, Tp=1ms (Note1)	PPK	Minimum 600	W
Steady State Power Dissipation at TL = 75 °C Lead Lengths 0.375", (9.5mm) (Note 2)	PD	5.0	W
Operating and Storage Temperature Range	TJ, TSTG	- 65 to + 175	°C

### Notes :

- (1) Non-repetitive Current pulse, per Fig. 2 and derated above Ta = 25 °C per Fig. 1
- (2) Mounted on Copper Leaf area of 1.57 in<sup>2</sup> (40mm<sup>2</sup>).



## ELECTRICAL CHARACTERISTICS ( Rating at 25 °C ambient temperature unless otherwise specified. )

Type No.	Breakdown Voltage @ It ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR	
	VBR (V)							VRWM
	Min.	Max.	It (mA)	(V)	( $\mu$ A)	(A)	(V)	(% / °C)
P6KE6.8C	6.12	7.48	10	5.50	2000	55.5	10.8	0.057
P6KE6.8CA	6.45	7.14	10	5.80	2000	57.0	10.5	0.057
P6KE7.5C	6.75	8.25	10	6.05	1000	51.0	11.7	0.061
P6KE7.5CA	7.13	7.88	10	6.40	1000	53.0	11.3	0.061
P6KE8.2C	7.38	9.02	10	6.63	400	48.0	12.5	0.065
P6KE8.2CA	7.79	8.61	10	7.02	400	50.0	12.1	0.065
P6KE9.1C	8.19	10.0	1.0	7.37	300	44.0	13.8	0.068
P6KE9.1CA	8.65	9.55	1.0	7.78	300	45.0	13.4	0.068
P6KE10C	9.00	11.0	1.0	8.10	300	40.0	15.0	0.073
P6KE10CA	9.50	10.5	1.0	8.55	300	41.0	14.5	0.073
P6KE11C	9.90	12.1	1.0	8.92	150	37.0	16.2	0.075
P6KE11CA	10.5	11.6	1.0	9.40	150	38.0	15.6	0.075
P6KE12C	10.8	13.2	1.0	9.72	5.0	35.0	17.3	0.078
P6KE12CA	11.4	12.6	1.0	10.2	5.0	36.0	16.7	0.078
P6KE13C	11.7	14.3	1.0	10.5	5.0	32.0	19.0	0.081
P6KE13CA	12.4	13.7	1.0	11.1	5.0	33.0	18.2	0.081
P6KE15C	13.5	16.5	1.0	12.1	5.0	27.0	22.0	0.084
P6KE15CA	14.3	15.8	1.0	12.8	5.0	28.0	21.2	0.084
P6KE16C	14.4	17.6	1.0	12.9	5.0	26.0	23.5	0.086
P6KE16CA	15.2	16.8	1.0	13.6	5.0	27.0	22.5	0.086
P6KE18C	16.2	19.8	1.0	14.5	5.0	23.0	26.5	0.088
P6KE18CA	17.1	18.9	1.0	15.3	5.0	24.0	25.2	0.088
P6KE20C	18.0	22.0	1.0	16.2	5.0	21.0	29.1	0.090
P6KE20CA	19.0	21.0	1.0	17.1	5.0	22.0	27.7	0.090
P6KE22C	19.8	24.2	1.0	17.8	5.0	19.0	31.9	0.092
P6KE22CA	20.9	23.1	1.0	18.8	5.0	20.0	30.6	0.092
P6KE24C	21.6	26.4	1.0	19.4	5.0	17.0	34.7	0.094
P6KE24CA	22.8	25.2	1.0	20.5	5.0	18.0	33.2	0.094
P6KE27C	24.3	29.7	1.0	21.8	5.0	15.0	39.1	0.096
P6KE27CA	25.7	28.4	1.0	23.1	5.0	16.0	37.5	0.096
P6KE30C	27.0	33.0	1.0	24.3	5.0	14.0	43.5	0.097
P6KE30CA	28.5	31.5	1.0	25.6	5.0	14.4	41.4	0.097
P6KE33C	29.7	36.3	1.0	26.8	5.0	12.6	47.7	0.098
P6KE33CA	31.4	34.7	1.0	28.2	5.0	13.2	45.7	0.098
P6KE36C	32.4	39.6	1.0	29.1	5.0	11.6	52.0	0.099
P6KE36CA	34.2	37.8	1.0	30.8	5.0	12.0	49.9	0.099
P6KE39C	35.1	42.9	1.0	31.6	5.0	10.6	56.4	0.100
P6KE39CA	37.1	41.0	1.0	33.3	5.0	11.2	53.9	0.100
P6KE43C	38.7	47.3	1.0	34.8	5.0	9.6	61.9	0.101
P6KE43CA	40.9	45.2	1.0	36.8	5.0	10.1	59.3	0.101
P6KE47C	42.3	51.7	1.0	38.1	5.0	8.9	67.8	0.101
P6KE47CA	44.7	49.4	1.0	40.2	5.0	9.3	64.8	0.101
P6KE51C	45.9	56.1	1.0	41.3	5.0	8.2	73.5	0.102
P6KE51CA	48.5	53.6	1.0	43.6	5.0	8.6	70.1	0.102
P6KE56C	50.4	61.6	1.0	45.4	5.0	7.4	80.5	0.103
P6KE56CA	53.2	58.8	1.0	47.8	5.0	7.8	77.0	0.103
P6KE62C	55.8	68.2	1.0	50.2	5.0	6.8	89.0	0.104
P6KE62CA	58.9	65.1	1.0	53.0	5.0	7.1	85.0	0.104
P6KE68C	61.2	74.8	1.0	55.1	5.0	6.1	98.0	0.104
P6KE68CA	64.6	71.4	1.0	58.1	5.0	6.5	92.0	0.104
P6KE70C	63.0	77.0	1.0	56.7	5.0	6.0	100	0.104
P6KE70CA	66.5	73.5	1.0	59.8	5.0	6.2	96.7	0.104

## ELECTRICAL CHARACTERISTICS ( Rating at 25 °C ambient temperature unless otherwise specified. )

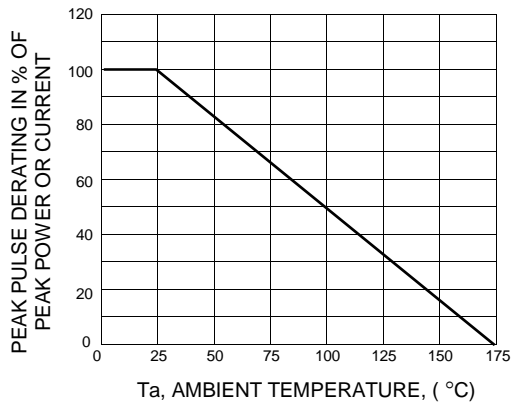
Type No.	Breakdown Voltage @ It ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR	
	VBR (V)							VRWM
	Min.	Max.	It (mA)	(V)	( $\mu$ A)	(A)	(V)	(% / °C)
P6KE75C	67.5	82.5	1.0	60.7	5.0	5.5	108	0.105
P6KE75CA	71.3	78.8	1.0	64.1	5.0	5.8	103	0.105
P6KE82C	73.8	90.2	1.0	66.4	5.0	5.1	118	0.105
P6KE82CA	77.9	86.1	1.0	70.1	5.0	5.3	113	0.105
P6KE91C	81.9	100.0	1.0	73.7	5.0	4.5	131	0.106
P6KE91CA	86.5	95.5	1.0	77.8	5.0	4.8	125	0.106
P6KE100C	90.0	110.0	1.0	81.0	5.0	4.2	144	0.106
P6KE100CA	95.0	105.0	1.0	85.5	5.0	4.4	137	0.106
P6KE110C	99.0	121.0	1.0	89.2	5.0	3.8	158	0.107
P6KE110CA	105.0	116.0	1.0	94.0	5.0	4.0	152	0.107
P6KE120C	108.0	132.0	1.0	97.2	5.0	3.5	173	0.107
P6KE120CA	114.0	126.0	1.0	102	5.0	3.6	165	0.107
P6KE130C	117.0	143.0	1.0	106	5.0	3.2	187	0.107
P6KE130CA	124.0	137.0	1.0	111	5.0	3.3	179	0.107
P6KE150C	135.0	165.0	1.0	121	5.0	2.8	215	0.108
P6KE150CA	143.0	158.0	1.0	128	5.0	2.9	207	0.108
P6KE160C	144.0	176.0	1.0	130	5.0	2.6	230	0.108
P6KE160CA	152.0	168.0	1.0	136	5.0	2.7	219	0.108
P6KE170C	153.0	187.0	1.0	138	5.0	2.5	244	0.108
P6KE170CA	162.0	179.0	1.0	145	5.0	2.6	234	0.108
P6KE180C	162.0	198.0	1.0	146	5.0	2.3	258	0.108
P6KE180CA	171.0	189.0	1.0	154	5.0	2.4	246	0.108
P6KE200C	180.0	220.0	1.0	162	5.0	2.1	287	0.108
P6KE200CA	190.0	210.0	1.0	171	5.0	2.2	274	0.108
P6KE220C	198.0	242.0	1.0	175	5.0	1.75	344	0.108
P6KE220CA	209.0	231.0	1.0	185	5.0	1.83	328	0.108
P6KE250C	225.0	275.0	1.0	202	5.0	1.67	360	0.110
P6KE250CA	237.0	263.0	1.0	214	5.0	1.75	344	0.110
P6KE300C	270.0	330.0	1.0	243	5.0	1.40	430	0.110
P6KE300CA	285.0	315.0	1.0	256	5.0	1.45	414	0.110
P6KE320C	288.0	352.0	1.0	259	5.0	1.31	460	0.110
P6KE320CA	303.0	337.0	1.0	272	5.0	1.35	445	0.110
P6KE350C	315.0	385.0	1.0	284	5.0	1.20	504	0.110
P6KE350CA	332.0	368.0	1.0	300	5.0	1.25	482	0.110
P6KE400C	360.0	440.0	1.0	324	5.0	1.05	574	0.110
P6KE400CA	380.0	420.0	1.0	342	5.0	1.10	548	0.110
P6KE440C	396.0	484.0	1.0	356	5.0	0.95	631	0.110
P6KE440CA	418.0	462.0	1.0	376	5.0	1.00	602	0.110
P6KE480C	432.0	528.0	1.0	389	5.0	0.88	686	0.110
P6KE480CA	456.0	504.0	1.0	408	5.0	0.90	658	0.110
P6KE510C	459.0	561.0	1.0	413	5.0	0.82	729	0.110
P6KE510CA	485.0	535.0	1.0	434	5.0	0.86	698	0.110
P6KE530C	477.0	583.0	1.0	457	5.0	0.76	798	0.110
P6KE530CA	503.5	556.5	1.0	477	5.0	0.80	725	0.110
P6KE540C	486.0	594.0	1.0	437	5.0	0.78	772	0.110
P6KE540CA	513.0	567.0	1.0	459	5.0	0.81	740	0.110
P6KE550C	495.0	605.0	1.0	470	5.0	0.76	836	0.110
P6KE550CA	522.5	577.5	1.0	495	5.0	0.80	760	0.110
P6KE600C	540.0	660.0	1.0	490	5.0	0.71	911	0.110
P6KE600CA	570.0	630.0	1.0	512	5.0	0.75	828	0.110

Notes : ( 1 ) VBR measured after It applied for 300  $\mu$ s., It = square wave pulse or equivalent.

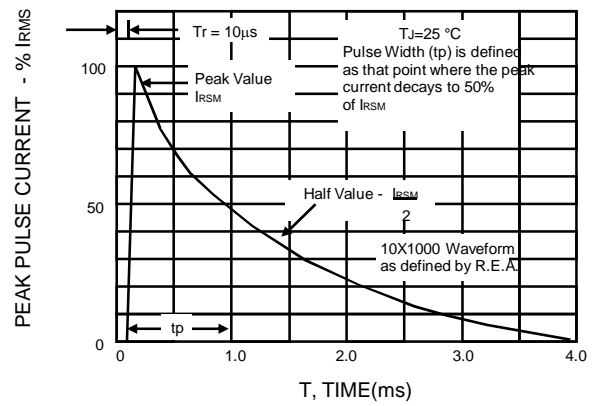
( 2 ) "6KE" will be omitted in marking on the diode.

**RATING AND CHARACTERISTIC CURVES ( P6KExxC SERIES )**

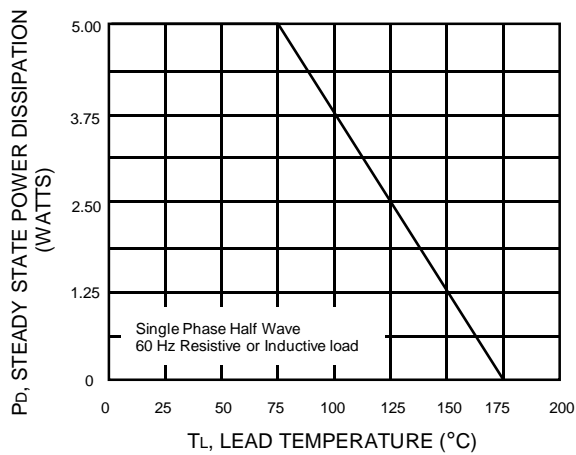
**FIG.1 - PULSE DERATING CURVE**



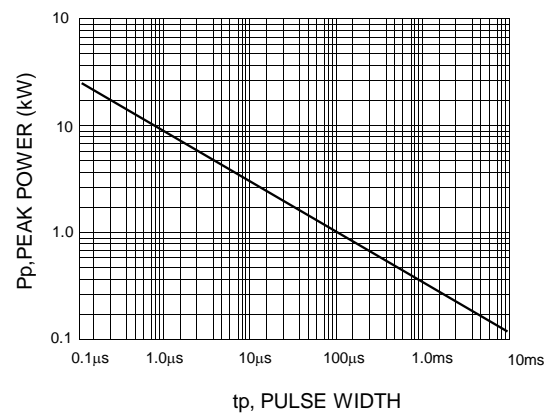
**FIG.2 - PULSE WAVEFORM**



**FIG.3 - STEADY STATE POWER DERATING**



**FIG.4 - PULSE RATING CURVE**



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