

# P6KE6.8C SERIES

# BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

**V<sub>BR</sub> : 6.8 - 440 Volts**

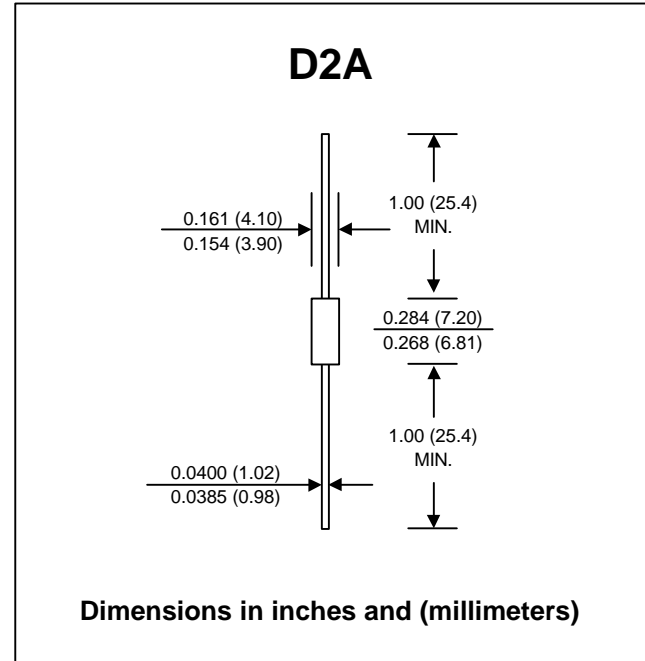
**PPK : 600 Watts**

## FEATURES :

- \* 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 : D2A Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
- \* Mounting position : Any
- \* Weight : 0.645 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	P <sub>D</sub>	5.0	W
Lead Lengths 0.375", (9.5mm) (Note 2)			
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	- 65 to + 175	°C

### Note :

- (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	Breakdown Voltage @ It ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ V <sub>RWM</sub>	Maximum Reverse Current	Maximum Clamping Voltage @ I <sub>RSM</sub>	Maximum Temperature Co-efficient of V <sub>BR</sub> (% / °C)	
	V <sub>BR</sub> (V)							V <sub>RWM</sub>
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)	
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

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ $I_t$ ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ $V_{RWM}$	Maximum Reverse Current	Maximum Clamping Voltage @ $I_{RSM}$	Maximum Temperature Co-efficient of $V_{BR}$ (% / °C)	
	$V_{BR}$ (V)							$I_t$
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)	(% / °C)
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
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	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	1.0	81.0	5.0	4.2	144	0.106
P6KE100CA	95.0	105	1.0	85.5	5.0	4.4	137	0.106
P6KE110C	99.0	121	1.0	89.2	5.0	3.8	158	0.107
P6KE110CA	105	116	1.0	94.0	5.0	4.0	152	0.107
P6KE120C	108	132	1.0	97.2	5.0	3.5	173	0.107
P6KE120CA	114	126	1.0	102	5.0	3.6	165	0.107
P6KE130C	117	143	1.0	106	5.0	3.2	187	0.107
P6KE130CA	124	137	1.0	111	5.0	3.3	179	0.107
P6KE150C	135	165	1.0	121	5.0	2.8	215	0.108
P6KE150CA	143	158	1.0	128	5.0	2.9	207	0.108
P6KE160C	144	176	1.0	130	5.0	2.6	230	0.108
P6KE160CA	152	168	1.0	136	5.0	2.7	219	0.108
P6KE170C	153	187	1.0	138	5.0	2.5	244	0.108
P6KE170CA	162	179	1.0	145	5.0	2.6	234	0.108
P6KE180C	162	198	1.0	146	5.0	2.3	258	0.108
P6KE180CA	171	189	1.0	154	5.0	2.4	246	0.108
P6KE200C	180	220	1.0	162	5.0	2.1	287	0.108
P6KE200CA	190	210	1.0	171	5.0	2.2	274	0.108
P6KE220C	198	242	1.0	175	5.0	1.75	344	0.108
P6KE220CA	209	231	1.0	185	5.0	1.83	328	0.108
P6KE250C	225	275	1.0	202	5.0	1.67	360	0.110
P6KE250CA	237	263	1.0	214	5.0	1.75	344	0.110
P6KE300C	270	330	1.0	243	5.0	1.40	430	0.110
P6KE300CA	285	315	1.0	256	5.0	1.45	414	0.110
P6KE320C	288	352	1.0	259	5.0	1.31	460	0.110
P6KE320CA	303	337	1.0	272	5.0	1.35	445	0.110
P6KE350C	315	385	1.0	284	5.0	1.20	504	0.110
P6KE350CA	332	368	1.0	300	5.0	1.25	482	0.110
P6KE400C	360	440	1.0	324	5.0	1.05	574	0.110
P6KE400CA	380	420	1.0	342	5.0	1.10	548	0.110
P6KE440C	396	484	1.0	356	5.0	0.95	631	0.110
P6KE440CA	418	462	1.0	376	5.0	1.00	602	0.110

**Note:**

- ( 1 )  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu$ s.,  $I_t$  = square wave pulse or equivalent.
- ( 2 ) "6KE" will be omitted in marking on the diode.

## RATING AND CHARACTERISTIC CURVES ( P6KE6.8C SERIES )

FIG.1 - PULSE DERATING CURVE

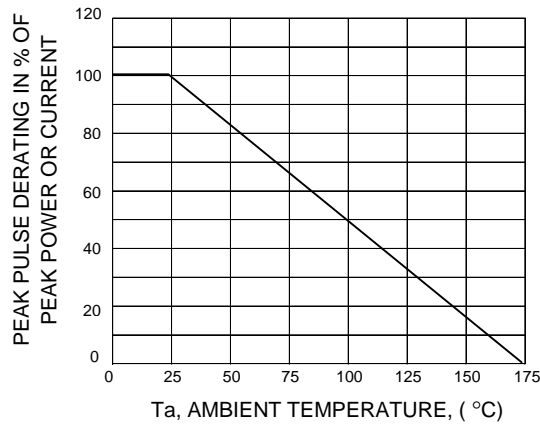


FIG.2 - PULSE WAVEFORM

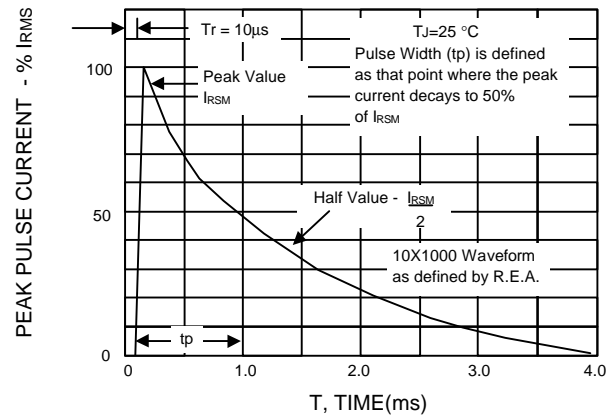


FIG.3 - STEADY STATE POWER DERATING

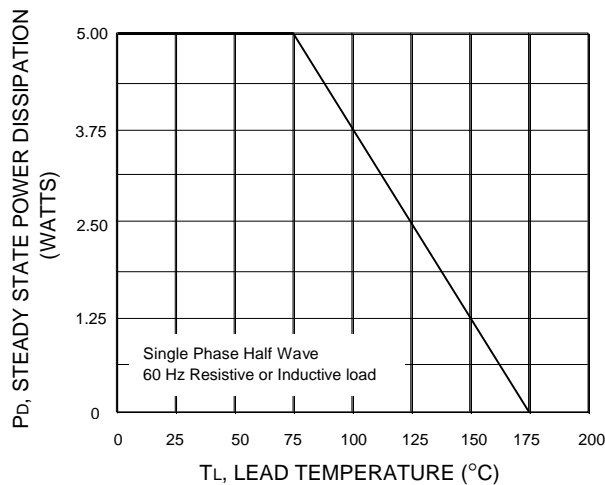


FIG.4 - PULSE RATING CURVE

