

# P6KE6.8CS SERIES

## BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

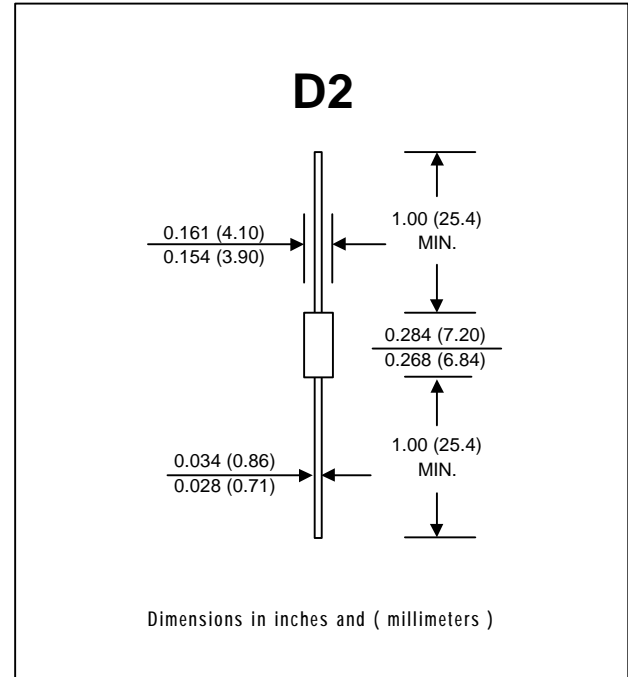
**V<sub>BR</sub> : 6.8 - 440 Volts**  
**PPK : 600 Watts**

### 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 : D2 Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
- \* Mounting position : Any
- \* Weight : 0.465 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)	P <sub>D</sub>	5.0	W
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. 5 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)	
P6KE6.8CS	6.12	7.48	10	5.50	2000	55.5	10.8	0.057
P6KE6.8CAS	6.45	7.14	10	5.80	2000	57.0	10.5	0.057
P6KE7.5CS	6.75	8.25	10	6.05	1000	51.0	11.7	0.061
P6KE7.5CAS	7.13	7.88	10	6.40	1000	53.0	11.3	0.061
P6KE8.2CS	7.38	9.02	10	6.63	400	48.0	12.5	0.065
P6KE8.2CAS	7.79	8.61	10	7.02	400	50.0	12.1	0.065
P6KE9.1CS	8.19	10.0	1.0	7.37	300	44.0	13.8	0.068
P6KE9.1CAS	8.65	9.55	1.0	7.78	300	45.0	13.4	0.068
P6KE10CS	9.00	11.0	1.0	8.10	150	40.0	15.0	0.073
P6KE10CAS	9.50	10.5	1.0	8.55	150	41.0	14.5	0.073
P6KE11CS	9.90	12.1	1.0	8.92	150	37.0	16.2	0.075
P6KE11CAS	10.5	11.6	1.0	9.40	150	38.0	15.6	0.075
P6KE12CS	10.8	13.2	1.0	9.72	5.0	35.0	17.3	0.078
P6KE12CAS	11.4	12.6	1.0	10.2	5.0	36.0	16.7	0.078
P6KE13CS	11.7	14.3	1.0	10.5	5.0	32.0	19.0	0.081
P6KE13CAS	12.4	13.7	1.0	11.1	5.0	33.0	18.2	0.081
P6KE15CS	13.5	16.5	1.0	12.1	5.0	27.0	22.0	0.084
P6KE15CAS	14.3	15.8	1.0	12.8	5.0	28.0	21.2	0.084
P6KE16CS	14.4	17.6	1.0	12.9	5.0	26.0	23.5	0.086
P6KE16CAS	15.2	16.8	1.0	13.6	5.0	27.0	22.5	0.086
P6KE18CS	16.2	19.8	1.0	14.5	5.0	23.0	26.5	0.088
P6KE18CAS	17.1	18.9	1.0	15.3	5.0	24.0	25.2	0.088
P6KE20CS	18.0	22.0	1.0	16.2	5.0	21.0	29.1	0.090
P6KE20CAS	19.0	21.0	1.0	17.1	5.0	22.0	27.7	0.090
P6KE22CS	19.8	24.2	1.0	17.8	5.0	19.0	31.9	0.092
P6KE22CAS	20.9	23.1	1.0	18.8	5.0	20.0	30.6	0.092
P6KE24CS	21.6	26.4	1.0	19.4	5.0	17.0	34.7	0.094
P6KE24CAS	22.8	25.2	1.0	20.5	5.0	18.0	33.2	0.094
P6KE27CS	24.3	29.7	1.0	21.8	5.0	15.0	39.1	0.096
P6KE27CAS	25.7	28.4	1.0	23.1	5.0	16.0	37.5	0.096
P6KE30CS	27.0	33.0	1.0	24.3	5.0	14.0	43.5	0.097
P6KE30CAS	28.5	31.5	1.0	25.6	5.0	14.4	41.4	0.097
P6KE33CS	29.7	36.3	1.0	26.8	5.0	12.6	47.7	0.098
P6KE33CAS	31.4	34.7	1.0	28.2	5.0	13.2	45.7	0.098
P6KE36CS	32.4	39.6	1.0	29.1	5.0	11.6	52.0	0.099
P6KE36CAS	34.2	37.8	1.0	30.8	5.0	12.0	49.9	0.099
P6KE39CS	35.1	42.9	1.0	31.6	5.0	10.6	56.4	0.100
P6KE39CAS	37.1	41.0	1.0	33.3	5.0	11.2	53.9	0.100
P6KE43CS	38.7	47.3	1.0	34.8	5.0	9.6	61.9	0.101
P6KE43CAS	40.9	45.2	1.0	36.8	5.0	10.1	59.3	0.101
P6KE47CS	42.3	51.7	1.0	38.1	5.0	8.9	67.8	0.101
P6KE47CAS	44.7	49.4	1.0	40.2	5.0	9.3	64.8	0.101
P6KE51CS	45.9	56.1	1.0	41.3	5.0	8.2	73.5	0.102
P6KE51CAS	48.5	53.6	1.0	43.6	5.0	8.6	70.1	0.102
P6KE56CS	50.4	61.6	1.0	45.4	5.0	7.4	80.5	0.103
P6KE56CAS	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)						
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)

P6KE62CS	55.8	68.2	1.0	50.2	5.0	6.8	89.0	0.104
P6KE62CAS	58.9	65.1	1.0	53.0	5.0	7.1	85.0	0.104
P6KE68CS	61.2	74.8	1.0	55.1	5.0	6.1	98.0	0.104
P6KE68CAS	64.6	71.4	1.0	58.1	5.0	6.5	92.0	0.104
P6KE75CS	67.5	82.5	1.0	60.7	5.0	5.5	108	0.105
P6KE75CAS	71.3	78.8	1.0	64.1	5.0	5.8	103	0.105
P6KE82CS	73.8	90.2	1.0	66.4	5.0	5.1	118	0.105
P6KE82CAS	77.9	86.1	1.0	70.1	5.0	5.3	113	0.105
P6KE91CS	81.9	100	1.0	73.7	5.0	4.5	131	0.106
P6KE91CAS	86.5	95.5	1.0	77.8	5.0	4.8	125	0.106
P6KE100CS	90.0	110	1.0	81.0	5.0	4.2	144	0.106
P6KE100CAS	95.0	105	1.0	85.5	5.0	4.4	137	0.106
P6KE110CS	99.0	121	1.0	89.2	5.0	3.8	158	0.107
P6KE110CAS	105	116	1.0	94.0	5.0	4.0	152	0.107
P6KE120CS	108	132	1.0	97.2	5.0	3.5	173	0.107
P6KE120CAS	114	126	1.0	102	5.0	3.6	165	0.107
P6KE130CS	117	143	1.0	106	5.0	3.2	187	0.107
P6KE130CAS	124	137	1.0	111	5.0	3.3	179	0.107
P6KE150CS	135	165	1.0	121	5.0	2.8	215	0.108
P6KE150CAS	143	158	1.0	128	5.0	2.9	207	0.108
P6KE160CS	144	176	1.0	130	5.0	2.6	230	0.108
P6KE160CAS	152	168	1.0	136	5.0	2.7	219	0.108
P6KE170CS	153	187	1.0	138	5.0	2.5	244	0.108
P6KE170CAS	162	179	1.0	145	5.0	2.6	234	0.108
P6KE180CS	162	198	1.0	146	5.0	2.3	258	0.108
P6KE180CAS	171	189	1.0	154	5.0	2.4	246	0.108
P6KE200CS	180	220	1.0	162	5.0	2.1	287	0.108
P6KE200CAS	190	210	1.0	171	5.0	2.2	274	0.108
P6KE220CS	198	242	1.0	175	5.0	1.75	344	0.108
P6KE220CAS	209	231	1.0	185	5.0	1.83	328	0.108
P6KE250CS	225	275	1.0	202	5.0	1.67	360	0.110
P6KE250CAS	237	263	1.0	214	5.0	1.75	344	0.110
P6KE300CS	270	330	1.0	243	5.0	1.40	430	0.110
P6KE300CAS	285	315	1.0	256	5.0	1.45	414	0.110
P6KE350CS	315	385	1.0	284	5.0	1.20	504	0.110
P6KE350CAS	332	368	1.0	300	5.0	1.25	482	0.110
P6KE400CS	360	440	1.0	324	5.0	1.05	574	0.110
P6KE400CAS	380	420	1.0	342	5.0	1.10	548	0.110
P6KE440CS	396	484	1.0	356	5.0	0.95	631	0.110
P6KE440CAS	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 )  $V_F = 3.5 V_{max.}$ ,  $I_F = 50$  Amps. ( 6.8 Volts thru 91 Volts )  
 $V_F = 5.0 V_{max.}$ ,  $I_F = 50$  Amps. ( 100 Volts thru 440 Volts ) per 1/2 square or equivalent sine wave.  
 PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

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

FIG.1 - PULSE DERATING CURVE

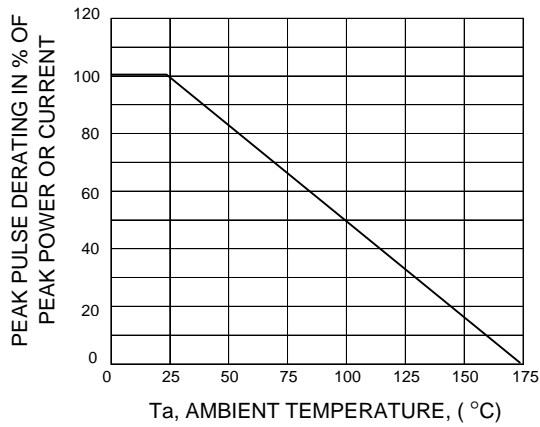


FIG.2 - PULSE WAVEFORM

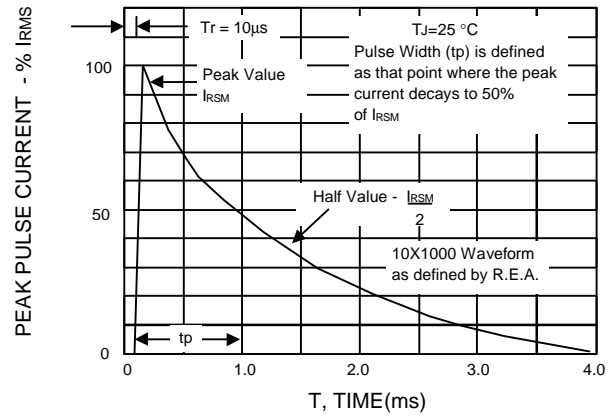


FIG.3 - STEADY STATE POWER DERATING

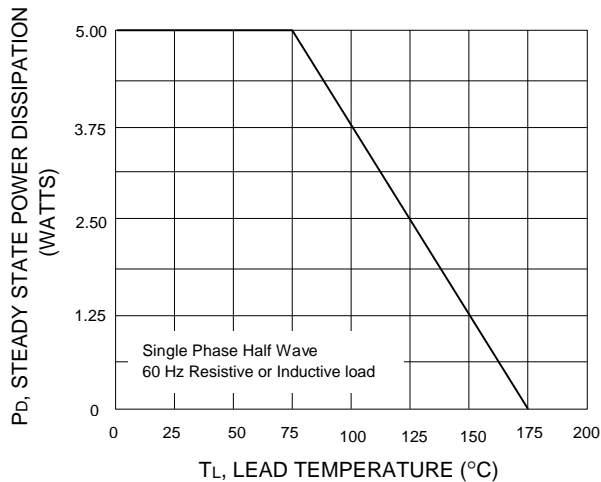


FIG.4 - PULSE RATING CURVE

