

# P4KE6.8C SERIES

## BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

**V<sub>BR</sub> : 6.8 - 550 Volts**

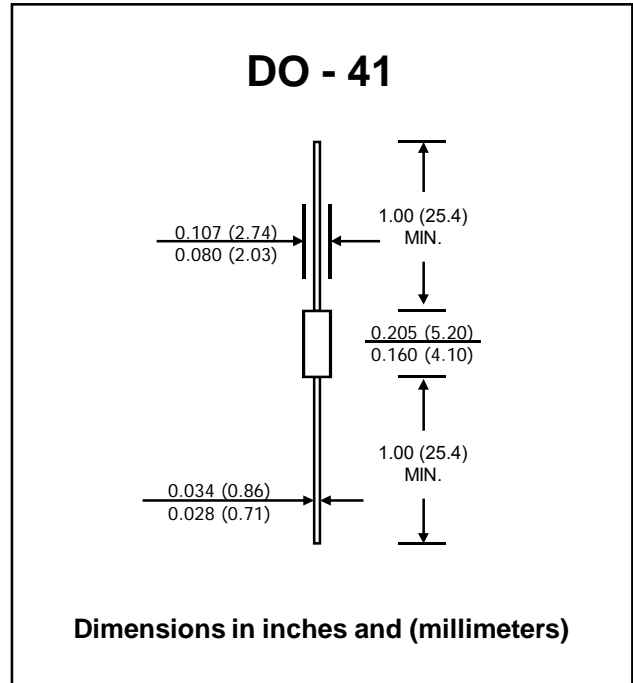
**P<sub>PK</sub> : 400 Watts**

### FEATURES :

- \* 400W 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-41 Molded plastic
- \* Epoxy : UL94V-0 rate flame retardant
- \* Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
- \* Mounting position : Any
- \* Weight : 0.339 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)	P <sub>PK</sub>	400	W
Steady State Power Dissipation at T <sub>L</sub> = 75 °C	P <sub>D</sub>	1.0	W
Lead Lengths 0.375", (9.5mm) (Note 2)	R <sub>θJL</sub>	20.0	°C/W
Typical thermal resistance junction to lead (Note 3)	R <sub>θJA</sub>	75.0	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	- 65 to + 175	°C

#### Notes:

- (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>).
- (3) Thermal resistance from junction to ambient at 0.375" (9.6 mm) lead length, PCB mounted.



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

TYPE	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)
P4KE6.8C	6.12	7.48	10	5.50	2000	38.0	10.8	0.057
P4KE6.8CA	6.45	7.14	10	5.80	2000	40.0	10.5	0.057
P4KE7.5C	6.75	8.25	10	6.05	1000	36.0	11.7	0.061
P4KE7.5CA	7.13	7.88	10	6.40	1000	37.0	11.3	0.061
P4KE8.2C	7.38	9.02	10	6.63	400	33.0	12.5	0.065
P4KE8.2CA	7.79	8.61	10	7.02	400	35.0	12.1	0.065
P4KE9.1C	8.19	10.0	1.0	7.37	100	30.0	13.8	0.068
P4KE9.1CA	8.65	9.55	1.0	7.78	100	31.0	13.4	0.068
P4KE10C	9.00	11.0	1.0	8.10	20	28.0	15.0	0.073
P4KE10CA	9.50	10.5	1.0	8.55	20	29.0	14.5	0.073
P4KE11C	9.90	12.1	1.0	8.92	10	26.0	16.2	0.075
P4KE11CA	10.5	11.6	1.0	9.40	10	27.0	15.6	0.075
P4KE12C	10.8	13.2	1.0	9.72	5.0	24.0	17.3	0.078
P4KE12CA	11.4	12.6	1.0	10.2	5.0	25.0	16.7	0.078
P4KE13C	11.7	14.3	1.0	10.5	5.0	22.0	19.0	0.081
P4KE13CA	12.4	13.7	1.0	11.1	5.0	23.0	18.2	0.081
P4KE15C	13.5	16.5	1.0	12.1	5.0	19.0	22.0	0.084
P4KE15CA	14.3	15.8	1.0	12.8	5.0	20.0	21.2	0.084
P4KE16C	14.4	17.6	1.0	12.9	5.0	18.0	23.5	0.086
P4KE16CA	15.2	16.8	1.0	13.6	5.0	19.0	22.5	0.086
P4KE17C	15.3	18.7	1.0	13.7	5.0	17.0	25.0	0.087
P4KE17CA	16.2	17.9	1.0	14.5	5.0	18.0	24.0	0.087
P4KE18C	16.2	19.8	1.0	14.5	5.0	16.0	26.5	0.088
P4KE18CA	17.1	18.9	1.0	15.3	5.0	17.0	25.5	0.088
P4KE20C	18.0	22.0	1.0	16.2	5.0	14.0	29.1	0.090
P4KE20CA	19.0	21.0	1.0	17.1	5.0	15.0	27.7	0.090
P4KE22C	19.8	24.2	1.0	17.8	5.0	13.0	31.9	0.092
P4KE22CA	20.9	23.1	1.0	18.8	5.0	14.0	30.6	0.092
P4KE24C	21.6	26.4	1.0	19.4	5.0	12.0	34.7	0.094
P4KE24CA	22.8	25.2	1.0	20.5	5.0	13.0	33.2	0.094
P4KE27C	24.3	29.7	1.0	21.8	5.0	11.0	39.1	0.096
P4KE27CA	25.7	28.4	1.0	23.1	5.0	11.2	37.5	0.096
P4KE30C	27.0	33.0	1.0	24.3	5.0	10.0	43.5	0.097
P4KE30CA	28.5	31.5	1.0	25.6	5.0	10.0	41.4	0.097
P4KE33C	29.7	36.3	1.0	26.8	5.0	9.0	47.7	0.098
P4KE33CA	31.4	34.7	1.0	28.2	5.0	9.0	45.7	0.098
P4KE36C	32.4	39.6	1.0	29.1	5.0	8.0	52.0	0.099
P4KE36CA	34.2	37.8	1.0	30.8	5.0	8.4	49.9	0.099
P4KE39C	35.1	42.9	1.0	31.6	5.0	7.4	56.4	0.100
P4KE39CA	37.1	41.0	1.0	33.3	5.0	7.8	53.9	0.100
P4KE43C	38.7	47.3	1.0	34.8	5.0	6.8	61.9	0.101
P4KE43CA	40.9	45.2	1.0	36.8	5.0	7.1	59.3	0.101
P4KE47C	42.3	51.7	1.0	38.1	5.0	6.2	67.8	0.101
P4KE47CA	44.7	49.4	1.0	40.2	5.0	6.5	64.8	0.101
P4KE51C	45.9	56.1	1.0	41.3	5.0	5.7	73.5	0.102
P4KE51CA	48.5	53.6	1.0	43.6	5.0	6.0	70.1	0.102
P4KE56C	50.4	61.6	1.0	45.4	5.0	5.2	80.5	0.103
P4KE56CA	53.2	58.8	1.0	47.8	5.0	5.5	77.0	0.103
P4KE62C	55.8	68.2	1.0	50.2	5.0	4.7	89.0	0.104
P4KE62CA	58.9	65.1	1.0	53.0	5.0	5.0	85.0	0.104
P4KE68C	61.2	74.8	1.0	55.1	5.0	4.3	98.0	0.104
P4KE68CA	64.6	71.4	1.0	58.1	5.0	4.6	92.0	0.104



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

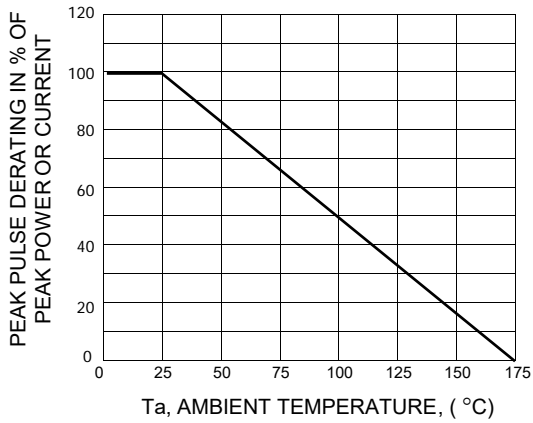
TYPE	Breakdown Voltage @ It ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR	
	VBR (V)							VRWM
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)	(% / °C)
P4KE75C	67.5	82.5	1.0	60.7	5.0	3.9	108	0.105
P4KE75CA	71.3	78.8	1.0	64.1	5.0	4.1	103	0.105
P4KE82C	73.8	90.2	1.0	66.4	5.0	3.6	118	0.105
P4KE82CA	77.9	86.1	1.0	70.1	5.0	3.7	113	0.105
P4KE91C	81.9	100	1.0	73.7	5.0	3.2	131	0.106
P4KE91CA	86.5	95.5	1.0	77.8	5.0	3.4	125	0.106
P4KE100C	90.0	110	1.0	81.0	5.0	2.9	144	0.106
P4KE100CA	95.0	105	1.0	85.5	5.0	3.1	137	0.106
P4KE110C	99.0	121	1.0	89.2	5.0	2.7	158	0.107
P4KE110CA	105	116	1.0	94.0	5.0	2.8	152	0.107
P4KE120C	108	132	1.0	97.2	5.0	2.4	173	0.107
P4KE120CA	114	126	1.0	102	5.0	2.5	165	0.107
P4KE130C	117	143	1.0	105	5.0	2.2	187	0.107
P4KE130CA	124	137	1.0	111	5.0	2.3	179	0.107
P4KE150C	135	165	1.0	121	5.0	2.0	215	0.108
P4KE150CA	143	158	1.0	128	5.0	2.0	207	0.108
P4KE160C	144	176	1.0	130	5.0	1.8	230	0.108
P4KE160CA	152	168	1.0	136	5.0	1.9	219	0.108
P4KE170C	153	187	1.0	138	5.0	1.7	244	0.108
P4KE170CA	162	179	1.0	145	5.0	1.8	234	0.108
P4KE180C	162	198	1.0	146	5.0	1.6	258	0.108
P4KE180CA	171	189	1.0	154	5.0	1.7	246	0.108
P4KE200C	180	220	1.0	162	5.0	1.5	287	0.108
P4KE200CA	190	210	1.0	171	5.0	1.53	274	0.108
P4KE220C	198	242	1.0	175	5.0	1.16	344	0.108
P4KE220CA	209	231	1.0	185	5.0	1.22	328	0.108
P4KE250C	225	275	1.0	202	5.0	1.11	360	0.110
P4KE250CA	237	263	1.0	214	5.0	1.16	344	0.110
P4KE300C	270	330	1.0	243	5.0	0.93	430	0.110
P4KE300CA	285	315	1.0	256	5.0	0.97	414	0.110
P4KE330C	297	363	1.0	267	5.0	0.84	476	0.110
P4KE330CA	314	347	1.0	283	5.0	0.88	455	0.110
P4KE350C	315	385	1.0	284	5.0	0.79	504	0.110
P4KE350CA	332	368	1.0	300	5.0	0.83	482	0.110
P4KE400C	360	440	1.0	324	5.0	0.70	574	0.110
P4KE400CA	380	420	1.0	342	5.0	0.73	548	0.110
P4KE440C	396	484	1.0	356	5.0	0.63	631	0.110
P4KE440CA	418	462	1.0	376	5.0	0.66	602	0.110
P4KE480C	432	528	1.0	389	5.0	0.58	686	0.110
P4KE480CA	456	504	1.0	408	5.0	0.61	658	0.110
P4KE510C	459	561	1.0	413	5.0	0.55	729	0.110
P4KE510CA	485	535	1.0	434	5.0	0.57	698	0.110
P4KE540C	486	594	1.0	437	5.0	0.52	772	0.110
P4KE540CA	513	567	1.0	459	5.0	0.54	740	0.110
P4KE550C	495	605	1.0	445	5.0	0.50	800	0.110
P4KE550CA	522	577	1.0	470	5.0	0.53	754	0.110

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

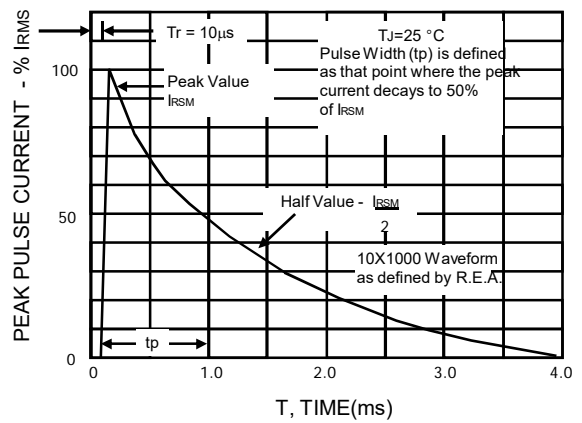
(2) "4KE" will be omitted in marking on the diode.

**RATING AND CHARACTERISTIC CURVES ( P4KE6.8C SERIES )**

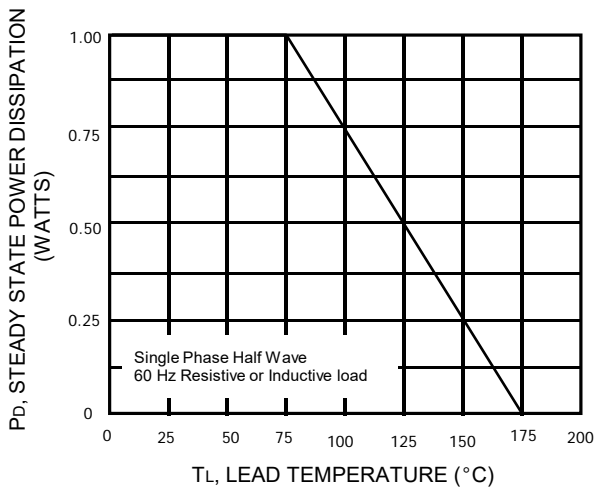
**FIG.1 - PULSE DERATING CURVE**



**FIG.2 - PULSE WAVEFORM**



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



**FIG.4 - PULSE RATING CURVE**

