



Certificate Number: Q10561



Certificate Number: E17276

P4KE SERIES

V_{BR} : 6.8 - 440 Volts

P_{PK} : 400 Watts

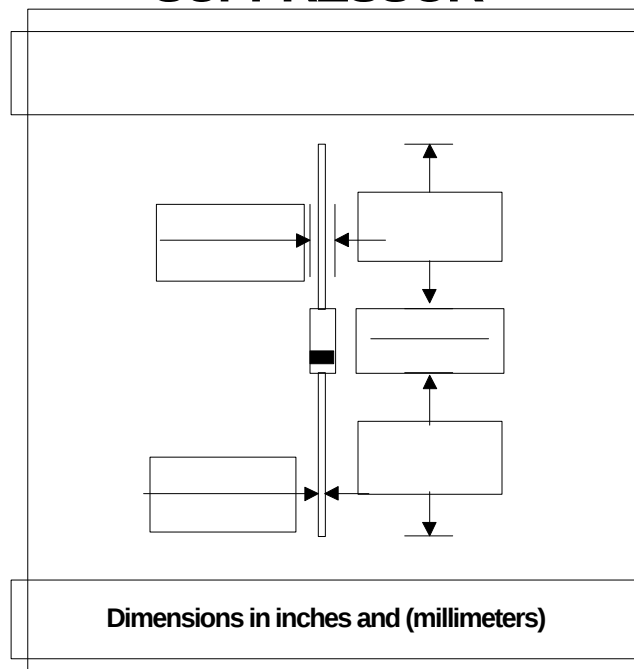
FEATURES :

- * 400W surge capability at 1ms
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time : typically less than 1.0 ps from 0 volt to $V_{BR(min.)}$
- * Typical I_R less than 1 A above 10V

MECHANICAL DATA

- * Case : DO-41 Molded plastic
- * Epoxy : UL94V-O rate flame retardant
- * Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
- * Polarity : Color band denotes cathode end except Bipolar.
- * Mounting position : Any
- * Weight : 0.339 gram

TRANSIENT VOLTAGE SUPPRESSOR



DEVICES FOR BIPOLAR APPLICATIONS

For bi-directional use C or CA Suffix

Electrical characteristics apply in both directions

MAXIMUM RATINGS

Peak Power Dissipation at $T_a = 25^\circ\text{C}$, $T_p=1\text{ms}$ (Note1)	P_{PK}	Minimum 400	Watts
Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ Lead Lengths 0.375", (9.5mm) (Note2)	P_D	1.0	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note3)	I_{FSM}	40	Amps.
Operating and Storage Temperature Range	T_J, T_{STG}	- 65 to + 175	$^\circ\text{C}$

Note :



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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)		It						VRWM	IR	IRSM	VRSM
	Min.	Max.	(mA)						(V)	(A)	(A)	(V)
P4KE6.8	6.12	7.48	10	5.50	1000	38.0	10.8	0.057				
P4KE6.8A	6.45	7.14	10	5.80	1000	40.0	10.5	0.057				
P4KE7.5	6.75	8.25	10	6.05	500	36.0	11.7	0.061				
P4KE7.5A	7.13	7.88	10	6.40	500	37.0	11.3	0.061				
P4KE8.2	7.38	9.02	10	6.63	200	33.0	12.5	0.065				
P4KE8.2A	7.79	8.61	10	7.02	200	35.0	12.1	0.065				
P4KE9.1	8.19	10.0	1.0	7.37	50	30.0	13.8	0.068				
P4KE9.1A	8.65	9.55	1.0	7.78	50	31.0	13.4	0.068				
P4KE10	9.00	11.0	1.0	8.10	10	28.0	15.0	0.073				
P4KE10A	9.50	10.5	1.0	8.55	10	29.0	14.5	0.073				
P4KE11	9.90	12.1	1.0	8.92	5.0	26.0	16.2	0.075				
P4KE11A	10.5	11.6	1.0	9.40	5.0	27.0	15.6	0.075				
P4KE12	10.8	13.2	1.0	9.72	5.0	24.0	17.3	0.078				
P4KE12A	11.4	12.6	1.0	10.2	5.0	25.0	16.7	0.078				
P4KE13	11.7	14.3	1.0	10.5	5.0	22.0	19.0	0.081				
P4KE13A	12.4	13.7	1.0	11.1	5.0	23.0	18.2	0.081				
P4KE15	13.5	16.5	1.0	12.1	5.0	19.0	22.0	0.084				
P4KE15A	14.3	15.8	1.0	12.8	5.0	20.0	21.2	0.084				
P4KE16	14.4	17.6	1.0	12.9	5.0	18.0	23.5	0.086				
P4KE16A	15.2	16.8	1.0	13.6	5.0	19.0	22.5	0.086				
P4KE17	15.3	18.7	1.0	13.7	5.0	17.0	25.0	0.087				
P4KE17A	16.2	17.9	1.0	14.5	5.0	18.0	24.0	0.087				
P4KE18	16.2	19.8	1.0	14.5	5.0	16.0	26.5	0.088				
P4KE18A	17.1	18.9	1.0	15.3	5.0	17.0	25.5	0.088				
P4KE20	18.0	22.0	1.0	16.2	5.0	14.0	29.1	0.090				
P4KE20A	19.0	21.0	1.0	17.1	5.0	15.0	27.7	0.090				
P4KE22	19.8	24.2	1.0	17.8	5.0	13.0	31.9	0.092				
P4KE22A	20.9	23.1	1.0	18.8	5.0	14.0	30.6	0.092				
P4KE24	21.6	26.4	1.0	19.4	5.0	12.0	34.7	0.094				
P4KE24A	22.8	25.2	1.0	20.5	5.0	13.0	33.2	0.094				
P4KE27	24.3	29.7	1.0	21.8	5.0	11.0	39.1	0.096				
P4KE27A	25.7	28.4	1.0	23.1	5.0	11.2	37.5	0.096				
P4KE30	27.0	33.0	1.0	24.3	5.0	10.0	43.5	0.097				
P4KE30A	28.5	31.5	1.0	25.6	5.0	10.0	41.4	0.097				
P4KE33	29.7	36.3	1.0	26.8	5.0	9.0	47.7	0.098				
P4KE33A	31.4	34.7	1.0	28.2	5.0	9.0	45.7	0.098				
P4KE36	32.4	39.6	1.0	29.1	5.0	8.0	52.0	0.099				
P4KE36A	34.2	37.8	1.0	30.8	5.0	8.4	49.9	0.099				
P4KE39	35.1	42.9	1.0	31.6	5.0	7.4	56.4	0.100				
P4KE39A	37.1	41.0	1.0	33.3	5.0	7.8	53.9	0.100				
P4KE43	38.7	47.3	1.0	34.8	5.0	6.8	61.9	0.101				
P4KE43A	40.9	45.2	1.0	36.8	5.0	7.1	59.3	0.101				
P4KE47	42.3	51.7	1.0	38.1	5.0	6.2	67.8	0.101				
P4KE47A	44.7	49.4	1.0	40.2	5.0	6.5	64.8	0.101				
P4KE51	45.9	56.1	1.0	41.3	5.0	5.7	73.5	0.102				
P4KE51A	48.5	53.6	1.0	43.6	5.0	6.0	70.1	0.102				
P4KE56	50.4	61.6	1.0	45.4	5.0	5.2	80.5	0.103				
P4KE56A	53.2	58.8	1.0	47.8	5.0	5.5	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 V_{RWM}	Maximum Reverse Leakage @ V_{RWM} I_R	Maximum Reverse Current I_{RSM}	Maximum Clamping Voltage @ I_{RSM} V_{RSM}	Maximum Temperature Co-efficient				
	V_{BR} (V)		I_t					V_{RWM}	I_R	I_{RSM}	V_{RSM}	of V_{BR}
	Min.	Max.	(mA)					(V)	(A)	(A)	(V)	(% / °C)
P4KE62	55.8	68.2	1.0	50.2	5.0	4.7	89.0	0.104				
P4KE62A	58.9	65.1	1.0	53.0	5.0	5.0	85.0	0.104				
P4KE68	61.2	74.8	1.0	55.1	5.0	4.3	98.0	0.104				
P4KE68A	64.6	71.4	1.0	58.1	5.0	4.6	92.0	0.104				
P4KE75	67.5	82.5	1.0	60.7	5.0	3.9	108	0.105				
P4KE75A	71.3	78.8	1.0	64.1	5.0	4.1	103	0.105				
P4KE82	73.8	90.2	1.0	66.4	5.0	3.6	118	0.105				
P4KE82A	77.9	86.1	1.0	70.1	5.0	3.7	113	0.105				
P4KE91	81.9	100	1.0	73.7	5.0	3.2	131	0.106				
P4KE91A	86.5	95.5	1.0	77.8	5.0	3.4	125	0.106				
P4KE100	90.0	110	1.0	81.0	5.0	2.9	144	0.106				
P4KE100A	95.0	105	1.0	85.5	5.0	3.1	137	0.106				
P4KE110	99.0	121	1.0	89.2	5.0	2.7	158	0.107				
P4KE110A	105	116	1.0	94.0	5.0	2.8	152	0.107				
P4KE120	108	132	1.0	97.2	5.0	2.4	173	0.107				
P4KE120A	114	126	1.0	102	5.0	2.5	165	0.107				
P4KE130	117	143	1.0	105	5.0	2.2	187	0.107				
P4KE130A	124	137	1.0	111	5.0	2.3	179	0.107				
P4KE150	135	165	1.0	121	5.0	2.0	215	0.108				
P4KE150A	143	158	1.0	128	5.0	2.0	207	0.108				
P4KE160	144	176	1.0	130	5.0	1.8	230	0.108				
P4KE160A	152	168	1.0	136	5.0	1.9	219	0.108				
P4KE170	153	187	1.0	138	5.0	1.7	244	0.108				
P4KE170A	162	179	1.0	145	5.0	1.8	234	0.108				
P4KE180	162	198	1.0	146	5.0	1.6	258	0.108				
P4KE180A	171	189	1.0	154	5.0	1.7	246	0.108				
P4KE200	180	220	1.0	162	5.0	1.5	287	0.108				
P4KE200A	190	210	1.0	171	5.0	1.53	274	0.108				
P4KE220	198	242	1.0	175	5.0	1.16	344	0.108				
P4KE220A	209	231	1.0	185	5.0	1.22	328	0.108				
P4KE250	225	275	1.0	202	5.0	1.11	360	0.110				
P4KE250A	237	263	1.0	214	5.0	1.16	344	0.110				
P4KE300	270	330	1.0	243	5.0	0.93	430	0.110				
P4KE300A	285	315	1.0	256	5.0	0.97	414	0.110				
P4KE350	315	385	1.0	284	5.0	0.79	504	0.110				
P4KE350A	332	368	1.0	300	5.0	0.83	482	0.110				
P4KE400	360	440	1.0	324	5.0	0.70	574	0.110				
P4KE400A	380	420	1.0	342	5.0	0.73	548	0.110				
P4KE440	396	484	1.0	356	5.0	0.95	631	0.110				
P4KE440A	418	462	1.0	376	5.0	1.00	602	0.110				

(1) V_{BR} measured after I_t applied for 300 s., I_t = square wave pulse or equivalent.

(2) V_F = 3.5 $V_{max.}$, I_F = 25 Amps. (6.8 Volts thru 91Volts)

V_F = 5.0 $V_{max.}$, I_F = 25 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.

(3) For Bipolar types having V_R of 10 Volts and under, the I_R limit is doubled.

RATING AND CHARACTERISTIC CURVES (P4KE SERIES)

FIG.1 - PULSE DERATING CURVE

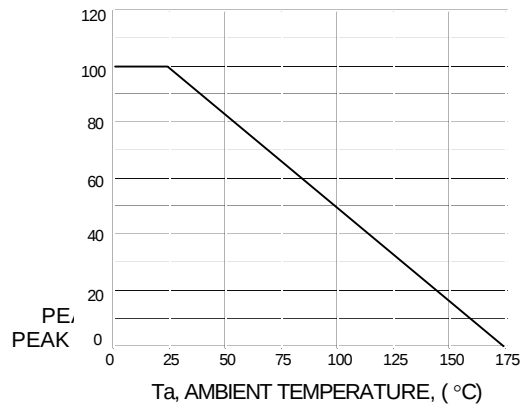


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

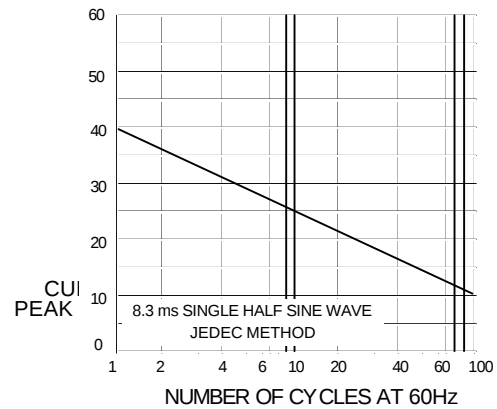


FIG.3 - STEADY STATE POWER DERATING

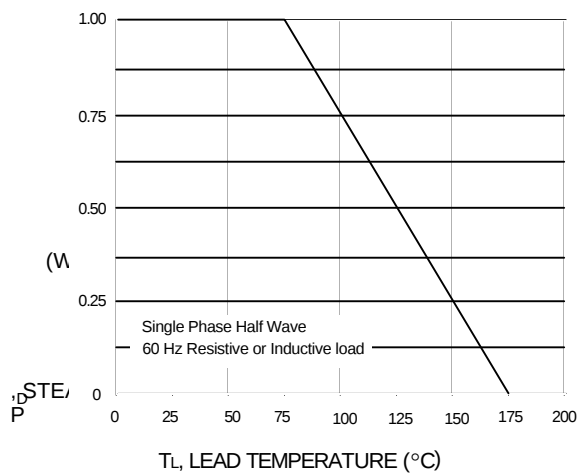


FIG.4 - PULSE RATING CURVE

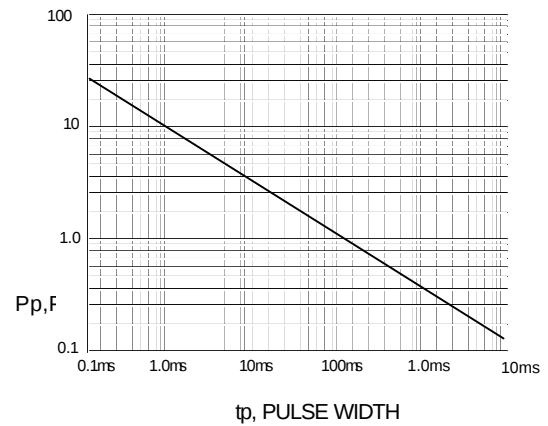


FIG.5 - PULSE WAVEFORM

