

V. Transient Voltage Suppressor

400W TVS (Breakdown Voltage: 6.8~440 Volts)

P4KE Series

(Package: DO-41)

<p>FEATURES</p> <ul style="list-style-type: none"> • 400W peak pulse power capability • Excellent clamping capability • Low incremental surge resistance • Fast response time : Typically less than 1.0ps from 0 volts to $V_{(BR)}$ for uni-directional and 5.0ns for bi-directional types • High temperature soldering guaranteed : 265 /10 seconds/9.5mm lead length at 5 lbs. tension <p>MECHANICAL DATA</p> <ul style="list-style-type: none"> • Case : JEDEC DO-41 molded plastic body over glass passivated junction • Terminals : Plated axial leads, solderable per MIL-STD-750, Method 2026 • Polarity : Color band denotes cathode except for bi-directional types • Mounting Position : Any • Weight : 0.012 ounce, 0.33 grams 	<p>Case: DO-41 Dimensions in inches and (millimeters)</p>
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Devices for Bi-Directional Applications

For bi-directional devices, use suffix “CA” for types P4KE6.8 thru P4KE440 (e.g. P4KE6.8CA)
Electrical characteristics apply in both directions.

Maximum Ratings & Electrical Characteristics

(Ratings at 25 ambient temperature unless otherwise specified)

Ratings	Symbols	Value	Unit
Peak power dissipation ⁽¹⁾	P_{PPM}	Minimum 400	Watts
Peak pulse reverse current ⁽¹⁾ (see Fig. 3)	I_{PPM}	See Table 1	Amps
Steady state power dissipation ⁽²⁾	$P_{M(AV)}$	1.0	Watts
Peak forward surge current ⁽³⁾	I_{FSM}	40	Amps
Maximum instantaneous forward voltage at 25A for uni-directional only ⁽⁴⁾	V_F	3.5 / 6.5	Volts
Operating junction and storage temperature range	T_j, T_{stg}	-55 to +175	

Note:

1. 10/1000 μ s waveform non-repetitive current pulse, per Fig.3 and derated above $T_a = 25$ per Fig.2

2. $T_L = 75$, lead lengths 9.5mm, mounted on copper pad area of (40 x 40mm) Fig. 5

3. Measured on 8.3ms single half sine-wave or equivalent square wave, Duty Cycle = 4 pulses per minute maximum

4. $V_F = 3.5V$ max. for devices of $V_{(BR)} < 200V$, and $V_F = 6.5V$ max. for devices of $V_{(BR)} > 200V$

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Device Type	Breakdown Voltage $V_{(BR)}$ (Volts) ⁽¹⁾		Test Current I_T (mA)	Stand-off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_R ⁽³⁾ (μ A)	Maximum Peak Pulse Reverse Current I_{PPM} ⁽²⁾ (Amps)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)	Maximum Temperature Coefficient of $V_{(BR)}$ (%/°C)
	Min.	Max.						
P4KE6.8(C)A	6.45	7.14	10	5.80	1000	38.1	10.5	0.057
P4KE7.5(C)A	7.13	7.88	10	6.40	500	35.4	11.3	0.061
P4KE8.2(C)A	7.79	8.61	10	7.02	200	33.1	12.1	0.065
P4KE9.1(C)A	8.65	9.55	1.0	7.78	50	29.9	13.4	0.068
P4KE10(C)A	9.50	10.5	1.0	8.55	10	27.6	14.5	0.073
P4KE11(C)A	10.5	11.6	1.0	9.40	5.0	25.6	15.6	0.075
P4KE12(C)A	11.4	12.6	1.0	10.2	5.0	24.0	16.7	0.078
P4KE13(C)A	12.4	13.7	1.0	11.1	5.0	22.0	18.2	0.081
P4KE15(C)A	14.3	15.8	1.0	12.8	5.0	18.9	21.2	0.084
P4KE16(C)A	15.2	16.8	1.0	13.6	5.0	17.8	22.5	0.086
P4KE18(C)A	17.1	18.9	1.0	15.3	5.0	15.9	25.5	0.088
P4KE20(C)A	19.0	21.0	1.0	17.1	5.0	14.4	27.7	0.090
P4KE22(C)A	20.9	23.1	1.0	18.8	5.0	13.1	30.6	0.092
P4KE24(C)A	22.8	25.2	1.0	20.5	5.0	12.0	33.2	0.094
P4KE27(C)A	25.7	28.4	1.0	23.1	5.0	10.7	37.5	0.096
P4KE30(C)A	28.5	31.5	1.0	25.6	5.0	9.7	41.4	0.097
P4KE33(C)A	31.4	34.7	1.0	28.2	5.0	8.8	45.7	0.098
P4KE36(C)A	34.2	37.8	1.0	30.8	5.0	8.0	49.9	0.099
P4KE39(C)A	37.1	41.0	1.0	33.3	5.0	7.4	53.9	0.100
P4KE43(C)A	40.9	45.2	1.0	36.8	5.0	6.7	59.3	0.101
P4KE47(C)A	44.7	49.4	1.0	40.2	5.0	6.2	64.8	0.101
P4KE51(C)A	48.5	53.6	1.0	43.6	5.0	5.7	70.1	0.102
P4KE56(C)A	53.2	58.8	1.0	47.8	5.0	5.2	77.0	0.103
P4KE62(C)A	58.9	65.1	1.0	53.0	5.0	4.7	85.0	0.104
P4KE68(C)A	64.6	71.4	1.0	58.1	5.0	4.3	92.0	0.104
P4KE75(C)A	71.3	78.8	1.0	64.1	5.0	3.9	103	0.105
P4KE82(C)A	77.9	86.1	1.0	70.1	5.0	3.5	113	0.105
P4KE91(C)A	86.5	95.5	1.0	77.8	5.0	3.2	125	0.106
P4KE100(C)A	95.0	105	1.0	85.5	5.0	2.9	137	0.106
P4KE110(C)A	105	116	1.0	94.0	5.0	2.6	152	0.107
P4KE120(C)A	114	126	1.0	102	5.0	2.4	165	0.107
P4KE130(C)A	124	137	1.0	111	5.0	2.2	179	0.107
P4KE150(C)A	143	158	1.0	128	5.0	1.9	207	0.108
P4KE160(C)A	152	168	1.0	136	5.0	1.8	219	0.108
P4KE170(C)A	162	179	1.0	145	5.0	1.7	234	0.108
P4KE180(C)A	171	189	1.0	154	5.0	1.6	246	0.108
P4KE200(C)A	190	210	1.0	171	5.0	1.5	274	0.108
P4KE220(C)A	209	231	1.0	185	5.0	1.2	328	0.108
P4KE250(C)A	237	263	1.0	214	5.0	1.2	344	0.110
P4KE300(C)A	285	315	1.0	256	5.0	1.0	414	0.110
P4KE350(C)A	332	368	1.0	300	5.0	0.83	482	0.110
P4KE400(C)A	380	420	1.0	342	5.0	0.73	548	0.110
P4KE440(C)A	418	462	1.0	376	5.0	0.66	602	0.110

Note:

1. $V_{(BR)}$ measured after I_T applied for 300 μ s, I_T = square wave pulse or equivalent
2. Surge current waveform per Fig. 3 and derated per Fig. 2
3. For bi-directional types having V_{WM} of 10 volts and less, the I_R limit is doubled
4. All items and symbols are consistent with ANSI/IEEE C62.35

Ratings and Characteristic Curves of P4KE Series

