

V. Transient Voltage Suppressor

600W TVS (Breakdown Voltage: 6.8~550 Volts)

P6KE Series

(Package: DO-15)

<p>FEATURES</p> <ul style="list-style-type: none"> • 600W 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-15 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 : 0.014 ounce, 0.40 grams 	<p>Case: DO-15 Dimensions in inches and (millimeters)</p>
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Devices for Bi-Directional Applications

For bi-directional devices, use suffix “CA” for types P6KE6.8 thru P6KE550 (e.g. P6KE6.8CA)
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 600	Watts
Peak pulse reverse current ⁽¹⁾ (see Fig. 3)	I_{PPM}	See Table 1	Amps
Steady state power dissipation ⁽²⁾	$P_{M(AV)}$	5.0	Watts
Peak forward surge current ⁽³⁾	I_{FSM}	100	Amps
Maximum instantaneous forward voltage at 50A for uni-directional only ⁽⁴⁾	V_F	3.5 / 5.0	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 $V_{(BR)} \leq 200V$, and $V_F = 5.0V$ max. for devices of $V_{(BR)} > 200V$

V. Transient Voltage Suppressor (TVS)

600W Transient Voltage Suppressor (Breakdown Voltage: 6.8~550 Volts) P6KE Series (Package: DO-15)

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.						
P6KE6.8(C)A	6.45	7.14	10	5.80	1000	57.1	10.5	0.057
P6KE7.5(C)A	7.13	7.88	1.0	6.40	500	53.1	11.3	0.061
P6KE8.2(C)A	7.79	8.61	1.0	7.02	200	49.6	12.1	0.065
P6KE9.1(C)A	8.65	9.55	1.0	7.78	50	44.8	13.4	0.068
P6KE10(C)A	9.50	10.5	1.0	8.55	10	41.4	14.5	0.073
P6KE11(C)A	10.5	11.6	1.0	9.40	5.0	38.5	15.6	0.075
P6KE12(C)A	11.4	12.6	1.0	10.2	5.0	35.9	16.7	0.078
P6KE13(C)A	12.4	13.7	1.0	11.1	5.0	33.0	18.2	0.081
P6KE15(C)A	14.3	15.8	1.0	12.8	5.0	28.3	21.2	0.084
P6KE16(C)A	15.2	16.8	1.0	13.6	5.0	26.7	22.5	0.086
P6KE18(C)A	17.1	18.9	1.0	15.3	5.0	23.8	25.2	0.088
P6KE20(C)A	19.0	21.0	1.0	17.1	5.0	21.7	27.7	0.090
P6KE22(C)A	20.9	23.1	1.0	18.8	5.0	19.6	30.6	0.092
P6KE24(C)A	22.8	25.2	1.0	20.5	5.0	18.1	33.2	0.094
P6KE27(C)A	25.7	28.4	1.0	23.1	5.0	16.0	37.5	0.096
P6KE30(C)A	28.5	31.5	1.0	25.6	5.0	14.5	41.4	0.097
P6KE33(C)A	31.4	34.7	1.0	28.2	5.0	13.1	45.7	0.098
P6KE36(C)A	34.2	37.8	1.0	30.8	5.0	12.0	49.9	0.099
P6KE39(C)A	37.1	41.0	1.0	33.3	5.0	11.1	53.9	0.100
P6KE43(C)A	40.9	45.2	1.0	36.8	5.0	10.1	59.3	0.101
P6KE47(C)A	44.7	49.4	1.0	40.2	5.0	9.3	64.8	0.101
P6KE51(C)A	48.5	53.6	1.0	43.6	5.0	8.6	70.1	0.102
P6KE56(C)A	53.2	58.8	1.0	47.8	5.0	7.8	77.0	0.103
P6KE62(C)A	58.9	65.1	1.0	53.0	5.0	7.1	85.0	0.104
P6KE68(C)A	64.6	71.4	1.0	58.1	5.0	6.5	92.0	0.104
P6KE75(C)A	71.3	78.8	1.0	64.1	5.0	5.8	103	0.105
P6KE82(C)A	77.9	86.1	1.0	70.1	5.0	5.3	113	0.105
P6KE91(C)A	86.5	95.5	1.0	77.8	5.0	4.8	125	0.106
P6KE100(C)A	95.0	105	1.0	85.5	5.0	4.4	137	0.106
P6KE110(C)A	105	116	1.0	94.0	5.0	3.9	152	0.107
P6KE120(C)A	114	126	1.0	102	5.0	3.6	165	0.107
P6KE130(C)A	124	137	1.0	111	5.0	3.4	179	0.107
P6KE150(C)A	143	158	1.0	128	5.0	2.9	207	0.108
P6KE160(C)A	152	168	1.0	136	5.0	2.7	219	0.108
P6KE170(C)A	162	179	1.0	145	5.0	2.6	234	0.108
P6KE180(C)A	171	189	1.0	154	5.0	2.4	246	0.108
P6KE200(C)A	190	210	1.0	171	5.0	2.2	274	0.108
P6KE220(C)A	209	231	1.0	185	5.0	1.8	328	0.108
P6KE250(C)A	237	263	1.0	214	5.0	1.7	344	0.110
P6KE300(C)A	285	315	1.0	256	5.0	1.4	414	0.110
P6KE350(C)A	332	368	1.0	300	5.0	1.2	482	0.110
P6KE400(C)A	380	420	1.0	342	5.0	1.1	548	0.110
P6KE440(C)A	418	462	1.0	376	5.0	1.0	602	0.110
P6KE480(C)A	456	504	1.0	408	5.0	0.9	658	0.110
P6KE510(C)A	485	535	1.0	434	5.0	0.9	698	0.110
P6KE530(C)A	503.5	556.5	1.0	450	5.0	0.8	725	0.110
P6KE540(C)A	513	567	1.0	459	5.0	0.8	740	0.110
P6KE550(C)A	522.5	577.5	1.0	467	5.0	0.8	760	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 P6KE Series

