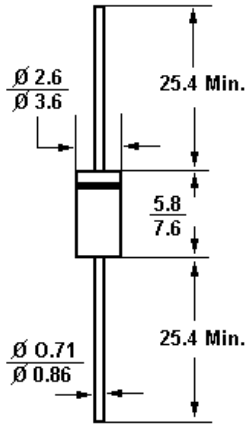
P6KE Series

TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage: 6.8 to 440 V

Peak Pulse Power: 600 W

DO-15



Dimnsions in mm

Features

- Plastic package has UL Flammability Classification 94V-0
- 600 W peak pulse power capability on 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- Excellent clamping capability
- Low incremental surge resistance
- Very fast response time

Mechanical Data

- **Case:** Molded plastic, DO-15
- **Lead:** Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- **Polarity:** Color band denotes cathode except bipolar
- **Mounting Position:** Any

Description

- Devices for bidirectional applications
- For bi-directional use C or CA suffix for types P6KE6.8 thru types P6KE440A (e.g. P6KE6.8C, P6KE440CA)
- Electrical characteristics apply in both directions

Absolute Maximum Ratings

Rating at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load; for capacitive load, derate current by 20%.

Parameter	Symbol	Value	Unit
Peak Power Dissipation with a 10/1000μs Waveform [1]	P_{PPM}	Min. 600	W
Steady State Power Dissipation at T_L = 75 °C, Lead Lengths 0.375"(9.5mm) [2]	P_{tot}	5	W
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDED Method) Unidirectional Only [3]	I_{FSM}	100	A
Maximum Instantaneous Forward Voltage at 50 A for Unidirectional Only [4]	V_F	3.5/5	V
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	- 55 to + 150	°C

[1] Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25 °C, per Fig. 2

[2] Mounted on Copper pad area of 1.6 X 16" (40 X 40 mm) per Fig. 5

[3] Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

[4] V_F = 3.5 V max. for P6KE200(A) & below; V_F = 5 V max. for P6KE220(A) & above

P6KE Series

Electrical Characteristics (T_a = 25 °C unless otherwise specified)

Uni-directional / Bi-directional Type	Reverse Stand-off Voltage V_{WM} (V)	Breakdown Voltage [1]		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) at I_{PPM}	Maximum Peak Pulse Current [2] I_{PPM} (A)	Maximum Reverse Leakage [3] I_D (μA) at V_{WM}
		V_{BR} (V) Min. at I_T	V_{BR} (V) Max. at I_T				
P6KE6.8 / C	5.5	6.12	7.48	10	10.8	55.6	1000
P6KE6.8A / CA	5.8	6.45	7.14	10	10.5	57.1	1000
P6KE7.5 / C	6.05	6.75	8.25	10	11.7	51.3	500
P6KE7.5A / CA	6.4	7.13	7.88	10	11.3	53.1	500
P6KE8.2 / C	6.63	7.38	9.02	10	12.5	48	200
P6KE8.2A / CA	7.02	7.79	8.61	10	12.1	49.6	200
P6KE9.1 / C	7.37	8.19	10	1	13.8	43.5	50
P6KE9.1A / CA	7.78	8.65	9.55	1	13.4	44.8	50
P6KE10 / C	8.1	9	11	1	15	40	10
P6KE10A / CA	8.55	9.5	10.5	1	14.5	41.4	10
P6KE11 / C	8.92	9.9	12.1	1	16.2	37	5
P6KE11A / CA	9.4	10.5	11.6	1	15.6	38.5	5
P6KE12 / C	9.72	10.8	13.2	1	17.3	34.7	5
P6KE12A / CA	10.2	11.4	12.6	1	16.7	35.9	5
P6KE13 / C	10.5	11.7	14.3	1	19	31.6	5
P6KE13A / CA	11.1	12.4	13.7	1	18.2	33	5
P6KE15 / C	12.1	13.5	16.5	1	22	27.3	5
P6KE15A / CA	12.8	14.3	15.8	1	21.2	28.3	5
P6KE16 / C	12.9	14.4	17.6	1	23.5	25.5	5
P6KE16A / CA	13.6	15.2	16.8	1	22.5	26.7	5
P6KE18 / C	14.5	16.2	19.8	1	26.5	22.6	5
P6KE18A / CA	15.3	17.1	18.9	1	25.2	23.8	5
P6KE20 / C	16.2	18	22	1	29.1	20.6	5
P6KE20A / CA	17.1	19	21	1	27.7	21.7	5
P6KE22 / C	17.8	19.8	24.2	1	31.9	18.8	5
P6KE22A / CA	18.8	20.9	23.1	1	30.6	19.6	5
P6KE24 / C	19.4	21.6	26.4	1	34.7	17.3	5
P6KE24A / CA	20.5	22.8	25.2	1	33.2	18.1	5
P6KE27 / C	21.8	24.3	29.7	1	39.1	15.3	5
P6KE27A / CA	23.1	25.7	28.4	1	37.5	16	5
P6KE30 / C	24.3	27	33	1	43.5	13.8	5
P6KE30A / CA	25.6	28.5	31.5	1	41.4	14.5	5
P6KE33 / C	26.8	29.7	36.3	1	47.7	12.6	5
P6KE33A / CA	28.2	31.4	34.7	1	45.7	13.1	5
P6KE36 / C	29.1	32.4	39.6	1	52	11.5	5
P6KE36A / CA	30.8	34.2	37.8	1	49.9	12	5
P6KE39 / C	31.6	35.1	42.9	1	56.4	10.6	5
P6KE39A / CA	33.3	37.1	41	1	53.9	11.1	5
P6KE43 / C	34.8	38.7	47.3	1	61.9	9.7	5
P6KE43A / CA	36.8	40.9	45.2	1	59.3	10.1	5
P6KE47 / C	38.1	42.3	51.7	1	67.8	8.8	5
P6KE47A / CA	40.2	44.7	49.4	1	64.8	9.3	5
P6KE51 / C	41.3	45.9	56.1	1	73.5	8.2	5
P6KE51A / CA	43.6	48.5	53.6	1	70.1	8.6	5

P6KE Series

Electrical Characteristics (T_a = 25 °C unless otherwise specified)

Uni-directional / Bi-directional Type	Reverse Stand-off Voltage V_{WM} (V)	Breakdown Voltage [1]		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) at I_{PPM}	Maximum Peak Pulse Current [2] I_{PPM} (A)	Maximum Reverse Leakage [3] I_D (μA) at V_{WM}
		V_{BR} (V) Min. at I_T	V_{BR} (V) Max. at I_T				
P6KE56 / C	45.4	50.4	61.6	1	80.5	7.5	5
P6KE56A / CA	47.8	53.2	58.8	1	77	7.8	5
P6KE62 / C	50.2	55.8	68.2	1	89	6.7	5
P6KE62A / CA	53	58.9	65.1	1	85	7.1	5
P6KE68 / C	55.1	61.2	74.8	1	98	6.1	5
P6KE68A / CA	58.1	64.6	71.4	1	92	6.5	5
P6KE75 / C	60.7	67.5	82.5	1	108	5.6	5
P6KE75A / CA	64.1	71.3	78.8	1	103	5.8	5
P6KE82 / C	66.4	73.8	90.2	1	118	5.1	5
P6KE82A / CA	70.1	77.9	86.1	1	113	5.3	5
P6KE91 / C	73.7	81.9	100	1	131	4.6	5
P6KE91A / CA	77.8	86.5	95.5	1	125	4.8	5
P6KE100 / C	81	90	110	1	144	4.2	5
P6KE100A / CA	85.5	95	105	1	137	4.4	5
P6KE110 / C	89.2	99	121	1	158	3.8	5
P6KE110A / CA	94	105	116	1	152	3.9	5
P6KE120 / C	97.2	108	132	1	173	3.5	5
P6KE120A / CA	102	114	126	1	165	3.6	5
P6KE130 / C	105	117	143	1	187	3.2	5
P6KE130A / CA	111	124	137	1	179	3.4	5
P6KE150 / C	121	135	165	1	215	2.8	5
P6KE150A / CA	128	143	158	1	207	2.9	5
P6KE160 / C	130	144	176	1	230	2.6	5
P6KE160A / CA	136	152	168	1	219	2.7	5
P6KE170 / C	138	153	187	1	244	2.5	5
P6KE170A / CA	145	162	179	1	234	2.6	5
P6KE180 / C	146	162	198	1	258	2.3	5
P6KE180A / CA	154	171	189	1	246	2.4	5
P6KE200 / C	162	180	220	1	287	2.1	5
P6KE200A / CA	171	190	210	1	274	2.2	5
P6KE220 / C	175	198	242	1	344	1.7	5
P6KE220A / CA	185	209	231	1	328	1.8	5
P6KE250 / C	202	225	275	1	360	1.7	5
P6KE250A / CA	214	237	263	1	344	1.7	5
P6KE300 / C	243	270	330	1	430	1.4	5
P6KE300A / CA	256	285	315	1	414	1.4	5
P6KE350 / C	284	315	385	1	504	1.2	5
P6KE350A / CA	300	332	368	1	482	1.2	5
P6KE400 / C	324	360	440	1	574	1	5
P6KE400A / CA	342	380	420	1	548	1.1	5
P6KE440 / C	356	396	484	1	631	0.95	5
P6KE440A / CA	376	418	462	1	602	1	5

[1] Pulse test: tp ≤ 50ms

[2] Surge current waveform per Fig. 3 and Fig. 2

[3] For bidirectional types having V_{RWM} of 10V and less, the I_D limit is doubled

RATINGS AND CHARACTERISTIC CURVES

Fig. 1 – Peak Pulse Power Rating Curve

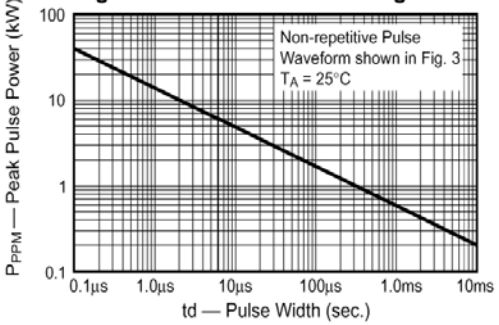


Fig. 2 – Pulse Derating Curve

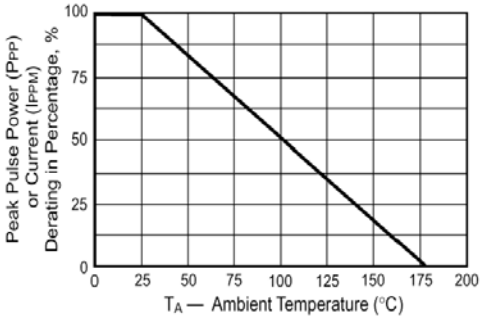


Fig. 3 – Pulse Waveform

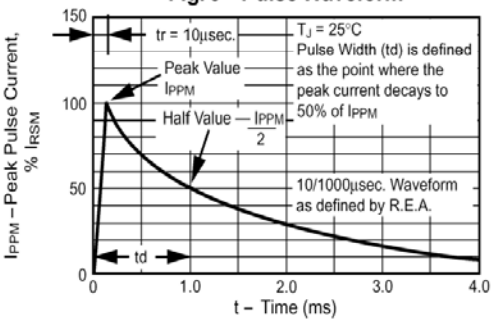


Fig. 4 – Typ. Junction Capacitance Uni-Directional

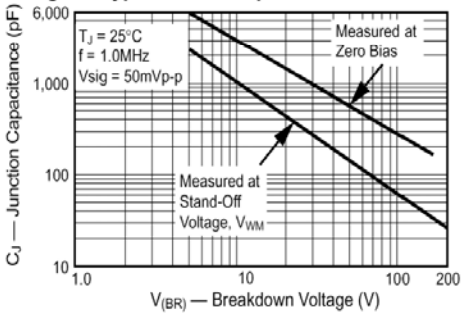


Fig. 5 – Steady State Power Derating Curve

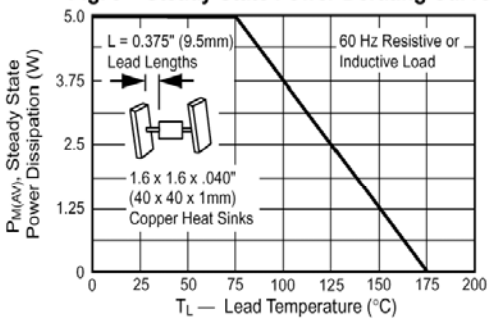


Fig. 6 - Max. Non-Repetitive Forward Surge Current

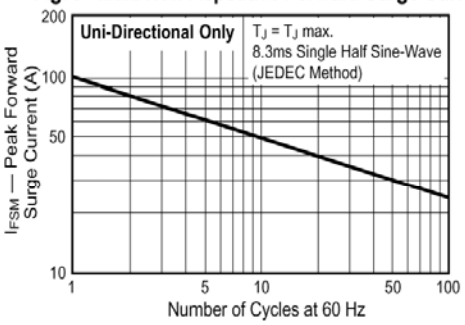


Fig. 7 – Typ. Reverse Leakage Characteristics

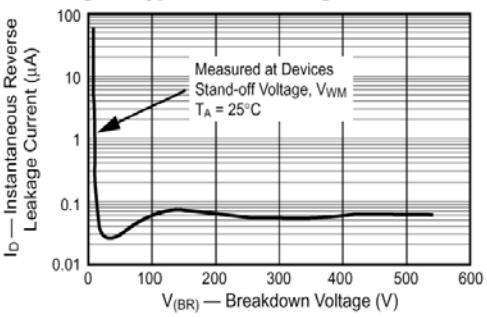


Fig. 8 – Typ. Transient Thermal Impedance