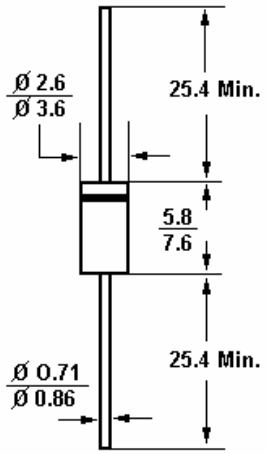
P6KE Series

TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage: 6.8 to 440V

Peak Pulse Power: 600W

DO-15



Dimnsions in mm

Features

- Plastic Package has UL Flammability Classification 94V-0
- 600W 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, 60Hz, 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 50A 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

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

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

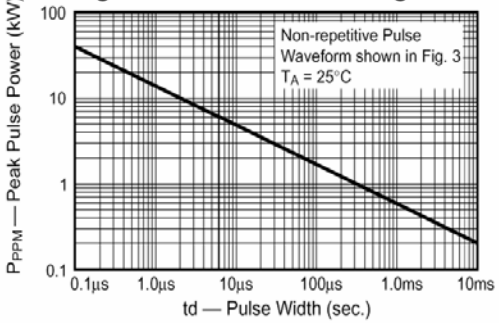

Fig. 2 – Pulse Derating Curve

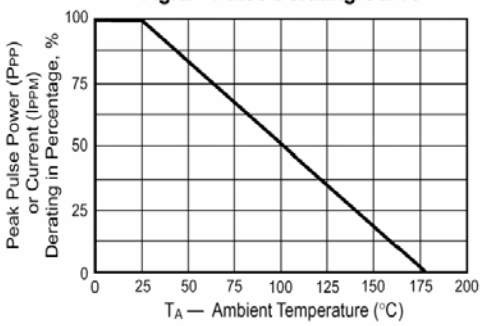

Fig. 3 – Pulse Waveform

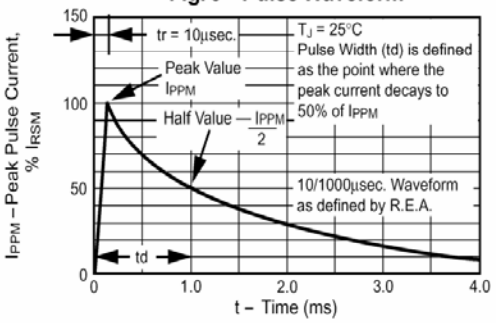

Fig. 4 – Typ. Junction Capacitance Uni-Directional

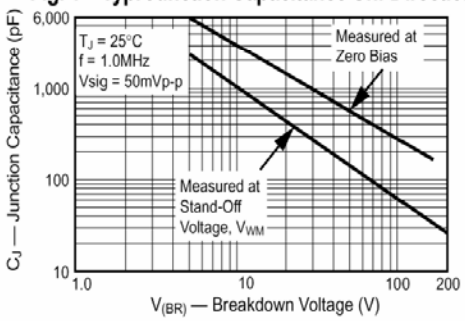

Fig. 5 – Steady State Power Derating Curve

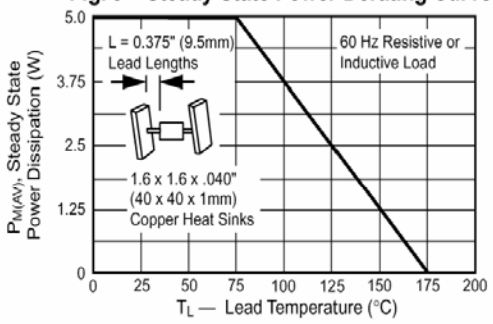

Fig. 6 - Max. Non-Repetitive Forward Surge Current

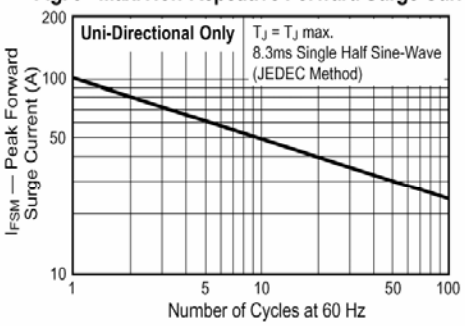

Fig. 7 – Typ. Reverse Leakage Characteristics

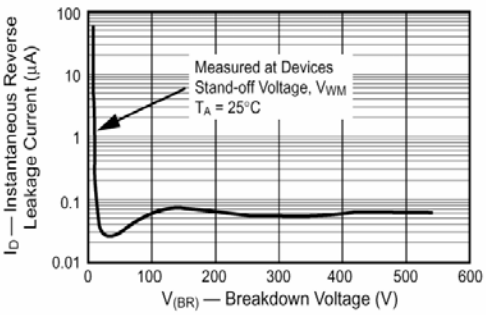

Fig. 8 – Typ. Transient Thermal Impedance