



P6KE SERIES

TRANSIENT VOLTAGE SUPPRESSORS

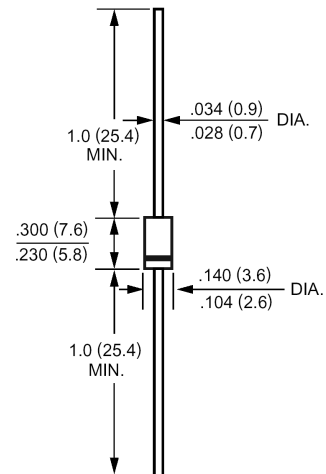
FEATURES

- Plastic package has Underwriters Laboratory
- Flammability Classification 94V-0
- 600W peak pulse power capability on 10/1000 us
- 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
Epoxy: UL 94V-0 rate flame retardant
Lead: Axial leads, solderable per MIL-STD-202, method 208 guaranteed
Polarity: Color band denotes cathode except bipolar
Mounting position: Any
Weight: 0.015ounce, 0.4gram

DO-15



Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics

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

	Symbols	Limit	Units
Peak power dissipation with a 10/1000μs waveform (Note 1) (Fig. 1)	P_{PPM}	Minimum 600	Watts
Peak pulse current with a 10/1000μs waveform (Note 1)	I_{PPM}	See Next Table	Amp
Steady state power dissipation at $T_L = 75^\circ\text{C}$, lead lengths 0.375" (9.5mm) (Note 2)	$P_{M(AV)}$	5.0	Watts
Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 3)	I_{FSM}	100	Amp
Maximum instantaneous forward voltage at 50A for unidirectional only (Note 4)	V_F	3.5/5.0	Volts
Typical thermal resistance junction-to-lead	$R_{\theta JL}$	20	$^\circ\text{C/W}$
Typical thermal resistance junction-to-ambient	$R_{\theta JA}$	75	$^\circ\text{C/W}$
Operating junction and storage temperature range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

NOTES:

- 1- Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig. 2
- 2- Mounted on copper pad area of 1.6 x 1.6" (40 x 40mm) per Fig. 5
- 3- Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
- 4- $V_F = 3.5\text{V}$ for P6KE200(A) & below; $V_F = 5.0\text{V}$ for P6KE220(A) & above

Devices for Bidirectional Applications:

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





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P6KE SERIES		Breakdown voltage VBR @ IT			Maximum Reverse Leakage IR(uA) @VRWM	Working Peak Reverse Voltage VRWM (Volts)	Maximum Reverse Surge Current Ipp(A) @10x1000us sinewave	Maximum Clamping Voltage Vc (Volts) @Ipp
Uni-polar	Bi-polar	Min (V)	Max (V)	IT (mA)				
P6KE6.8	P6KE6.8C	6.12	7.48	10	1000	5.5	55.6	10.8
P6KE6.8A	P6KE6.8CA	6.46	7.14	10	1000	5.8	57.1	10.5
P6KE7.5	P6KE7.5C	6.75	8.25	10	500	6.1	51.3	11.7
P6KE7.5A	P6KE7.5CA	7.13	7.88	10	500	6.4	53.1	11.3
P6KE8.2	P6KE8.2C	7.38	9.02	10	200	6.6	48.0	12.5
P6KE8.2A	P6KE8.2CA	7.79	8.61	10	200	7.0	49.6	12.1
P6KE9.1	P6KE9.1C	8.19	10.01	1	50	7.4	43.5	13.8
P6KE9.1A	P6KE9.1CA	8.65	9.56	1	50	7.8	44.8	13.4
P6KE10	P6KE10C	9.00	11.00	1	10	8.1	40.0	15.0
P6KE10A	P6KE10CA	9.50	10.50	1	10	8.6	41.4	14.5
P6KE11	P6KE11C	9.90	12.10	1	5	8.9	37.0	16.2
P6KE11A	P6KE11CA	10.45	11.55	1	5	9.4	38.5	15.6
P6KE12	P6KE12C	10.80	13.20	1	5	9.7	34.7	17.3
P6KE12A	P6KE12CA	11.40	12.60	1	5	10.2	35.9	16.7
P6KE13	P6KE13C	11.70	14.30	1	5	10.5	31.6	19.0
P6KE13A	P6KE13CA	12.35	13.65	1	5	11.1	33.0	18.2
P6KE15	P6KE15C	13.50	16.50	1	5	12.1	27.3	22.0
P6KE15A	P6KE15CA	14.25	15.75	1	5	12.8	28.3	21.2
P6KE16	P6KE16C	14.40	17.60	1	5	12.9	25.5	23.5
P6KE16A	P6KE16CA	15.20	16.80	1	5	13.6	26.7	22.5
P6KE18	P6KE18C	16.20	19.80	1	5	14.5	22.6	26.5
P6KE18A	P6KE18CA	17.10	18.90	1	5	15.3	23.8	25.2
P6KE20	P6KE20C	18.00	22.00	1	5	16.2	20.6	29.1
P6KE20A	P6KE20CA	19.00	21.00	1	5	17.1	21.7	27.7
P6KE22	P6KE22C	19.80	24.20	1	5	17.8	18.8	31.9
P6KE22A	P6KE22CA	20.90	23.10	1	5	18.8	19.6	30.6
P6KE24	P6KE24C	21.60	26.40	1	5	19.4	17.3	34.7
P6KE24A	P6KE24CA	22.80	25.20	1	5	20.5	18.1	33.2
P6KE27	P6KE27C	24.30	29.70	1	5	21.8	15.3	39.1
P6KE27A	P6KE27CA	25.65	28.35	1	5	23.1	16.0	37.5
P6KE30	P6KE30C	27.00	33.00	1	5	24.3	13.8	43.5
P6KE30A	P6KE30CA	28.50	31.50	1	5	25.6	14.5	41.4
P6KE33	P6KE33C	29.70	36.30	1	5	26.8	12.6	47.7
P6KE33A	P6KE33CA	31.35	34.65	1	5	28.2	13.1	45.7
P6KE36	P6KE36C	32.40	39.60	1	5	29.1	11.5	52.0
P6KE36A	P6KE36CA	34.20	37.80	1	5	30.8	12.0	49.9
P6KE39	P6KE39C	35.10	42.90	1	5	31.6	10.6	56.4
P6KE39A	P6KE39CA	37.05	40.95	1	5	33.3	11.1	53.9
P6KE43	P6KE43C	38.70	47.30	1	5	34.8	9.69	61.9
P6KE43A	P6KE43CA	40.85	45.15	1	5	36.8	10.1	59.3
P6KE47	P6KE47C	42.30	51.70	1	5	38.1	8.85	67.8
P6KE47A	P6KE47CA	44.65	49.35	1	5	40.2	9.26	64.8
P6KE51	P6KE51C	45.90	56.10	1	5	41.3	8.16	73.5
P6KE51A	P6KE51CA	48.45	53.55	1	5	43.6	8.56	70.1
P6KE56	P6KE56C	50.40	61.60	1	5	45.4	7.45	80.5
P6KE56A	P6KE56CA	53.20	58.80	1	5	47.8	7.79	77.0
P6KE62	P6KE62C	55.80	68.20	1	5	50.2	6.74	89.0
P6KE62A	P6KE62CA	58.90	65.10	1	5	53.0	7.06	85.0
P6KE68	P6KE62C	61.20	74.80	1	5	55.1	6.12	98.0
P6KE68A	P6KE62CA	64.60	71.40	1	5	58.1	6.52	92.0



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Uni-polar	Bi-polar	Min (V)	Max (V)	IT (mA)				
P6KE75	P6KE75C	67.50	82.50	1	5	60.7	5.56	108
P6KE75A	P6KE75CA	71.25	78.75	1	5	64.1	5.83	103
P6KE82	P6KE82C	73.80	90.20	1	5	66.4	5.08	118
P6KE82A	P6KE82CA	77.90	86.10	1	5	70.1	5.31	113
P6KE91	P6KE91C	81.90	100.10	1	5	73.7	4.58	131
P6KE91A	P6KE91CA	86.45	95.55	1	5	77.8	4.80	125
P6KE100	P6KE100C	90.00	110.00	1	5	81.0	4.17	144
P6KE100A	P6KE100CA	95.00	105.0	1	5	85.5	4.38	137
P6KE110	P6KE110C	99.00	121.0	1	5	89.2	3.80	158
P6KE110A	P6KE110CA	104.5	115.5	1	5	94.0	3.95	152
P6KE120	P6KE120C	108.0	132.0	1	5	97.2	3.47	173
P6KE120A	P6KE120CA	114.0	126.0	1	5	102	3.64	165
P6KE130	P6KE130C	117.0	143.0	1	5	105	3.21	187
P6KE130A	P6KE130CA	123.5	136.5	1	5	111	3.35	179
P6KE150	P6KE150C	135.0	165.0	1	5	121	2.79	215
P6KE150A	P6KE150CA	142.5	157.5	1	5	128	2.90	207
P6KE160	P6KE160C	144.0	176.0	1	5	130	2.61	230
P6KE160A	P6KE160CA	152.0	168.0	1	5	136	2.74	219
P6KE170	P6KE170C	153.0	187.0	1	5	138	2.46	244
P6KE170A	P6KE170CA	161.5	178.5	1	5	145	2.56	234
P6KE180	P6KE180C	162.0	198.0	1	5	146	2.33	258
P6KE180A	P6KE180CA	171.0	189.0	1	5	154	2.44	246
P6KE200	P6KE200C	180.0	220.0	1	5	162	2.09	287
P6KE200A	P6KE200CA	190.0	210.0	1	5	171	2.19	274
P6KE220	P6KE220C	198.0	242.0	1	5	175	1.74	344
P6KE220A	P6KE220CA	209.0	231.0	1	5	185	1.83	328
P6KE250	P6KE250C	225.0	275.0	1	5	202	1.67	360
P6KE250A	P6KE250CA	237.5	262.5	1	5	214	1.74	344
P6KE300	P6KE300C	270.0	330.0	1	5	243	1.40	430
P6KE300A	P6KE300CA	285.0	315.0	1	5	256	1.45	414
P6KE350	P6KE350C	315.0	385.0	1	5	284	1.19	504
P6KE350A	P6KE350CA	332.5	367.5	1	5	299	1.24	482
P6KE380	P6KE380C	342.0	418.0	1	5	309	1.10	547
P6KE380A	P6KE380CA	361.0	399.0	1	5	325	1.14	524
P6KE400	P6KE400C	360.0	440.0	1	5	325	1.05	574
P6KE400A	P6KE400CA	380.0	420.0	1	5	342	1.09	548
P6KE440	P6KE440C	396.0	484.0	1	5	357	0.95	631
P6KE440A	P6KE440CA	418.0	462.0	1	5	376	1.00	602
P6KE500	P6KE500C	450.0	550.0	1	5	406	0.83	720
P6KE500A	P6KE500CA	475.0	525.0	1	5	428	0.87	690
P6KE520	P6KE520C	468.0	572.0	1	5	422	0.80	749
P6KE520A	P6KE520CA	494.0	546.0	1	5	445	0.84	718
P6KE550	P6KE550C	495.0	605.0	1	5	447	0.76	792
P6KE550A	P6KE550CA	522.5	577.5	1	5	470	0.79	759
P6KE600	P6KE600C	540.0	660.0	1	5	487	0.69	864
P6KE600A	P6KE600CA	570.0	630.0	1	5	513	0.72	828

Note:

1. Suffix 'A ' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device.
2. Add suffix 'C 'or ' CA ' after part number to specify Bi-directional devices.
3. For Bi-Directional devices having VR of 10 volts and under, the IR limit is double .



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RATINGS AND CHARACTERISTIC CURVES

Fig. 1 – Peak Pulse Power Rating Curve

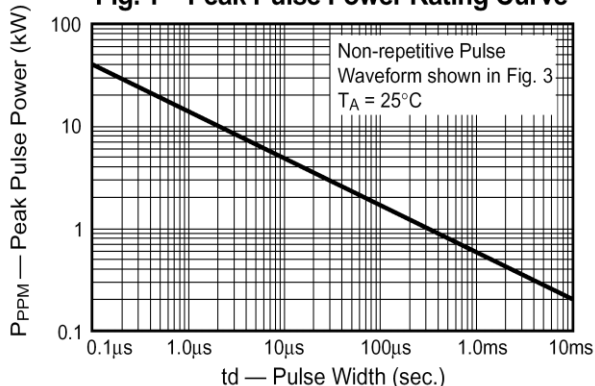


Fig. 2 – Pulse Derating Curve

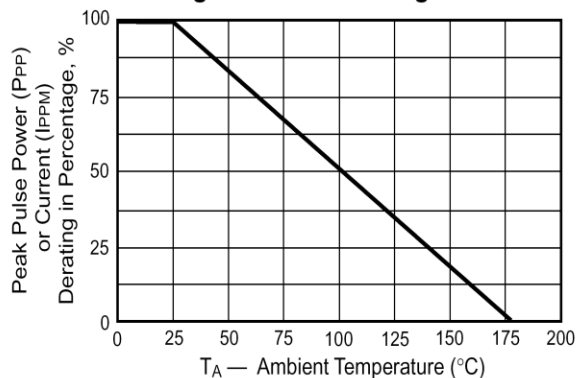


Fig. 3 – Pulse Waveform

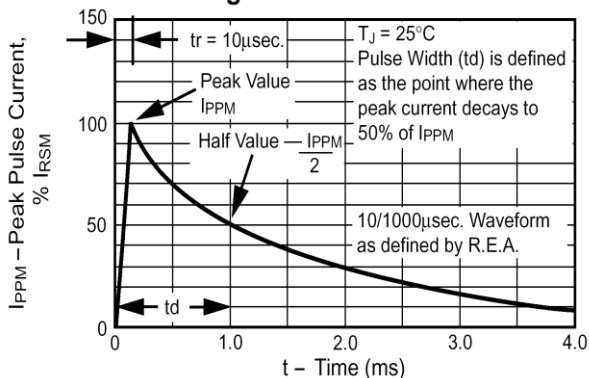


Fig. 4 – Typ. Junction Capacitance Uni-Directional

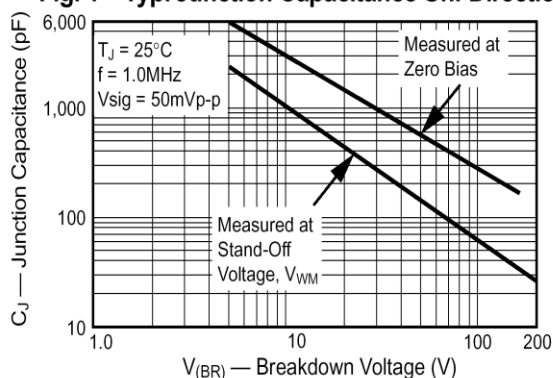


Fig. 5 – Steady State Power Derating Curve

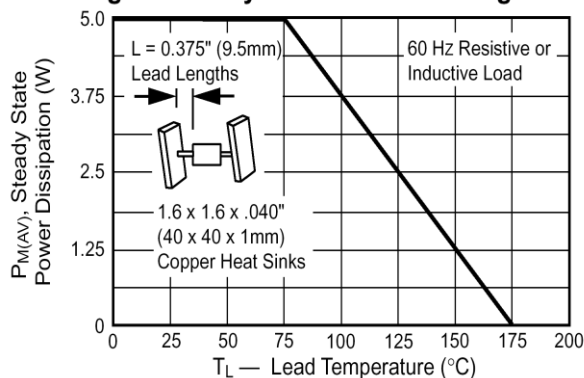


Fig. 6 - Max. Non-Repetitive Forward Surge Current

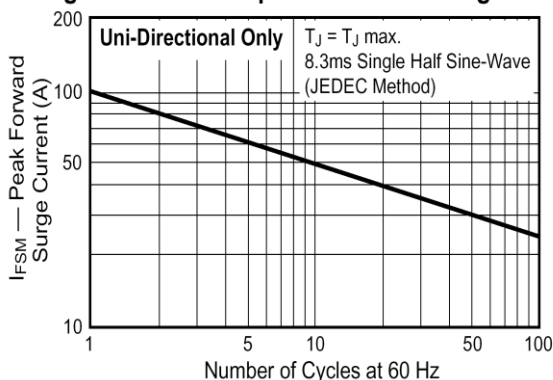


Fig. 7 – Typ. Reverse Leakage Characteristics

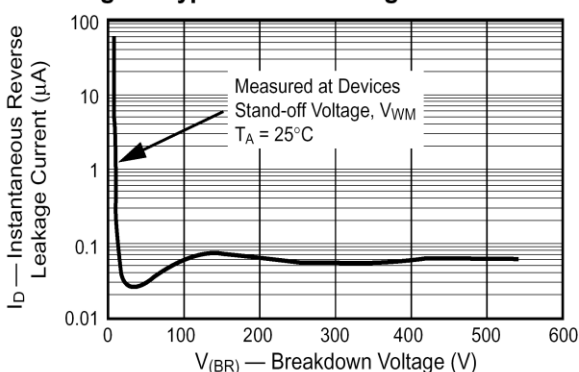


Fig. 8 – Typ. Transient Thermal Impedance

