

P6KE SERIES

TRANSIENT VOLTAGE SUPPRESSOR DIODES

FEATURES

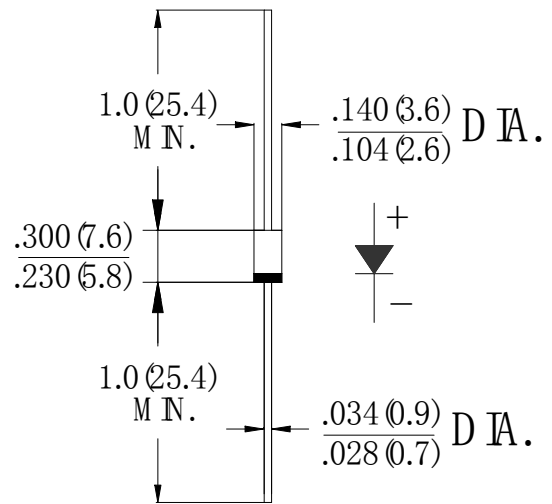
- UL Recognized File # E-96005
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- 500W surge capability at 10×100us waveform, Duty cycle: 0.01%
- Excellent clamping capability
- Low zener impedance
- Fast response time: Typically less than 1.0ps from 0 volts to VBR for unidirectional and 5.0ns for bidirectional
- Typical IR less than 1 μA above 10V
- High temperature soldering guaranteed: 260°C/10 seconds
.375" (9.5mm) lead length / 5lbs. (2.3kg) tension

MECHANICAL DATA

- Terminal: Plated axial leads solderable per MIL-STD 202E, method 208C
- Case: Molded with UL-94 Class V-0 recognized Flame Retardant Epoxy
- Polarity: color band denotes cathode except bipolar

Voltage Range
6.8 to 400 Vots
600 Watts Peak Power
5.0Watt Steady State

DO-15



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

single-phase, half-wave, 60HZ, resistive or inductive load.

Rating at 25°C ambient temperature unless otherwise stated For capacitive load, derate current by 20%

Type Number	SYM BOL	Value	units
Peak Power Dissipation at Ta=25°C, Tp=1ms (note 1)	<i>P_{PPM}</i>	Minimum 600	Watts
Steady State Power Dissipation at Tl=75°C Lead lengths .375" (9.5mm) (note 2)	<i>P_D</i>	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (note 3)	<i>I_{FSM}</i>	60	Amps
Storage Temperature	<i>T_{STG}</i>	-55 to +150	°C
Operating Junction Temperature	<i>T_J</i>	-55 to +150	°C

Note:

1. Non-repetitive Current Pulse Per Fig.3 and Derated above Ta=25°C Per Fig.2 .
2. Mounted on Copper Pad Area of 1.6×1.6" (40×40mm) Per Fig.4 .
3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minutes Maximum.
4. Vf=3.5V for Devices of Vbr≤200V and Vf=5.0V MAX. for Devices Vbr>200V.

Devices for Bipolar Applications

1. For Bidirectional Use C or CA Suffix for Types P6KE6.8 thru Types P6KE400.
2. Electrical Characteristics Apply in Both Directions.

ELECTRICAL CHARACTERISTICS(TA=25°C unless otherwise noted)

Device		Nominal Voltage (volts)	Breakdown Voltage VBR (volts)(note1)		Test Current @IT (mA)	Stand-Off Voltage VWM (volts)	Maximum Reverse Leakage At VWM ID(μA)	Maximum Peak Pulse Current IPPM (note2)(Amps)	Maximum Clamping Voltage at IPPM VC(Volts)	Maximum Temperature Coefficient Of VBR(%/°C)
			Min	Max						
UNI	BI									
P6KE6.8	P6KE6.8C	6.8	6.12	7.48	10	5.50	1000	58	10.8	0.057
P6KE6.8A	P6KE6.8CA	6.8	6.45	7.14	10	5.80	1000	60	10.5	0.057
P6KE7.5	P6KE7.5C	7.5	6.75	8.25	10	6.05	500	53	11.7	0.061
P6KE7.5A	P6KE7.5CA	7.5	7.13	7.88	10	6.4	500	55	11.3	0.061
P6KE8.2	P6KE8.2C	8.2	7.38	9.02	10	6.63	200	50	12.5	0.065
P6KE8.2A	P6KE8.2CA	8.2	7.79	8.61	10	7.02	200	52	12.1	0.065
P6KE9.1	P6KE9.1C	9.1	8.19	10.0	1.0	7.37	50	45	13.8	0.068
P6KE9.1A	P6KE9.1CA	9.1	8.65	9.55	1.0	7.78	50	47	13.4	0.068
P6KE10	P6KE10C	10	9.00	11.0	1.0	8.10	10	42	15.0	0.073
P6KE10A	P6KE10CA	10	9.50	10.5	1.0	8.55	10	43	14.5	0.073
P6KE11	P6KE11C	11	9.90	12.1	1.0	8.92	5.0	38	16.2	0.075
P6KE11A	P6KE11CA	11	10.5	11.6	1.0	9.40	5.0	40	15.6	0.075
P6KE12	P6KE12C	12	10.8	13.2	1.0	9.72	5.0	36	17.3	0.078
P6KE12A	P6KE12CA	12	11.4	12.6	1.0	10.2	5.0	37	16.7	0.078
P6KE13	P6KE13C	13	11.7	14.3	1.0	10.5	5.0	33	19.0	0.081
P6KE13A	P6KE13CA	13	12.4	13.7	1.0	11.1	5.0	34	18.2	0.081
P6KE15	P6KE15C	15	13.5	16.5	1.0	12.1	5.0	28	22.0	0.084
P6KE15A	P6KE15CA	15	14.3	15.8	1.0	12.8	5.0	29	21.2	0.084
P6KE16	P6KE16C	16	14.4	17.6	1.0	12.9	5.0	26	23.5	0.086
P6KE16A	P6KE16CA	16	15.2	16.8	1.0	13.6	5.0	28	22.5	0.086
P6KE18	P6KE18C	18	16.2	19.8	1.0	14.5	5.0	23	26.5	0.088
P6KE18A	P6KE18CA	18	17.1	18.9	1.0	15.3	5.0	25	25.2	0.088
P6KE20	P6KE20C	20	18.0	22.0	1.0	16.2	5.0	21	29.1	0.090
P6KE20A	P6KE20CA	20	19.0	21.0	1.0	17.1	5.0	22	27.7	0.090
P6KE22	P6KE22C	22	19.8	24.2	1.0	17.8	5.0	19	31.9	0.092
P6KE22A	P6KE22CA	22	20.9	23.1	1.0	18.8	5.0	20	30.6	0.092
P6KE24	P6KE24C	24	21.6	26.4	1.0	19.4	5.0	18	34.7	0.094
P6KE24A	P6KE24CA	24	22.8	25.2	1.0	20.5	5.0	19	33.2	0.094
P6KE27	P6KE27C	27	24.3	29.7	1.0	21.8	5.0	16	39.1	0.096
P6KE27A	P6KE27CA	27	25.7	28.4	1.0	23.1	5.0	16.8	37.5	0.096
P6KE30	P6KE30C	30	27.0	33.0	1.0	24.3	5.0	14	43.5	0.097
P6KE30A	P6KE30CA	30	28.5	31.5	1.0	25.6	5.0	15	41.4	0.097
P6KE33	P6KE33C	33	29.7	36.3	1.0	26.8	5.0	13	47.7	0.098
P6KE33A	P6KE33CA	33	31.4	34.7	1.0	28.2	5.0	13.8	45.7	0.098
P6KE36	P6KE36C	36	32.4	39.6	1.0	29.1	5.0	12	52	0.099
P6KE36A	P6KE36CA	36	34.2	37.8	1.0	30.8	5.0	12.6	49.9	0.099
P6KE39	P6KE39C	39	35.1	42.9	1.0	31.6	5.0	11.1	56.4	0.100
P6KE39A	P6KE39CA	39	37.1	41.0	1.0	33.3	5.0	11.6	53.9	0.100
P6KE43	P6KE43C	43	38.7	47.3	1.0	34.8	5.0	10	61.9	0.101
P6KE43A	P6KE43CA	43	40.9	45.2	1.0	36.8	5.0	10.6	59.3	0.101
P6KE47	P6KE47C	47	42.3	51.7	1.0	38.1	5.0	8.2	67.8	0.101
P6KE47A	P6KE47CA	47	44.7	49.4	1.0	40.2	5.0	9.7	64.8	0.101
P6KE51	P6KE51C	51	45.9	56.1	1.0	41.3	5.0	8.5	73.5	0.102
P6KE51A	P6KE51CA	51	48.5	53.6	1.0	43.6	5.0	8.9	70.1	0.102
P6KE56	P6KE56C	56	50.4	61.6	1.0	45.4	5.0	7.8	80.5	0.103
P6KE56A	P6KE56CA	56	53.2	58.8	1.0	47.8	5.0	8.1	77	0.103
P6KE62	P6KE62C	62	55.8	68.2	1.0	50.2	5.0	7	89	0.104
P6KE62A	P6KE62CA	62	58.9	65.1	1.0	53.0	5.0	7.4	85	0.104
P6KE68	P6KE68C	68	61.2	74.8	1.0	55.1	5.0	6.4	98	0.104
P6KE68A	P6KE68CA	68	64.6	71.4	1.0	58.1	5.0	6.8	92	0.104
P6KE75	P6KE75C	75	67.5	82.5	1.0	60.7	5.0	5.8	108	0.105
P6KE75A	P6KE75CA	75	71.3	78.8	1.0	64.1	5.0	6.1	103	0.105
P6KE82	P6KE82C	82	73.8	90.2	1.0	66.4	5.0	5.3	118	0.105
P6KE82A	P6KE82CA	82	77.9	86.1	1.0	70.1	5.0	5.5	113	0.105

Device		Nominal Voltage (volts)	Breakdown Voltage VBR (volts)(note1)		Test Current @IT (mA)	Stand-Off Voltage VWM (volts)	Maximum Reverse Leakage At VWM ID(μ A)	Maximum Peak Pulse Current IPPM (note2)(Amps)	Maximum Clamping Voltage at IPPM VC(Volts)	Maximum Temperature Coefficient Of VBR(%/°C)
			Min	Max						
UNI	BI									
P6KE91	P6KE91C	91	81.9	100.0	1.0	73.7	5.0	4.8	131	0.106
P6KE91A	P6KE91CA	91	86.5	95.5	1.0	77.8	5.0	5	125	0.106
P6KE100	P6KE100C	100	90.0	110.0	1.0	81.0	5.0	4.3	144	0.106
P6KE100A	P6KE100CA	100	95.0	105.0	1.0	85.5	5.0	4.5	137	0.106
P6KE110	P6KE110C	110	99.0	121.0	1.0	89.2	5.0	3.9	158	0.107
P6KE110A	P6KE110CA	110	105.0	116.0	1.0	94.0	5.0	4.1	152	0.107
P6KE120	P6KE120C	120	108.0	132.0	1.0	97.2	5.0	3.6	173	0.107
P6KE120A	P6KE120CA	120	114.0	126.0	1.0	102.0	5.0	3.8	165	0.107
P6KE130	P6KE130C	130	117.0	143.0	1.0	105.0	5.0	3.3	187	0.107
P6KE130A	P6KE130CA	130	124.0	137.0	1.0	111.0	5.0	3.5	179	0.107
P6KE150	P6KE150C	150	135.0	165.0	1.0	121.0	5.0	2.9	215	0.108
P6KE150A	P6KE150CA	150	143.0	158.0	1.0	128.0	5.0	3	207	0.108
P6KE160	P6KE160C	160	144.0	176.0	1.0	130.0	5.0	2.7	230	0.108
P6KE160A	P6KE160CA	160	152.0	168.0	1.0	136.0	5.0	2.8	219	0.108
P6KE170	P6KE170C	170	153.0	187.0	1.0	138.0	5.0	2.5	244	0.108
P6KE170A	P6KE170CA	170	162.0	179.0	1.0	145.0	5.0	2.6	234	0.108
P6KE180	P6KE180C	180	162.0	198.0	1.0	146.0	5.0	2.4	258	0.108
P6KE180A	P6KE180CA	180	171.0	189.0	1.0	154.0	5.0	2.5	246	0.108
P6KE200	P6KE200C	200	180.0	220.0	1.0	162.0	5.0	2.2	287	0.108
P6KE200A	P6KE200CA	200	190.0	210.0	1.0	171.0	5.0	2.1	274	0.108
P6KE220	P6KE220C	220	198.0	242.0	1.0	175.0	5.0	1.8	344	0.108
P6KE220A	P6KE220CA	220	209.0	231.0	1.0	185.0	5.0	1.9	328	0.108
P6KE250	P6KE250C	250	225.0	275.0	1.0	202.0	5.0	1.7	360	0.110
P6KE250A	P6KE250CA	250	237.0	263.0	1.0	214.0	5.0	1.8	344	0.110
P6KE300	P6KE300C	300	270.0	330.0	1.0	243.0	5.0	1.4	430	0.110
P6KE300A	P6KE300CA	300	285.0	315.0	1.0	256.0	5.0	1.5	414	0.110
P6KE350	P6KE350C	350	315.0	385.0	1.0	284.0	5.0	1.2	504	0.110
P6KE350A	P6KE350CA	350	332.0	368.0	1.0	300.0	5.0	1.3	482	0.110
P6KE400	P6KE400C	400	360.0	440.0	1.0	324.0	5.0	1.9	574	0.110
P6KE400A	P6KE400CA	400	380.0	420.0	1.0	342.0	5.0	1.1	548	0.110

Note:

1. VBR measured afert IT applied for 300us,IT=square wave pulse or equivalent.
2. Surge cuttent waveform per Figure 3 and derate per Figure 2.
3. For bipolar types having VWM of 10 volts and under,the ID limit is doubled.
4. All terms and symbols are consistent with ANSI/IEEE C62.35.

RATING AND CHARACTERISTIC CURVES (P6KE SERIES)

FIG.1-PEAK PULSE POWER RATING CURVE

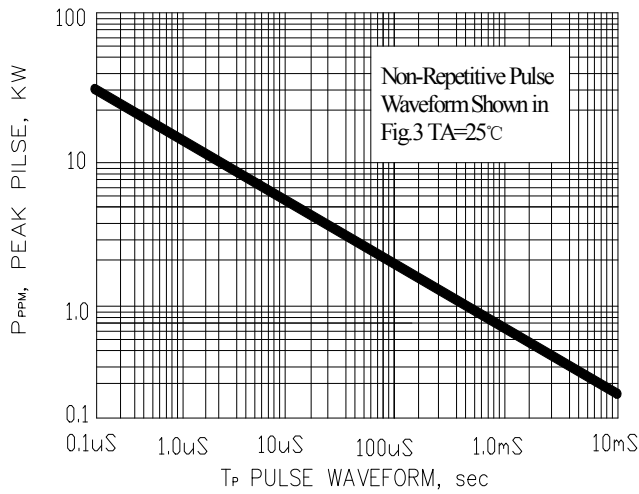


FIG.2-PULSE DERATING CURVE

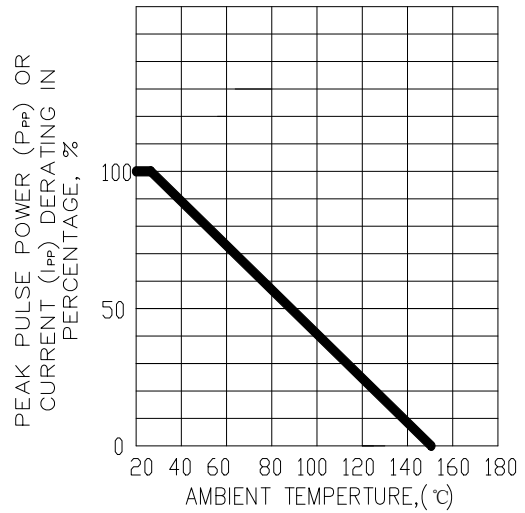


FIG.3-PULSE WAVEFORM

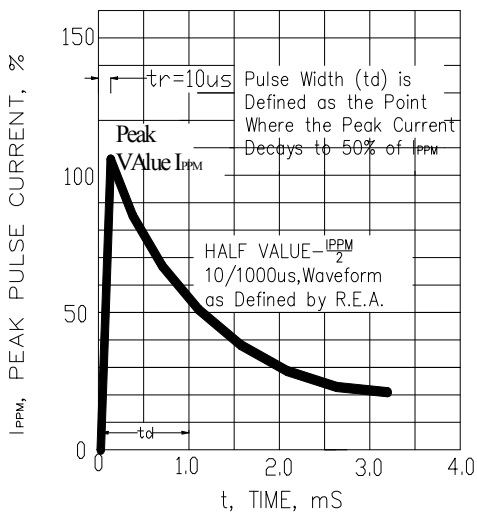


FIG.4- TYPICAL JUNCTION CAPACITANCE

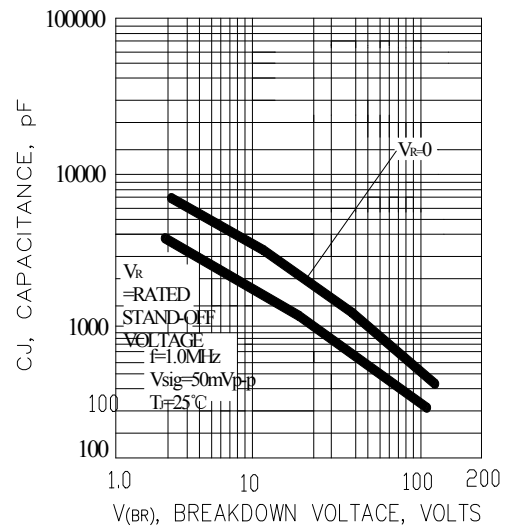


FIG.5- STEADY STATE POWER DERATING CURVE

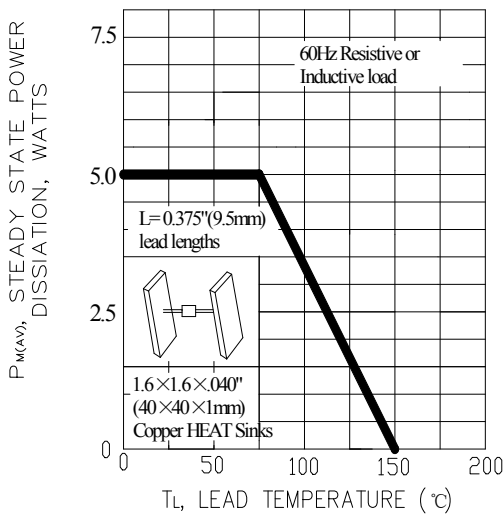
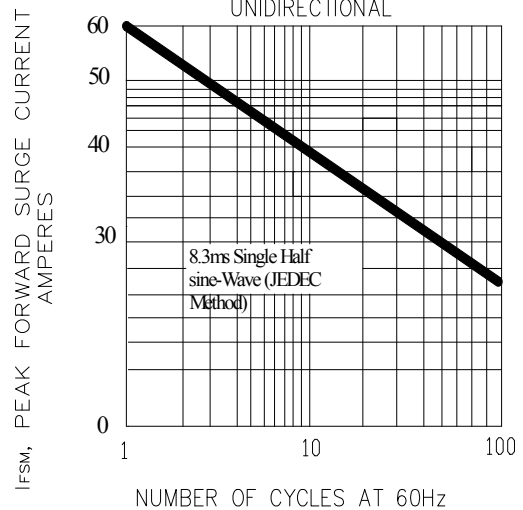


FIG.6- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



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