

# 600W Transient Voltage Suppressor



SMD Diodes Specialist

## P6KE-G Series

Stand-off Voltage: 6.8 ~ 400V

Power Dissipation: 600 Watts

RoHS Device

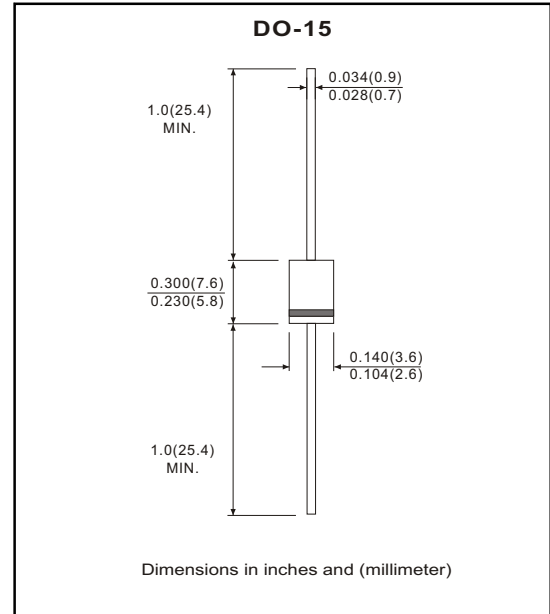


### Features

- Plastic package has underwriters laboratory flammability classification 94V-0
- 600W, surge capability at 1mS.
- Excellent clamping capability.
- Low Zener impedance.
- Fast response time: typically less than 1.0pS from 0 volt to BV min.
- Typical  $I_R$  less than 1 $\mu$ A above 10V.

### Mechanical Data

- Case: Molded plastic DO-15
- Terminals: Axial leads solderable per MIL-STD-202, Method 208
- Polarity: Color band denotes positive end (cathode)
- Weight: 0.4 gram (0.014oz.)



### Maximum Ratings and Electrical Characteristics

Parameter	Symbol	Value	Unit
Peak power dissipation at $T_A=25^\circ\text{C}$ $T_P=1\text{mS}$ (Note 1)	PPK	600	W
Steady state power dissipation at $T_L=75^\circ\text{C}$ Lead length 0.375" (9.5mm) (Note 2)	$P_D$	5.0	W
Peak forward surge current, 8.3mS single half sine-wave superimposed on rated load (JEDEC method) (Note 3)	$I_{FSM}$	100	A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$

#### NTOES:

- (1) Non-repetitive current pulse, per fig.3 and derated above  $T_A=25^\circ\text{C}$  per fig. 2.
- (2) Mounted on copper land area of 1.57in<sup>2</sup>(40mm<sup>2</sup>).
- (3) 8.3mS single half-sine wave, duty cycle=4 pulses per minute maximum.
- (4) For bidirectional use C suffix for 10% tolerance, CA suffix for 5% tolerance.

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## RATING AND CHARACTERISTIC (P6KE-G Series)

Part No.	Breakdown Voltage		@I <sub>T</sub> (mA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Leakage at V <sub>RWM</sub> I <sub>R</sub> (μA)	Maximum Reverse Current I <sub>RSM</sub> (A)	Maximum Clamping Voltage V <sub>RWM</sub> (V)	Maximum Temperature Coefficient of V <sub>RR</sub> (%C)
	B <sub>BR</sub> (V)							
	MIN.	MAX.						
P6KE6.8(C)-G	6.12	7.48	10	5.50	1000	56.0	10.8	0.057
P6KE6.8(C)A-G	6.45	7.14	10	5.80	1000	57.0	10.5	0.057
P6KE7.5(C)-G	6.75	8.25	10	6.05	500	51.0	11.7	0.061
P6KE7.5(C)A-G	7.13	7.88	10	6.40	500	53.0	11.7	0.061
P6KE8.2(C)-G	7.38	9.02	10	6.63	200	48.0	12.5	0.065
P6KE8.2(C)A-G	7.79	8.61	10	7.02	200	50.0	12.1	0.065
P6KE9.1(C)-G	8.19	10.0	1.0	7.37	50	44.0	13.8	0.068
P6KE9.1(C)A-G	8.65	8.55	1.0	7.78	50	45.0	13.4	0.068
P6KE10(C)-G	9.00	11.0	1.0	8.10	10	40.0	15.0	0.073
P6KE10(C)A-G	9.50	10.5	1.0	8.55	10	41.0	14.5	0.073
P6KE11(C)-G	9.90	12.1	1.0	8.92	5.0	37.0	16.2	0.075
P6KE11(C)A-G	10.5	11.6	1.0	9.40	5.0	38.0	15.6	0.075
P6KE12(C)-G	10.8	13.2	1.0	9.72	5.0	35.0	17.3	0.078
P6KE12(C)A-G	11.4	12.6	1.0	10.2	5.0	36.0	16.7	0.078
P6KE13(C)-G	11.7	14.3	1.0	10.5	5.0	32.0	19.0	0.081
P6KE13(C)A-G	12.4	13.7	1.0	11.1	5.0	33.0	18.2	0.081
P6KE15(C)-G	13.5	16.5	1.0	12.1	5.0	27.0	22.0	0.084
P6KE15(C)A-G	14.3	15.8	1.0	12.8	5.0	28.0	21.2	0.084
P6KE16(C)-G	14.4	17.6	1.0	12.9	5.0	26.0	23.5	0.086
P6KE16(C)A-G	15.2	16.8	1.0	13.6	5.0	27.0	22.5	0.086
P6KE18(C)-G	16.2	19.8	1.0	14.5	5.0	23.0	26.5	0.088
P6KE18(C)A-G	17.1	18.9	1.0	15.3	5.0	24.0	25.2	0.088
P6KE20(C)-G	18.0	22.0	1.0	16.2	5.0	21.0	29.1	0.090
P6KE20(C)A-G	19.0	21.0	1.0	17.1	5.0	22.0	27.7	0.090
P6KE22(C)-G	19.8	24.2	1.0	17.8	5.0	19.0	31.9	0.092
P6KE22(C)A-G	20.9	23.1	1.0	18.8	5.0	20.0	30.6	0.092
P6KE24(C)-G	21.6	26.4	1.0	19.4	5.0	17.0	34.7	0.094
P6KE24(C)A-G	22.8	25.2	1.0	20.5	5.0	18.0	33.2	0.094
P6KE27(C)-G	24.3	29.7	1.0	21.8	5.0	15.0	39.1	0.096
P6KE27(C)A-G	25.7	28.4	1.0	23.1	5.0	16.0	37.5	0.096
P6KE30(C)-G	27.0	33.0	1.0	24.3	5.0	14.0	43.5	0.097
P6KE30(C)A-G	28.5	31.5	1.0	25.6	5.0	14.4	41.4	0.097
P6KE33(C)-G	29.7	36.3	1.0	26.8	5.0	12.6	47.7	0.098
P6KE33(C)A-G	31.4	34.7	1.0	28.2	5.0	13.2	45.7	0.098
P6KE36(C)-G	32.4	39.6	1.0	29.1	5.0	13.2	45.7	0.099
P6KE36(C)A-G	34.2	37.8	1.0	30.8	5.0	12.0	49.9	0.099
P6KE39(C)-G	35.1	42.9	1.0	31.6	5.0	10.6	56.4	0.100
P6KE39(C)A-G	37.1	41.0	1.0	33.3	5.0	11.2	53.9	0.100
P6KE43(C)-G	38.7	47.3	1.0	34.8	5.0	9.6	61.9	0.101
P6KE43(C)A-G	40.9	45.2	1.0	36.8	5.0	10.1	59.3	0.101

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## RATING AND CHARACTERISTIC (P6KE-G Series)

Part No.	Breakdown Voltage		Working Peak Reverse Voltage $V_{RWM}(V)$	Maximum Reverse Leakage at $V_{RWM}$ $I_R(\mu A)$	Maximum Reverse Current $I_{RSM}(A)$	Maximum Clamping Voltage $V_{RWM}(V)$	Maximum Temperature Coefficient of $V_{RR}$ (% C)	
	$B_{BR}(V)$							$@ I_T(mA)$
	MIN.	MAX.						
P6KE47(C)-G	42.3	51.7	1.0	38.1	5.0	8.9	67.8	0.101
P6KE47(C)A-G	44.7	49.4	1.0	40.2	5.0	9.3	64.8	0.101
P6KE51(C)-G	45.9	56.1	1.0	41.3	5.0	8.2	73.5	0.102
P6KE51(C)A-G	48.5	53.6	1.0	43.6	5.0	8.6	70.1	0.102
P6KE56(C)-G	50.4	61.6	1.0	45.4	5.0	7.4	80.5	0.103
P6KE56(C)A-G	53.2	58.8	1.0	47.8	5.0	7.8	77.0	0.103
P6KE62(C)-G	55.8	68.2	1.0	50.2	5.0	6.8	89.0	0.104
P6KE62(C)A-G	58.9	65.1	1.0	53.0	5.0	7.1	85.0	0.104
P6KE68(C)-G	61.2	74.8	1.0	55.1	5.0	6.1	98.0	0.104
P6KE68(C)A-G	64.6	71.4	1.0	58.1	5.0	6.5	92.0	0.104
P6KE75(C)-G	67.5	82.5	1.0	60.7	5.0	5.5	108.0	0.105
P6KE75(C)A-G	71.3	78.5	1.0	64.1	5.0	5.8	103.0	0.105
P6KE82(C)-G	73.8	90.2	1.0	66.4	5.0	5.1	118.0	0.105
P6KE82(C)A-G	77.9	86.1	1.0	70.1	5.0	5.3	113.0	0.105
P6KE91(C)-G	81.9	100.0	1.0	73.7	5.0	4.5	131.0	0.106
P6KE91(C)A-G	86.5	95.5	1.0	77.8	5.0	4.8	125.0	0.106
P6KE100(C)-G	90.0	110.0	1.0	81.0	5.0	4.2	144.0	0.106
P6KE100(C)A-G	95.0	105.0	1.0	85.5	5.0	4.4	137.0	0.106
P6KE110(C)-G	99.0	121.0	1.0	89.2	5.0	3.8	158.0	0.107
P6KE110(C)A-G	105.0	116.0	1.0	96.0	5.0	4.0	152.0	0.107
P6KE120(C)-G	108.0	132.0	1.0	97.2	5.0	3.5	173.0	0.107
P6KE120(C)A-G	114.0	126.0	1.0	102.0	5.0	3.6	165.0	0.107
P6KE130(C)-G	117.0	143.0	1.0	105.0	5.0	3.2	187.0	0.107
P6KE130(C)A-G	124.0	137.0	1.0	111.0	5.0	3.3	179.0	0.107
P6KE150(C)-G	135.0	165.0	1.0	121.0	5.0	2.8	215.0	0.108
P6KE150(C)A-G	143.0	158.0	1.0	128.0	5.0	2.9	207.0	0.108
P6KE160(C)-G	144.0	176.0	1.0	130.0	5.0	2.6	230.0	0.108
P6KE160(C)A-G	152.0	168.0	1.0	136.0	5.0	2.7	219.0	0.108
P6KE170(C)-G	153.0	187.0	1.0	138.0	5.0	2.5	244.0	0.108
P6KE170(C)A-G	162.0	179.0	1.0	145.0	5.0	2.6	234.0	0.108
P6KE180(C)-G	162.0	198.0	1.0	146.0	5.0	2.3	258.0	0.108
P6KE180(C)A-G	171.0	189.0	1.0	154.0	5.0	2.4	246.0	0.108
P6KE200(C)-G	180.0	220.0	1.0	162.0	5.0	2.1	287.0	0.108
P6KE200(C)A-G	190.0	210.0	1.0	171.0	5.0	2.2	274.0	0.108
P6KE220(C)-G	198.0	242.0	1.0	175.0	5.0	1.75	344.0	0.108
P6KE220(C)A-G	209.0	231.0	1.0	185.0	5.0	1.83	328.0	0.108
P6KE250(C)-G	225.0	275.0	1.0	202.0	5.0	1.67	360.0	0.110
P6KE250(C)A-G	237.0	263.0	1.0	214.0	5.0	1.75	344.0	0.110
P6KE300(C)-G	270.0	330.0	1.0	243.0	5.0	1.40	430.0	0.110
P6KE300(C)A-G	285.0	315.0	1.0	256.0	5.0	1.45	414.0	0.110
P6KE350(C)-G	315.0	385.0	1.0	284.0	5.0	1.20	504.0	0.110
P6KE350(C)A-G	332.0	368.0	1.0	300.0	5.0	1.25	482.0	0.110
P6KE400(C)-G	380.0	420.0	1.0	342.0	5.0	1.10	548.0	0.110
P6KE400(C)A-G	396.0	484.0	1.0	356.0	5.0	0.95	630.0	0.113

**NOTES:**

- $V_{BR}$  measured after  $I_T$  applied for 300 $\mu$ S,  $I_T$ =square wave pulse or equivalent.
- Surge current wave form per fig.3 and derated per fig.2.
- $V_F=3.5V$  at  $I_F=50A$  (P6KE6.8-G thru P6KE91A-G)  
 $V_F=5.0V$  at  $I_F=50A$  (P6KE100-G thru P6KE400A-G on 1/2 square or equivalent sine wave.  
 $P_w=8.3mS$ , duty cycle=4 pulses per minute max..
- For bipolar types having  $V_{RWM}$  of 10 Volts and under, the  $I_R$  limit is doubled.

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## RATING AND CHARACTERISTIC CURVES (P6KE-G Series)

Fig.1 Peak Pulse Power Rating Curve

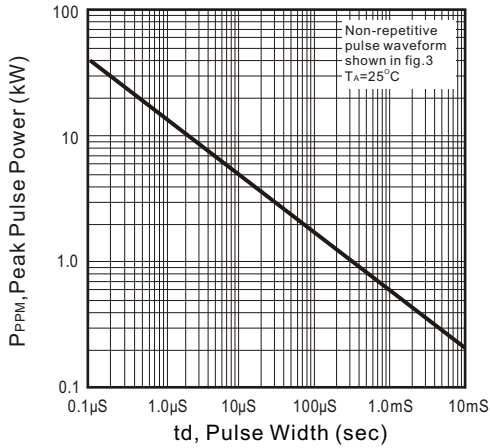


Fig.2 Pulse Derating Curve

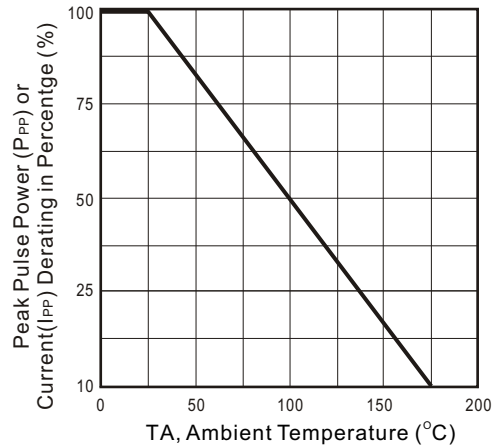


Fig.3 Pulse Wave Form

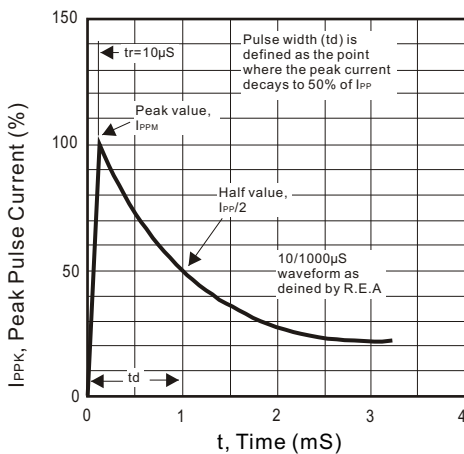


Fig.4 Typical Junction Capacitance Unidirectional

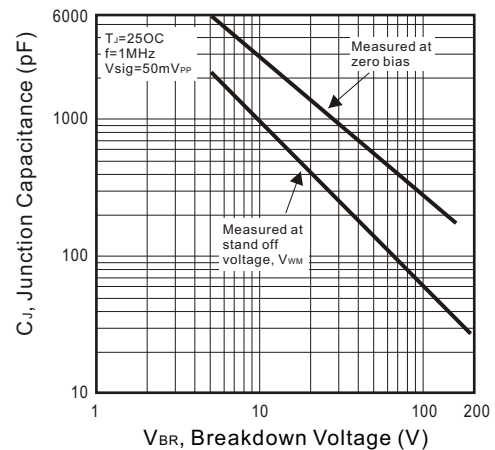


Fig.5 Steady State Power Derating Curve

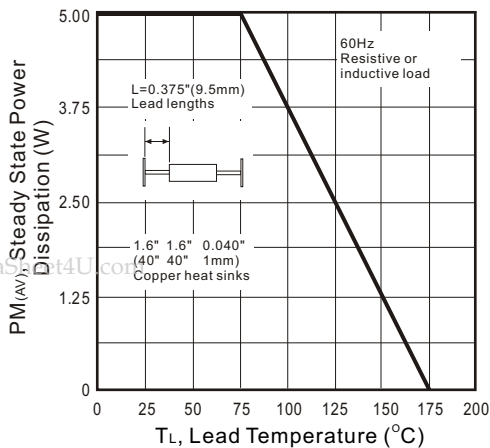
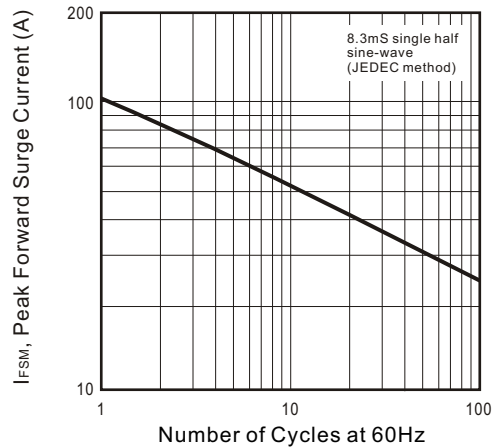


Fig.6 Maximum Non-repetitive Forward Surge Current Unidirectional



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Fig.7 Typical Reverse Leakage Characteristics

