

P6KE SERIES

V_{BR} : 6.8 - 600 Volts

P_{PK} : 600 Watts

FEATURES :

- * Glass passivated junction chip
- * 600W surge capability at 1ms
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time : typically less than 1.0 ps from 0 volt to V_{BR(min.)}
- * Typical I_R less than 1μA above 10V
- * **Pb / RoHS Free**

MECHANICAL DATA :

- * Case : DO-15 Molded plastic
- * Epoxy : UL94V-0 rate flame retardant
- * Lead : Axial lead solderable per MIL-STD-202, Method 208 guaranteed
- * Polarity : Color band denotes cathode end
- * Mounting position : Any
- * Weight : 0.4 gram

DEVICES FOR BIPOLAR APPLICATIONS

For Bi-directional use C or CA Suffix

Electrical characteristics apply in both directions

MAXIMUM RATINGS

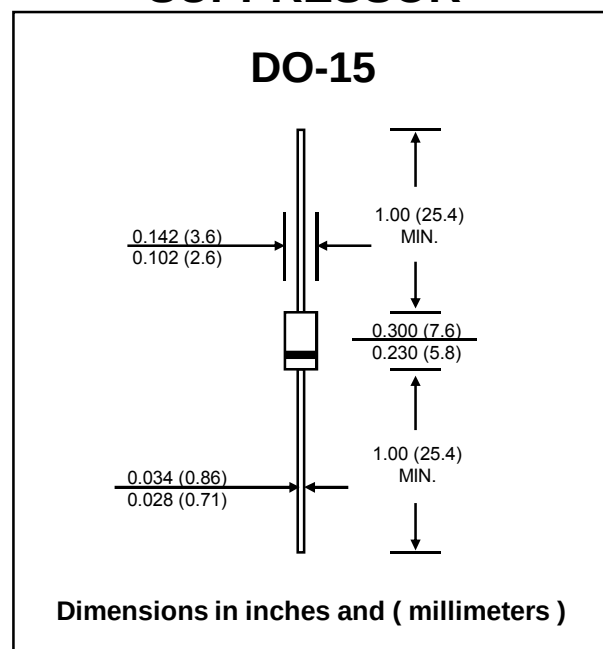
Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Power Dissipation at Ta = 25 °C, Tp=1ms (Note1)	P _{PK}	Minimum 600	W
Steady State Power Dissipation at T _L = 75 °C Lead Lengths 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) Unidirectional only	I _{FSM}	100	A
Operating and Storage Temperature Range	T _J , T _{STG}	- 65 to + 175	°C

Notes :

- (1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
- (2) Mounted on Copper Leaf area of 1.57 in² (40mm²).
- (3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per minutes maximum and V_B >220V, I_{FSM} is 50 A.

TRANSIENT VOLTAGE SUPPRESSOR



ELECTRICAL CHARACTERISTICS (Rating at 25 °C ambient temperature unless otherwise specified.)

Type No.	Breakdown Voltage @ It (Note 1)		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR
	VBR (V)		It	VRWM	IR	IRSM	VRSM
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)
P6KE6.8	6.12	7.48	10	5.50	1000	55.5	10.8
P6KE6.8A	6.45	7.14	10	5.80	1000	57.0	10.5
P6KE7.5	6.75	8.25	10	6.05	500	51.0	11.7
P6KE7.5A	7.13	7.88	10	6.40	500	53.0	11.3
P6KE8.2	7.38	9.02	10	6.63	200	48.0	12.5
P6KE8.2A	7.79	8.61	10	7.02	200	50.0	12.1
P6KE8.5	7.65	9.35	10	6.89	200	46.0	13.0
P6KE8.5A	8.08	8.93	10	7.27	200	47.0	12.7
P6KE9.1	8.19	10.0	1.0	7.37	150	44.0	13.8
P6KE9.1A	8.65	9.55	1.0	7.78	150	45.0	13.4
P6KE10	9.00	11.0	1.0	8.10	150	40.0	15.0
P6KE10A	9.50	10.5	1.0	8.55	150	41.0	14.5
P6KE11	9.90	12.1	1.0	8.92	150	37.0	16.2
P6KE11A	10.5	11.6	1.0	9.40	150	38.0	15.6
P6KE12	10.8	13.2	1.0	9.72	5.0	35.0	17.3
P6KE12A	11.4	12.6	1.0	10.2	5.0	36.0	16.7
P6KE13	11.7	14.3	1.0	10.5	5.0	32.0	19.0
P6KE13A	12.4	13.7	1.0	11.1	5.0	33.0	18.2
P6KE15	13.5	16.5	1.0	12.1	5.0	27.0	22.0
P6KE15A	14.3	15.8	1.0	12.8	5.0	28.0	21.2
P6KE16	14.4	17.6	1.0	12.9	5.0	26.0	23.5
P6KE16A	15.2	16.8	1.0	13.6	5.0	27.0	22.5
P6KE18	16.2	19.8	1.0	14.5	5.0	23.0	26.5
P6KE18A	17.1	18.9	1.0	15.3	5.0	24.0	25.2
P6KE20	18.0	22.0	1.0	16.2	5.0	21.0	29.1
P6KE20A	19.0	21.0	1.0	17.1	5.0	22.0	27.7
P6KE22	19.8	24.2	1.0	17.8	5.0	19.0	31.9
P6KE22A	20.9	23.1	1.0	18.8	5.0	20.0	30.6
P6KE24	21.6	26.4	1.0	19.4	5.0	17.0	34.7
P6KE24A	22.8	25.2	1.0	20.5	5.0	18.0	33.2
P6KE27	24.3	29.7	1.0	21.8	5.0	15.0	39.1
P6KE27A	25.7	28.4	1.0	23.1	5.0	16.0	37.5
P6KE28	25.2	30.8	1.0	22.7	5.0	15.0	40
P6KE28A	26.6	29.4	1.0	23.9	5.0	15.5	38.7
P6KE30	27.0	33.0	1.0	24.3	5.0	14.0	43.5
P6KE30A	28.5	31.5	1.0	25.6	5.0	14.4	41.4
P6KE33	29.7	36.3	1.0	26.8	5.0	12.6	47.7
P6KE33A	31.4	34.7	1.0	28.2	5.0	13.2	45.7
P6KE36	32.4	39.6	1.0	29.1	5.0	11.6	52.0
P6KE36A	34.2	37.8	1.0	30.8	5.0	12.0	49.9
P6KE39	35.1	42.9	1.0	31.6	5.0	10.6	56.4
P6KE39A	37.1	41.0	1.0	33.3	5.0	11.2	53.9
P6KE43	38.7	47.3	1.0	34.8	5.0	9.6	61.9
P6KE43A	40.9	45.2	1.0	36.8	5.0	10.1	59.3
P6KE47	42.3	51.7	1.0	38.1	5.0	8.9	67.8
P6KE47A	44.7	49.4	1.0	40.2	5.0	9.3	64.8
P6KE51	45.9	56.1	1.0	41.3	5.0	8.2	73.5
P6KE51A	48.5	53.6	1.0	43.6	5.0	8.6	70.1
P6KE56	50.4	61.6	1.0	45.4	5.0	7.4	80.5
P6KE56A	53.2	58.8	1.0	47.8	5.0	7.8	77.0
P6KE62	55.8	68.2	1.0	50.2	5.0	6.8	89.0
P6KE62A	58.9	65.1	1.0	53.0	5.0	7.1	85.0
P6KE68	61.2	74.8	1.0	55.1	5.0	6.1	98.0
P6KE68A	64.6	71.4	1.0	58.1	5.0	6.5	92.0

ELECTRICAL CHARACTERISTICS (Rating at 25 °C ambient temperature unless otherwise specified.)

Type No.	Breakdown Voltage @ It (Note 1)		Working Peak Reverse Voltage	Maximum Reverse Leakage @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR	
	VBR (V)							It
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)	(% / °C)
P6KE75	67.5	82.5	1.0	60.7	5.0	5.5	108	0.105
P6KE75A	71.3	78.8	1.0	64.1	5.0	5.8	103	0.105
P6KE82	73.8	90.2	1.0	66.4	5.0	5.1	118	0.105
P6KE82A	77.9	86.1	1.0	70.1	5.0	5.3	113	0.105
P6KE91	81.9	100.0	1.0	73.7	5.0	4.5	131	0.106
P6KE91A	86.5	95.5	1.0	77.8	5.0	4.8	125	0.106
P6KE100	90.0	110.0	1.0	81.0	5.0	4.2	144	0.106
P6KE100A	95.0	105.0	1.0	85.5	5.0	4.4	137	0.106
P6KE110	99.0	121.0	1.0	89.2	5.0	3.8	158	0.107
P6KE110A	105.0	116.0	1.0	94.0	5.0	4.0	152	0.107
P6KE120	108.0	132.0	1.0	97.2	5.0	3.5	173	0.107
P6KE120A	114.0	126.0	1.0	102	5.0	3.6	165	0.107
P6KE130	117.0	143.0	1.0	106	5.0	3.2	187	0.107
P6KE130A	124.0	137.0	1.0	111	5.0	3.3	179	0.107
P6KE150	135.0	165.0	1.0	121	5.0	2.8	215	0.108
P6KE150A	143.0	158.0	1.0	128	5.0	2.9	207	0.108
P6KE160	144.0	176.0	1.0	130	5.0	2.6	230	0.108
P6KE160A	152.0	168.0	1.0	136	5.0	2.7	219	0.108
P6KE170	153.0	187.0	1.0	138	5.0	2.5	244	0.108
P6KE170A	162.0	179.0	1.0	145	5.0	2.6	234	0.108
P6KE180	162.0	198.0	1.0	146	5.0	2.3	258	0.108
P6KE180A	171.0	189.0	1.0	154	5.0	2.4	246	0.108
P6KE200	180.0	220.0	1.0	162	5.0	2.1	287	0.108
P6KE200A	190.0	210.0	1.0	171	5.0	2.2	274	0.108
P6KE220	198.0	242.0	1.0	175	5.0	1.75	344	0.108
P6KE220A	209.0	231.0	1.0	185	5.0	1.83	328	0.108
P6KE250	225.0	275.0	1.0	202	5.0	1.67	360	0.110
P6KE250A	237.0	263.0	1.0	214	5.0	1.75	344	0.110
P6KE300	270.0	330.0	1.0	243	5.0	1.40	430	0.110
P6KE300A	285.0	315.0	1.0	256	5.0	1.45	414	0.110
P6KE320	288.0	352.0	1.0	259	5.0	1.31	460	0.110
P6KE320A	303.0	337.0	1.0	272	5.0	1.35	445	0.110
P6KE350	315.0	385.0	1.0	284	5.0	1.20	504	0.110
P6KE350A	332.0	368.0	1.0	300	5.0	1.25	482	0.110
P6KE400	360.0	440.0	1.0	324	5.0	1.05	574	0.110
P6KE400A	380.0	420.0	1.0	342	5.0	1.10	548	0.110
P6KE440	396.0	484.0	1.0	356	5.0	0.95	631	0.110
P6KE440A	418.0	462.0	1.0	376	5.0	1.00	602	0.110
P6KE480	432.0	528.0	1.0	389	5.0	0.88	686	0.110
P6KE480A	456.0	504.0	1.0	408	5.0	0.90	658	0.110
P6KE510	459.0	561.0	1.0	413	5.0	0.82	729	0.110
P6KE510A	485.0	535.0	1.0	434	5.0	0.86	698	0.110
P6KE530	477.0	583.0	1.0	457	5.0	0.76	798	0.110
P6KE530A	503.5	556.5	1.0	477	5.0	0.80	725	0.110
P6KE540	486.0	594.0	1.0	437	5.0	0.78	772	0.110
P6KE540A	513.0	567.0	1.0	459	5.0	0.81	740	0.110
P6KE550	495.0	605.0	1.0	470	5.0	0.76	836	0.110
P6KE550A	522.5	577.5	1.0	495	5.0	0.80	760	0.110
P6KE600	540.0	660.0	1.0	490	5.0	0.71	911	0.110
P6KE600A	570.0	630.0	1.0	512	5.0	0.75	828	0.110

Notes : (1) VBR measured after It applied for 300 μs., It = square wave pulse or equivalent.

(2) VF = 3.5 Vmax., IF = 50 Amps. (6.8 Volts thru 91 Volts); VF = 5.0 Vmax., IF = 50 Amps. (100 Volts thru 440 Volts)
add VF = 6.5 Vmax. IF = 50 Amps (480 Volts thru 600 Volts). PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

(3) For Bipolar types moving VR of 10 Volts and under, the IR limit is doubled.

(4) "6KE" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (P6KE SERIES)

FIG.1 - PULSE DERATING CURVE

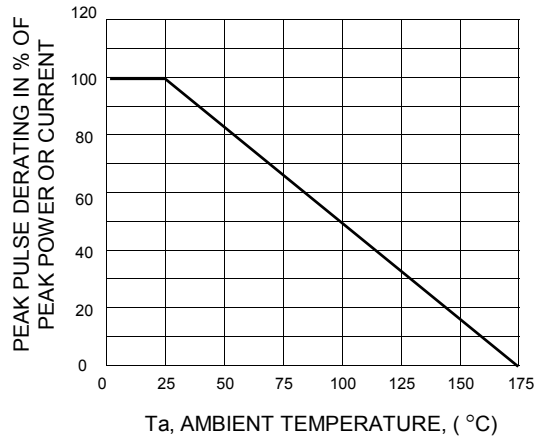


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT (Unidirectional only)

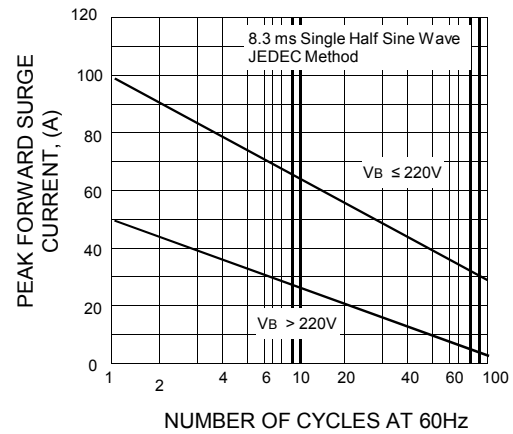


FIG.3 - STEADY STATE POWER DERATING

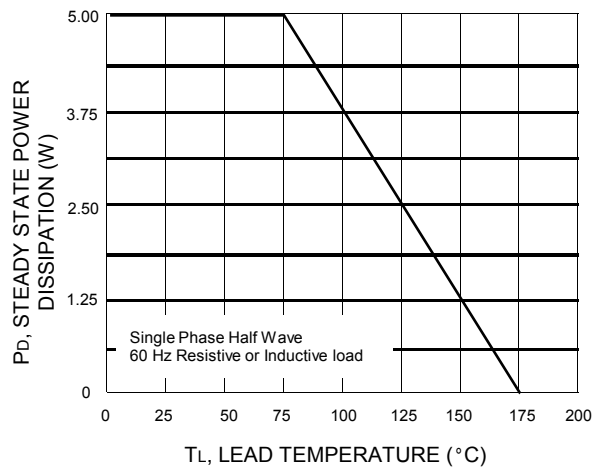


FIG.4 - PULSE RATING CURVE

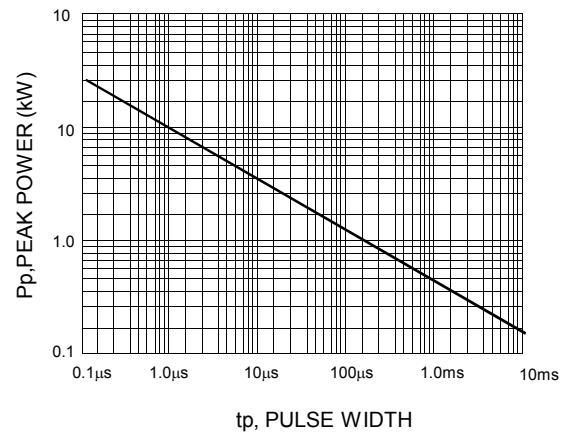


FIG.5 - PULSE WAVEFORM

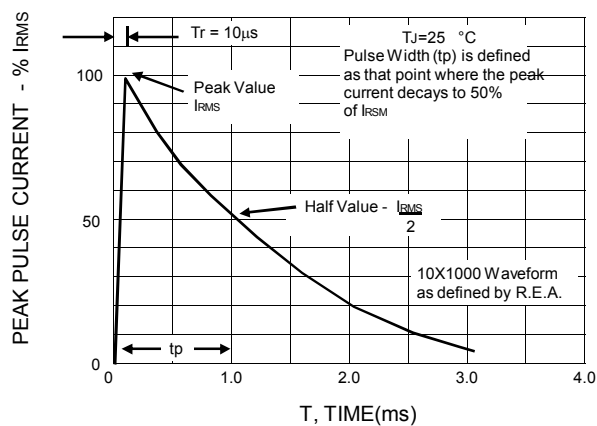


FIG. 6 - TYPICAL JUNCTION CAPACITANCE UNI-DIRECTIONAL

