

FEATURES

- * 600 Watts 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 μ A above 10V
- * High temperature soldering guaranteed: 260°C / 10 seconds / .375"(9.5mm) lead length, 5lbs.(2.3kg) tension

MECHANICAL DATA

- * Case: Molded plastic
- * Epoxy: UL 94V-0 rate flame retardant
- * Lead: Axial leads, solderable per MIL-STD-202, method 208 guaranteed
- * Polarity: Color band denotes cathode end
- * Mounting position: Any

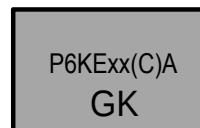


VOLTAGE RANGE

6.8 to 440 Volts

600 Watts Peak Power

5.0 Watts Steady State



P6KE **xx** (C)A

TYPE

Bidirectional use C

LOGO

GK

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_P=1\text{ms}$ (NOTE 1)	P_{PK}	Minimum 600	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Length .375"(9.5mm) (NOTE 2)	P_D	5.0	Watts
Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3)	I_{FSM}	100	Amps
Operating 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" (40mm X 40mm) per Fig.5.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

DEVICES FOR BIDIRECTIONAL APPLICATIONS

1. For Bidirectional use CA Suffix for types P6KE6.8 thru P6KE440.
2. Electrical characteristics apply in both directions.

RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER DERATING CURVE

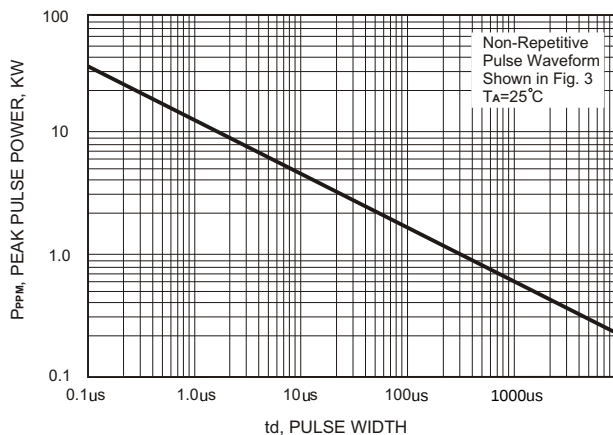


FIG.2-PULSE DERATING CURVE

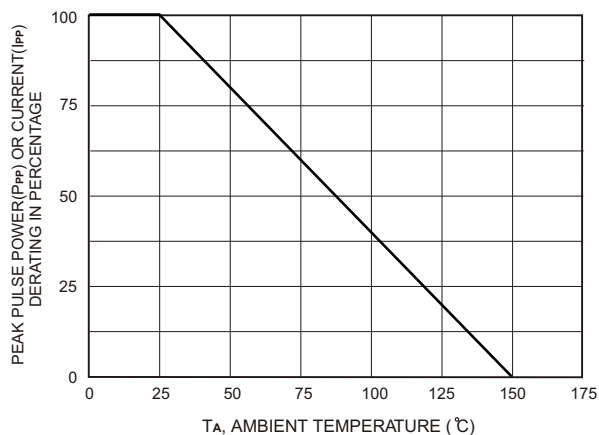


FIG.3-PULSE WAVE FORM

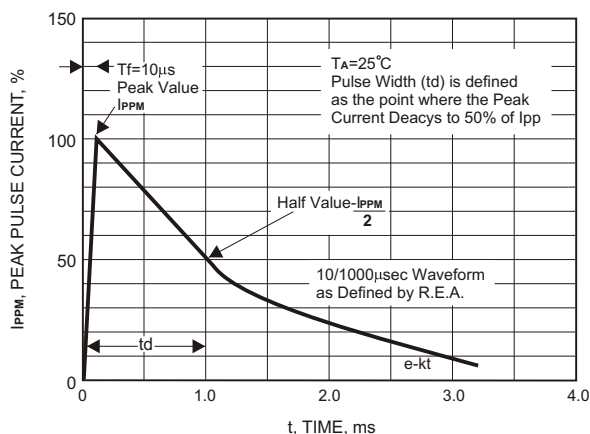


FIG.4-TYPICAL JUNCTION CAPACITANCE

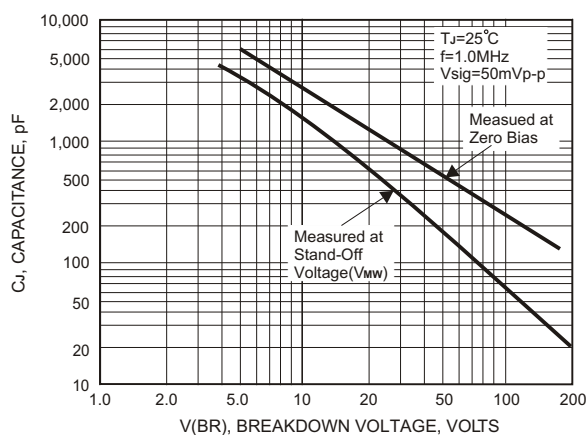


FIG.5-STEADY STATE POWER DERATING CURVE

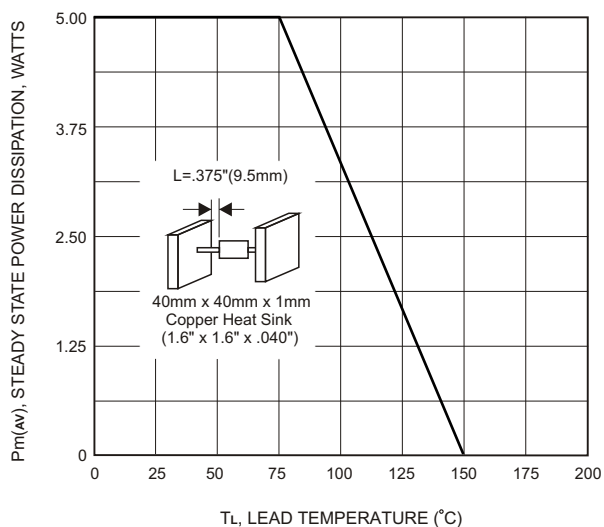
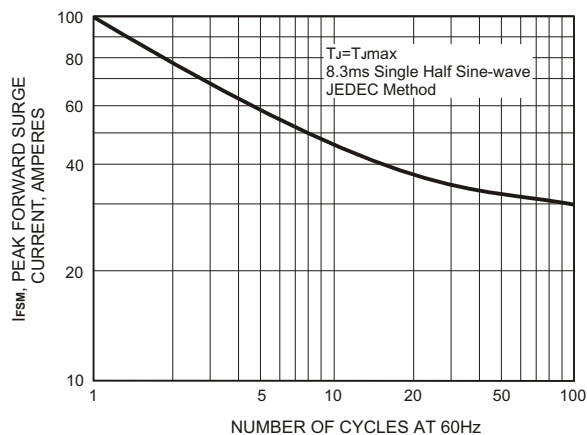


FIG.6-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT, UNIDIRECTIONAL



UNI DIRECTIONAL PART NUMBER	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VRB (V) MAX. @IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR(μA)
P6KE6.8(C)A	5.80	6.45	7.14	10	10.5	57.0	1000
P6KE7.5(C)A	6.40	7.13	7.88	10	11.3	53.0	500
P6KE8.2(C)A	7.02	7.79	8.61	10	12.1	50.0	200
P6KE9.1(C)A	7.78	8.65	9.50	1	13.4	45.0	50
P6KE10(C)A	8.55	9.50	10.50	1	14.5	41.0	10
P6KE11(C)A	9.40	10.50	11.60	1	15.6	38.0	5
P6KE12(C)A	10.20	11.40	12.60	1	16.7	36.0	5
P6KE13(C)A	11.10	12.40	13.70	1	18.2	33.0	5
P6KE15(C)A	12.80	14.30	15.80	1	21.2	28.0	5
P6KE16(C)A	13.60	15.20	16.80	1	22.5	27.0	5
P6KE18(C)A	15.30	17.10	18.90	1	25.2	24.0	5
P6KE20(C)A	17.10	19.00	21.00	1	27.7	22.0	5
P6KE22(C)A	18.80	20.90	23.10	1	30.6	20.0	5
P6KE24(C)A	20.50	22.80	25.20	1	33.2	18.0	5
P6KE27(C)A	23.10	25.70	28.40	1	37.5	16.0	5
P6KE30(C)A	25.60	28.50	31.50	1	41.4	14.4	5
P6KE33(C)A	28.20	31.40	34.70	1	45.7	13.2	5
P6KE36(C)A	30.80	34.20	37.80	1	49.9	12.0	5
P6KE39(C)A	33.30	37.10	41.00	1	53.9	11.2	5
P6KE43(C)A	36.80	40.90	45.20	1	59.3	10.1	5
P6KE47(C)A	40.20	44.70	49.40	1	64.8	9.3	5
P6KE51(C)A	43.60	48.50	53.60	1	70.1	8.6	5
P6KE56(C)A	47.80	53.20	58.80	1	77.0	7.8	5
P6KE62(C)A	53.00	58.90	65.10	1	85.0	7.1	5
P6KE68(C)A	58.10	64.60	71.40	1	92.0	6.5	5
P6KE75(C)A	64.10	71.30	78.80	1	103.0	5.8	5

UNI DIRECTIONAL PART NUMBER	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VRB (V) MAX. @IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR(μA)
P6KE82(C)A	70.10	77.90	86.10	1	113.0	5.4	5
P6KE91(C)A	77.80	86.50	95.50	1	125.0	4.9	5
P6KE100(C)A	85.50	95.00	105.00	1	137.0	4.5	5
P6KE110(C)A	94.00	105.00	116.00	1	152.0	4.0	5
P6KE120(C)A	102.00	114.00	126.00	1	165.0	3.7	5
P6KE130(C)A	111.00	124.00	137.00	1	179.0	3.4	5
P6KE150(C)A	128.00	143.00	158.00	1	207.0	2.9	5
P6KE160(C)A	136.00	152.00	168.00	1	219.0	2.8	5
P6KE170(C)A	145.00	162.00	179.00	1	234.0	2.6	5
P6KE180(C)A	154.00	171.00	189.00	1	246.0	2.5	5
P6KE200(C)A	171.00	190.00	210.00	1	274.0	2.2	5
P6KE220(C)A	185.00	209.00	231.00	1	328.0	1.9	5
P6KE250(C)A	214.00	237.00	263.00	1	344.0	1.8	5
P6KE300(C)A	256.00	285.00	315.00	1	414.0	1.5	5
P6KE350(C)A	300.00	332.00	368.00	1	482.0	1.3	5
P6KE400(C)A	342.00	380.00	420.00	1	548.0	1.1	5
P6KE440(C)A	376.00	418.00	462.00	1	600.0	1.0	5

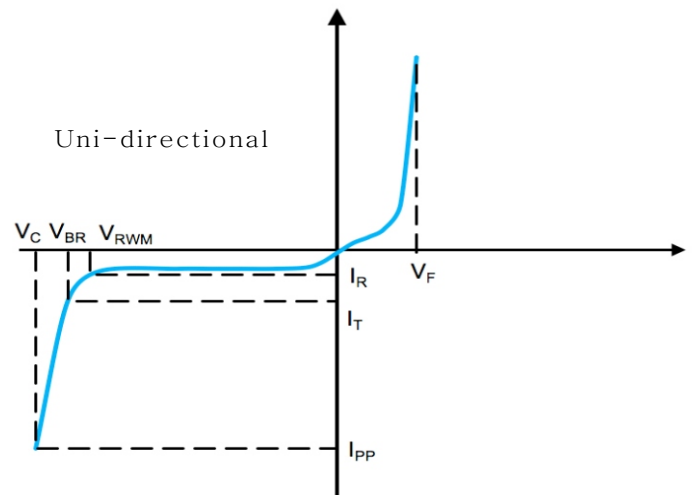
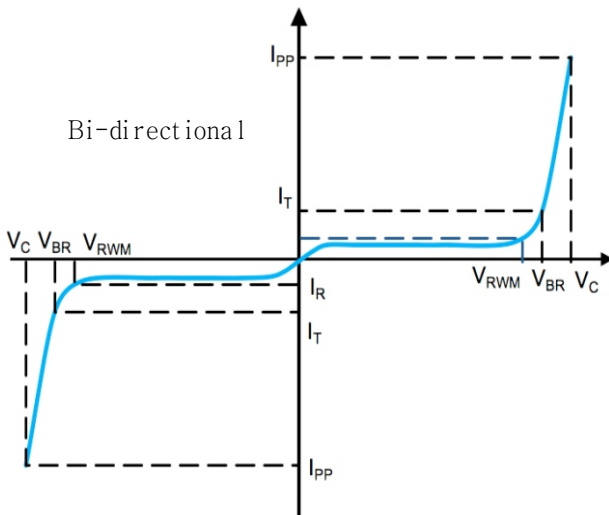
For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

1.A transient suppressor is normally selected according to the working peak reverse voltage (VRWM), which should be equal to or greater than the DC or continuous peak operating voltage level.

2.VBR measured at pulse test current IT at an ambient temperature of 25°C.

3.Surge current waveform per Figure 2 and derate per Figure 3

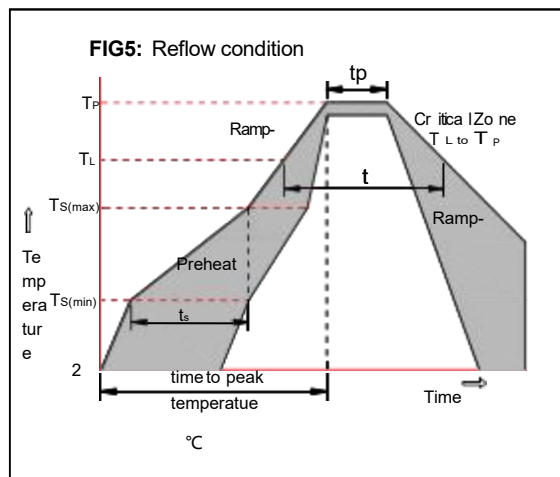
I-V Curve Characteristics



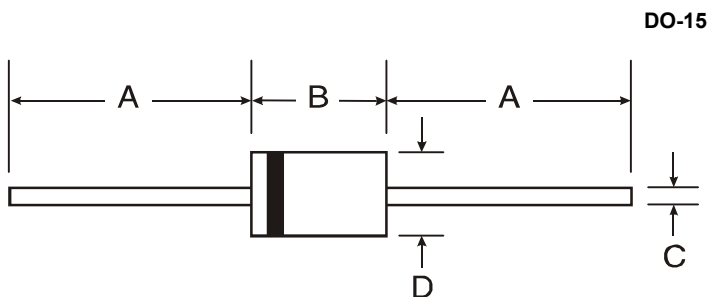
- P_{PPM} Peak Pulse Power Dissipation - Max power dissipation
- V_{RWM} Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation
- V_{BR} Breakdown Voltage – Maximum voltage that flows though the TVS at a specified current (I_T)
- V_C Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)
- I_R Reverse Leakage Current – Current measured at V_R
- V_F Forward Voltage Drop for Uni-directional

Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout



DO-15		
Dim	Min	Max
A	25.40	-
B	5.80	7.60
C	0.70	0.90
D	2.60	3.60
All Dimensions in mm		