

FEATURES

- * 400 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 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

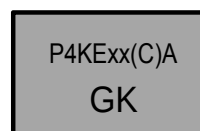


VOLTAGE RANGE

6.8 to 440 Volts

400 Watts Peak Power

1.0 Watts Steady State



P4KE **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 400	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ Lead Length .375"(9.5mm) (NOTE 2)	P_D	1.0	Watts
Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3)	I_{FSM}	40	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°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.

DEVICES FOR BIDIRECTIONAL APPLICATIONS

1. For Bidirectional use CA Suffix for types P4KE6.8 thru P4KE440.
2. Electrical characteristics apply in both directions.

RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER DERATING CURVE

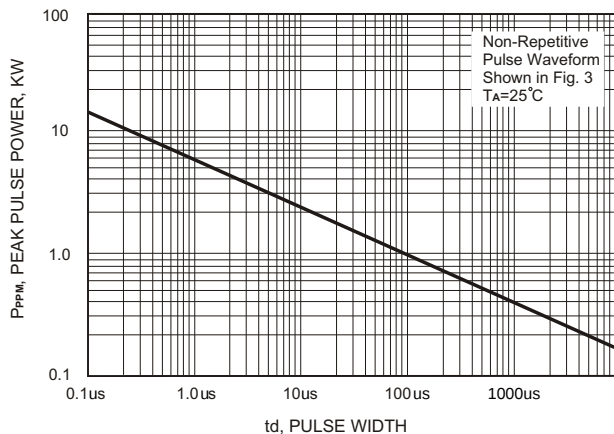


FIG.2-PULSE DERATING CURVE

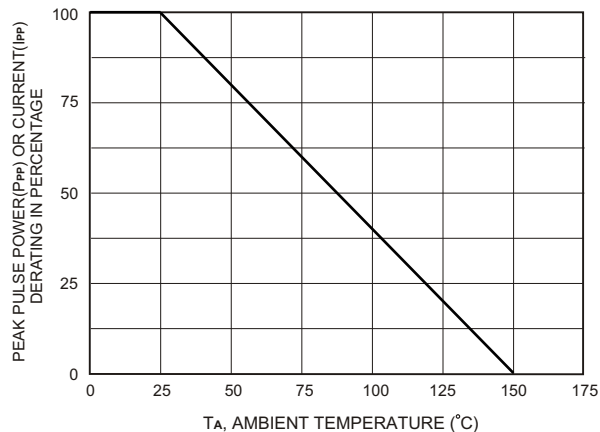


FIG.3-PULSE WAVE FORM

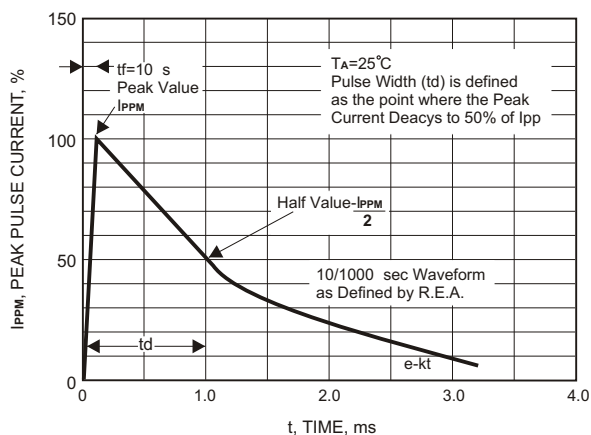


FIG.4-TYPICAL JUNCTION CAPACITANCE

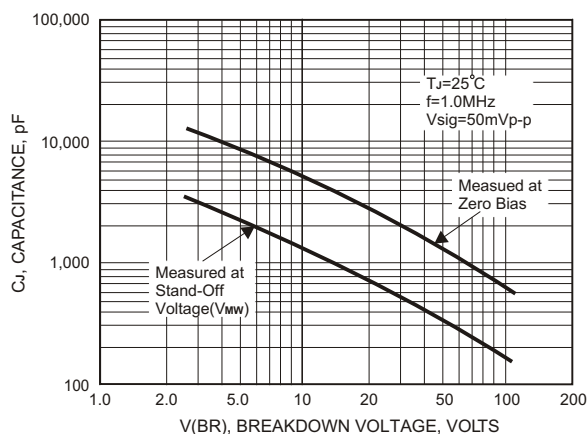


FIG.5-STEADY STATE POWER DERATING CURVE

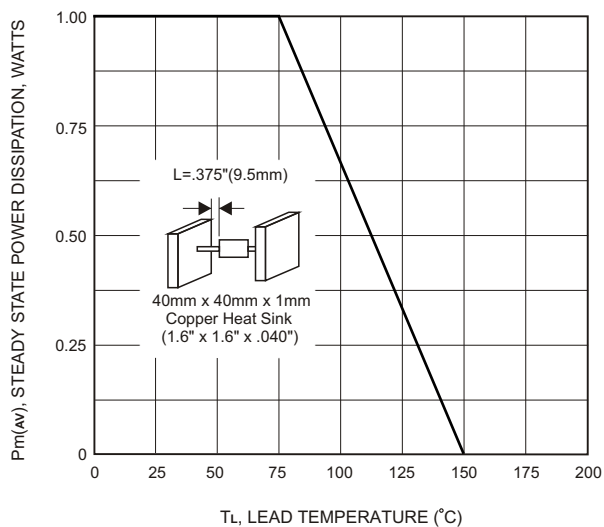
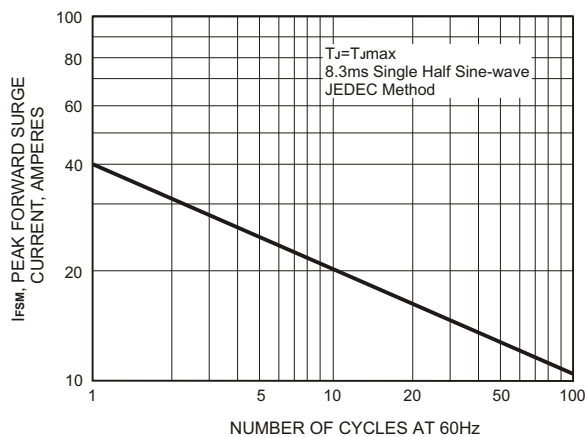


FIG.6-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT, UNIDIRECTIONAL



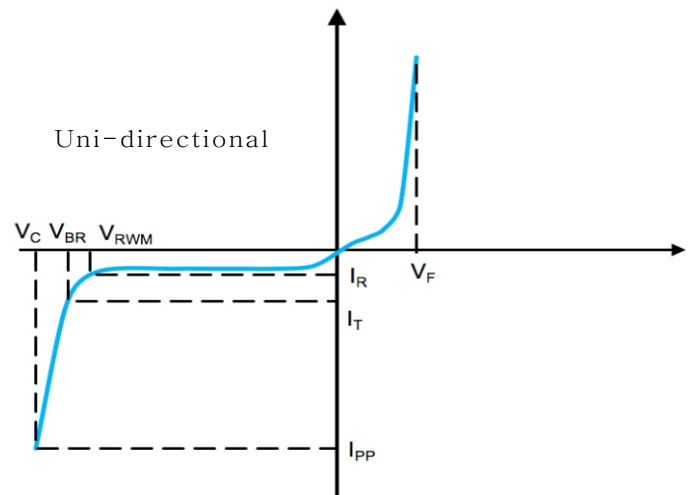
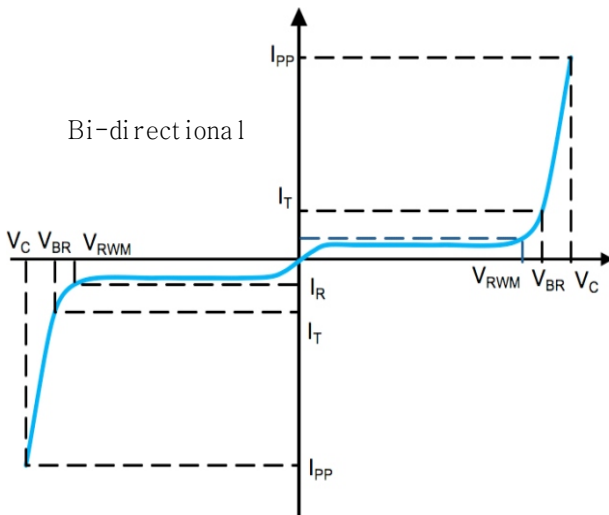
UNI DIRECTIONAL PART NUMBER	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VRB (V) MAX. @IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR(μA)
P4KE6.8(C)A	5.80	6.45	7.14	10	10.5	40.0	1000
P4KE7.5(C)A	6.40	7.13	7.88	10	11.3	37.0	500
P4KE8.2(C)A	7.02	7.79	8.61	10	12.1	35.0	200
P4KE9.1(C)A	7.78	8.65	9.50	1	13.4	31.0	50
P4KE10(C)A	8.55	9.50	10.50	1	14.5	29.0	10
P4KE11(C)A	9.40	10.50	11.60	1	15.6	27.0	5
P4KE12(C)A	10.20	11.40	12.60	1	16.7	25.0	5
P4KE13(C)A	11.10	12.40	13.70	1	18.2	23.0	5
P4KE15(C)A	12.80	14.30	15.80	1	21.2	20.0	5
P4KE16(C)A	13.60	15.20	16.80	1	22.5	19.0	5
P4KE18(C)A	15.30	17.10	18.90	1	25.2	17.0	5
P4KE20(C)A	17.10	19.00	21.00	1	27.7	15.0	5
P4KE22(C)A	18.80	20.90	23.10	1	30.6	14.0	5
P4KE24(C)A	20.50	22.80	25.20	1	33.2	13.0	5
P4KE27(C)A	23.10	25.70	28.40	1	37.5	11.0	5
P4KE30(C)A	25.60	28.50	31.50	1	41.4	10.0	5
P4KE33(C)A	28.20	31.40	34.70	1	45.7	9.0	5
P4KE36(C)A	30.80	34.20	37.80	1	49.9	8.4	5
P4KE39(C)A	33.30	37.10	41.00	1	53.9	7.8	5
P4KE43(C)A	36.80	40.90	45.20	1	59.3	7.1	5
P4KE47(C)A	40.20	44.70	49.40	1	64.8	6.4	5
P4KE51(C)A	43.60	48.50	53.60	1	70.1	6.0	5
P4KE56(C)A	47.80	53.20	58.80	1	77.0	5.5	5
P4KE62(C)A	53.00	58.90	65.10	1	85.0	5.0	5
P4KE68(C)A	58.10	64.60	71.40	1	92.0	4.6	5
P4KE75(C)A	64.10	71.30	78.80	1	103.0	4.1	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)
P4KE82(C)A	70.10	77.90	86.10	1	113.0	3.7	5
P4KE91(C)A	77.80	86.50	95.50	1	125.0	3.4	5
P4KE100(C)A	85.50	95.00	105.00	1	137.0	3.1	5
P4KE110(C)A	94.00	105.00	116.00	1	152.0	2.8	5
P4KE120(C)A	102.00	114.00	126.00	1	165.0	2.5	5
P4KE130(C)A	111.00	124.00	137.00	1	179.0	2.3	5
P4KE150(C)A	128.00	143.00	158.00	1	207.0	2.0	5
P4KE160(C)A	136.00	152.00	168.00	1	219.0	1.9	5
P4KE170(C)A	145.00	162.00	179.00	1	234.0	1.8	5
P4KE180(C)A	154.00	171.00	189.00	1	246.0	1.7	5
P4KE200(C)A	171.00	190.00	210.00	1	274.0	1.5	5
P4KE220(C)A	185.00	209.00	231.00	1	328.0	1.3	5
P4KE250(C)A	214.00	237.00	263.00	1	344.0	1.2	5
P4KE300(C)A	256.00	285.00	315.00	1	414.0	1.0	5
P4KE350(C)A	300.00	332.00	368.00	1	482.0	0.8	5
P4KE400(C)A	342.00	380.00	420.00	1	548.0	0.7	5
P4KE440(C)A	376.00	418.00	462.00	1	600.0	0.6	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

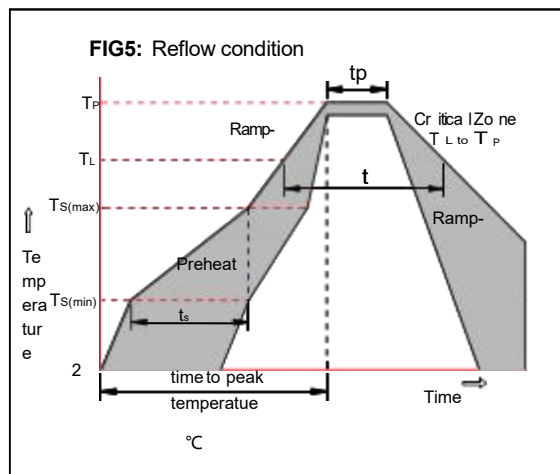
I-V Curve Characteristics



- 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

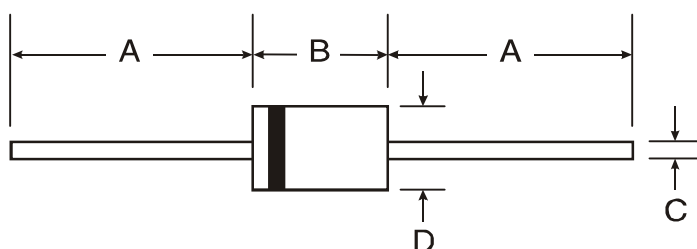
Soldering parameters

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-41 Plastic



DO-41 Plastic		
Dim	Min	Max
A	25.40	-
B	4.20	5.20
C	0.70	0.90
D	2.00	2.70
All Dimensions in mm		