

Features

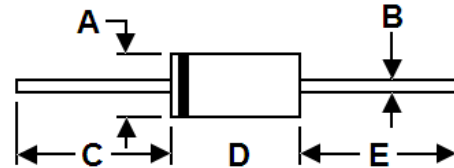
- * Plastic package has underwriters laboratory flammability classifications 94V-0
- * 400W surge capability at 1ms
- * Excellent clamping capability
- * Low Zener impedance
- * Fast response time: typically less than 1.0ps from 0 volts to BV min
- * Typical IR less than 1μA above 10V



RoHS
COMPLIANT

Package Outline Dimensions

DO-41:



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	2.0	2.7	0.078	0.107
B	0.7	0.9	0.027	0.035
C	25.4	-	1.0	-
D	4.2	5.2	0.165	0.205
E	25.4	-	1.0	-

Mechanical Data

- * Case: Molded plastic
 - * Lead: Axial leads, solderable per MIL-STD-202, method 208 guaranteed
 - * Polarity: Color band denotes cathode bidirectional not mark.
 - * For bidirectional use C or CA suffix for types P4KE6.8 thru P4KE440
- Electrical characteristics apply in both directions

Maximum Ratings and Electrical Characteristics

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

Type Number	Symbol	Value	Unit
Peak Power Dissipation at $T_A=25^{\circ}\text{C}$, $T_P=1\text{ms}$ (Note1)	P_{PPM}	Minimum 400	Watt
Steady State Power Dissipation at $T_L=75^{\circ}\text{C}$ Lead Lengths .375",9.5mm(Note2)	P_D	1.0	Watt
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load(JEDEC method) (Note3)	I_{FSM}	40.0	Amp
Maximum Instantaneous Forward Voltage at 25A for unidirectional only (Note4)	V_F	3.5/5.0	Volt
Operating and Storage Temperature Range	T_J/T_{STG}	-55 to +175	$^{\circ}\text{C}$

Note:1、 Non-repetitive current pulse per Fig.3 and debated above $T_A=25^{\circ}\text{C}$ per Fig.2.

- 2、 Mounted on copper pad area $1.6 \times 1.6''(40 \times 40\text{mm})$ per Fig.5.
- 3、 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minutes maximum.
- 4、 $V_F=3.5\text{V}$ max for devices $V_{(BR)} \leq 200\text{V}$ and $V_F=5.0\text{V}$ for devices $V_{(BR)} > 200\text{V}$.

Ratings and Characteristic Curves

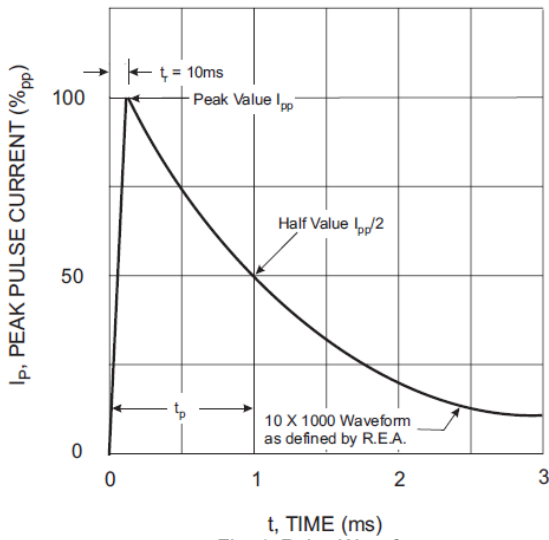


Fig. 1 Pulse Waveform

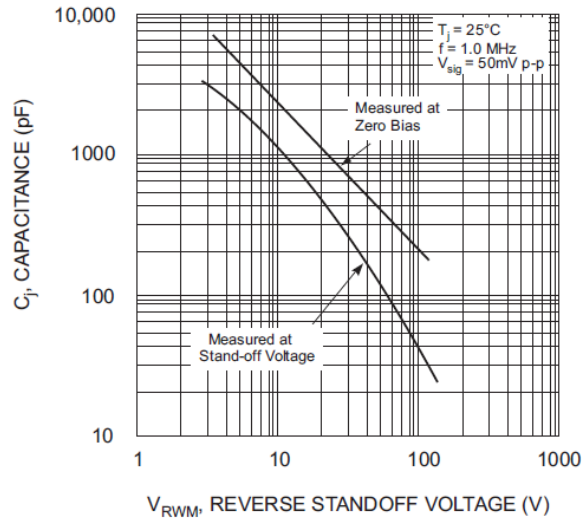


Fig. 2 Typical Junction Capacitance

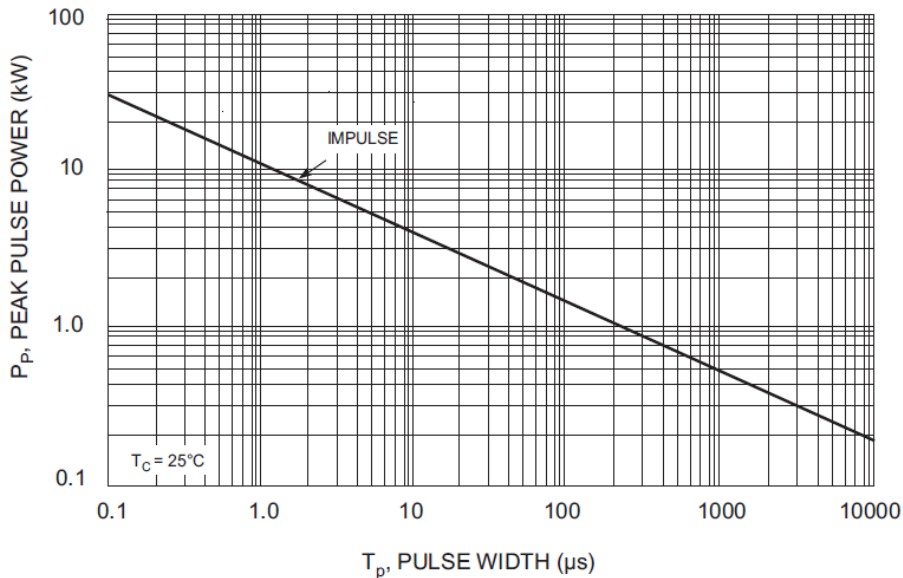


Fig. 3 Pulse Rating Curve

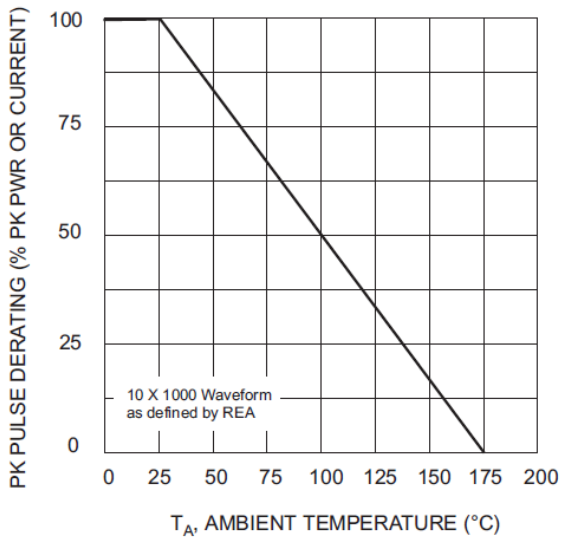


Fig. 4 Pulse Derating Curve

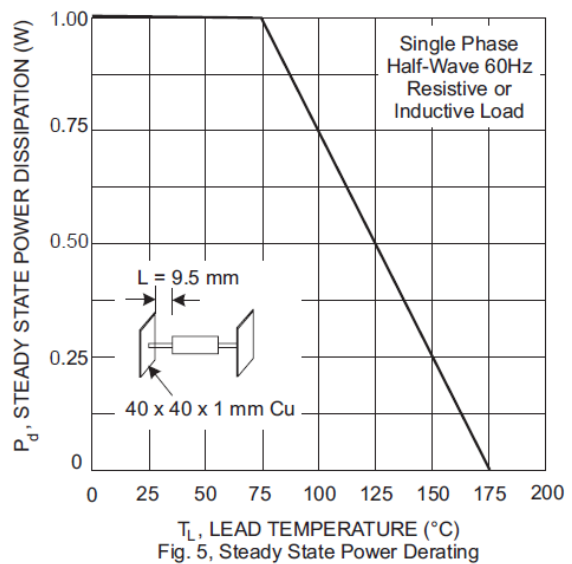


Fig. 5, Steady State Power Derating

Electrical Characteristics @T_A=25°C unless otherwise noted

Type Number		Reverse Stand Off Voltage V _R (Volts)	Nominal Voltage (Volts)	Breakdown Voltage V(BR)(Volts) @I _T (Note1)		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{PP} (Volts)	Maximum Peak Pulse Current I _{PP} (Note2) (Amps)	Maximum Reverse Leakage I _R (μA) @V _R (Note3)
				Min	Max				
(Uni)	(Bi)								
P4KE6.8	P4KE6.8C	5.50	6.8	6.12	7.48	10	10.8	38	1000
P4KE6.8A	P4KE6.8CA	5.80	6.8	6.46	7.14	10	10.5	40	1000
P4KE7.5	P4KE7.5C	6.05	7.5	6.75	8.25	10	11.7	36	500
P4KE7.5A	P4KE7.5CA	6.40	7.5	7.13	7.88	10	11.3	37	500
P4KE8.2	P4KE8.2C	6.63	8.2	7.38	9.02	10	12.5	33	200
P4KE8.2A	P4KE8.2CA	7.02	8.2	7.79	8.61	10	12.1	35	200
P4KE9.1	P4KE9.1C	7.37	9.1	8.19	10.0	10	13.8	30	50
P4KE9.1A	P4KE9.1CA	7.78	9.1	8.65	9.55	1.0	13.4	31	50
P4KE10	P4KE10C	8.10	10	9.00	11.0	1.0	15.0	28	10
P4KE10A	P4KE10CA	8.55	10	9.50	10.5	1.0	14.5	29	10
P4KE11	P4KE11C	8.92	11	9.90	12.1	1.0	16.2	26	5.0
P4KE11A	P4KE11CA	9.40	11	10.5	11.6	1.0	15.6	27	5.0
P4KE12	P4KE12C	9.72	12	10.8	13.2	1.0	17.3	24	5.0
P4KE12A	P4KE12CA	10.2	12	11.4	12.6	1.0	16.7	25	5.0
P4KE13	P4KE13C	10.5	13	11.7	14.3	1.0	19.0	22	5.0
P4KE13A	P4KE13CA	11.1	13	12.4	13.7	1.0	18.2	23	5.0
P4KE15	P4KE15C	12.1	15	13.5	16.5	1.0	22.0	19	5.0
P4KE15A	P4KE15CA	12.8	15	14.3	15.8	1.0	21.2	20	5.0
P4KE16	P4KE16C	12.9	16	14.4	17.6	1.0	23.5	18	5.0
P4KE16A	P4KE16CA	13.6	16	15.2	16.8	1.0	22.5	19	5.0
P4KE18	P4KE18C	14.5	18	16.2	19.8	1.0	26.5	16	5.0
P4KE18A	P4KE18CA	15.3	18	17.1	18.9	1.0	25.2	17	5.0
P4KE20	P4KE20C	16.2	20	18.0	22.0	1.0	29.1	14	5.0
P4KE20A	P4KE20CA	17.1	20	19.0	21.0	1.0	27.7	15	5.0
P4KE22	P4KE22C	17.8	22	19.8	24.2	1.0	31.9	13	5.0
P4KE22A	P4KE22CA	18.8	22	20.9	23.1	1.0	30.6	14	5.0
P4KE24	P4KE24C	19.4	24	21.6	26.4	1.0	34.7	12	5.0
P4KE24A	P4KE24CA	20.5	24	22.8	25.2	1.0	33.2	13	5.0
P4KE27	P4KE27C	21.8	27	24.3	29.7	1.0	39.1	11	5.0
P4KE27A	P4KE27CA	23.1	27	25.7	28.4	1.0	37.5	11.2	5.0
P4KE30	P4KE30C	24.3	30	27.0	33.0	1.0	43.5	10	5.0
P4KE30A	P4KE30CA	25.6	30	28.5	31.5	1.0	41.4	10	5.0
P4KE33	P4KE33C	26.8	33	29.7	36.3	1.0	47.7	9	5.0
P4KE33A	P4KE33CA	28.2	33	31.4	34.7	1.0	45.7	9	5.0
P4KE36	P4KE36C	29.1	36	32.4	39.6	1.0	52.0	8	5.0
P4KE36A	P4KE36CA	30.8	36	34.2	37.8	1.0	49.9	8.4	5.0
P4KE39	P4KE39C	31.6	39	35.1	42.9	1.0	56.4	7.4	5.0
P4KE39A	P4KE39CA	33.3	39	37.1	41.0	1.0	53.9	7.8	5.0
P4KE43	P4KE43C	34.8	43	38.7	47.3	1.0	61.9	6.8	5.0
P4KE43A	P4KE43CA	36.8	43	40.9	45.2	1.0	59.3	7.1	5.0
P4KE47	P4KE47C	38.1	47	42.3	51.7	1.0	67.8	6.2	5.0
P4KE47A	P4KE47CA	40.2	47	44.7	49.4	1.0	64.8	6.4	5.0

Electrical Characteristics @T_A=25°C unless otherwise noted

Type Number		Reverse Stand Off Voltage V _R (Volts)	Nominal Voltage (Volts)	Breakdown Voltage V(BR)(Volts) @I _T (Note1)		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{PP} (Volts)	Maximum Peak Pulse Current I _{PP} (Note2) (Amps)	Maximum Reverse Leakage I _R (μA) @V _R (Note3)
				Min	Max				
P4KE51	P4KE51C	41.3	51	45.9	56.1	1.0	73.5	5.7	5.0
P4KE51A	P4KE51CA	43.6	51	48.5	53.6	1.0	70.1	6.0	5.0
P4KE56	P4KE56C	45.4	56	50.4	61.6	1.0	80.5	5.2	5.0
P4KE56A	P4KE56CA	47.8	56	53.2	58.8	1.0	77.0	5.4	5.0
P4KE62	P4KE62C	50.2	62	55.8	68.2	1.0	89.0	4.7	5.0
P4KE62A	P4KE62CA	53.0	62	58.9	65.1	1.0	85.0	5.0	5.0
P4KE68	P4KE68C	55.1	68	61.2	74.8	1.0	96.0	4.2	5.0
P4KE68A	P4KE68CA	58.1	68	64.6	71.4	1.0	92.0	4.5	5.0
P4KE75	P4KE75C	60.7	75	67.5	82.5	1.0	108.0	3.8	5.0
P4KE75A	P4KE75CA	64.1	75	71.3	78.8	1.0	103.0	4.0	5.0
P4KE82	P4KE82C	66.4	82	73.8	90.2	1.0	118.0	3.5	5.0
P4KE82A	P4KE82CA	70.1	82	77.9	86.1	1.0	113.0	3.7	5.0
P4KE91	P4KE91C	73.7	91	81.9	100.0	1.0	131.8	3.2	5.0
P4KE91A	P4KE91CA	77.8	91	86.5	95.50	1.0	125.0	3.3	5.0
P4KE100	P4KE100C	81.0	100	90.0	110.0	1.0	144.0	2.9	5.0
P4KE100A	P4KE100CA	85.5	100	95.0	105.0	1.0	137.0	3.0	5.0
P4KE110	P4KE110C	89.2	110	99.0	121.0	1.0	158.0	2.6	5.0
P4KE110A	P4KE110CA	94.0	110	105.0	116.0	1.0	152.0	2.7	5.0
P4KE120	P4KE120C	97.2	120	108.0	132.0	1.0	173.0	2.4	5.0
P4KE120A	P4KE120CA	102.0	120	114.0	126.0	1.0	165.0	2.5	5.0
P4KE130	P4KE130C	105.0	130	117.0	143.0	1.0	187.0	2.2	5.0
P4KE130A	P4KE130CA	111.0	130	124.0	137.0	1.0	179.0	2.3	5.0
P4KE150	P4KE150C	121.0	150	135.0	165.0	1.0	215.0	1.9	5.0
P4KE150A	P4KE150CA	128.0	150	143.0	158.0	1.0	207.0	2.0	5.0
P4KE160	P4KE160C	130.0	160	144.0	176.0	1.0	230.0	1.8	5.0
P4KE160A	P4KE160CA	136.0	160	152.0	168.0	1.0	219.0	1.9	5.0
P4KE170	P4KE170C	138.0	170	153.0	187.0	1.0	244.0	1.7	5.0
P4KE170A	P4KE170CA	145.0	170	162.0	179.0	1.0	234.0	1.8	5.0
P4KE180	P4KE180C	146.0	180	162.0	198.0	1.0	258.0	1.6	5.0
P4KE180A	P4KE180CA	154.0	180	171.0	189.0	1.0	246.0	1.7	5.0
P4KE200	P4KE200C	162.0	200	180.0	220.0	1.0	287.0	1.4	5.0
P4KE200A	P4KE200CA	171.0	200	190.0	210.0	1.0	274.0	1.51	5.0
P4KE220	P4KE220C	175.0	220	198.0	242.0	1.0	344.0	1.2	5.0
P4KE220A	P4KE220CA	185.0	220	209.0	231.0	1.0	328.0	1.3	5.0
P4KE250	P4KE250C	202.0	250	225.0	275.0	1.0	360.0	1.1	5.0
P4KE250A	P4KE250CA	214.0	250	237.0	263.0	1.0	344.0	1.2	5.0
P4KE300	P4KE300C	243.0	300	270.0	330.3	1.0	430.0	0.97	5.0
P4KE300A	P4KE300CA	256.0	300	285.0	315.0	1.0	414.0	1.0	5.0
P4KE350	P4KE350C	284.0	350	315.0	385.0	1.0	504.0	0.83	5.0
P4KE350A	P4KE350CA	300.0	350	332.0	368.0	1.0	482.0	0.87	5.0
P4KE400	P4KE400C	324.0	400	360.0	440.0	1.0	574.0	0.73	5.0
P4KE400A	P4KE400CA	342.0	400	380.0	420.0	1.0	548.0	0.76	5.0
P4KE440	P4KE440C	356.0	440	396.0	484.0	1.0	631.0	0.63	5.0
P4KE440A	P4KE440CA	376.0	440	418.0	462.0	1.0	602.0	0.65	5.0

Note:1、 V(BR) measured after I_T applied for 300 μ S. I_T=square wave pulse or equivalent.

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

3、 For bipolar types having V_{WM} of 10 volts and less, the I_D limit is doubled.

4、 Add suffix "C" or "CA" after type number to specify bi-directional devices.

5、 . Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device



P4KE SERIES

Transient Voltage Suppressors Diode

Ordering Information

Part No.	Package	Packing
P4KE Series	DO-41	3K/AMMO box
P4KE Series	DO-41	5K/AMMO box
P4KE Series	DO-41	5K/13" Paper reel
P4KE Series	DO-41	1K/Bulk packing