JGD

P4KE SERIES

TRANSIENT VOLTAGE SUPPRESSORS DIODE

VOLTAGE RANGE
6.8 to 400 Volts
400 Watts Peak Power

FEATURES

* Plastic package has underwriters laboratory flammability classifications 94V-O
* 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 I_R less than 1μA above 10V

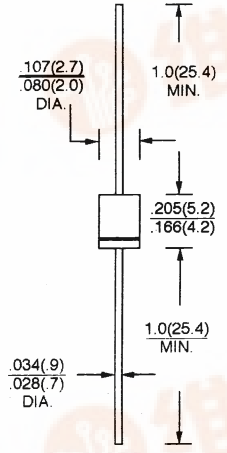
MECHANICAL DATA

* Case: Molded plastic
* Terminals: Axial leads, solderable per MIL – STD – 202, Method 208
* Polarity: Color band denotes cathode Bidirectiondl not Mark.
* Weight: 0.012 ounce(0.3 grams)

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types P4KE6.8 thru types P4KE400
Electrical characteristics apply in both directions

DO-41



Dimensions in inches and (milimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

TYPE NUMBER	SYMBOLS	VALUE	UNITS
Peak Power Dissipation at T_A = 25℃, T_P = 1ms(Note 1)	P_{PPM}	Minimum 400	Watt
Steady State Power Dissipation at T_L = 75℃ Lead Lengths .375", 9.5mm(Note 2)	P_D	1.0	Watt
Peak Forward surge Current, 8.3 ms single half Sine-Wave Superimposed on Rated Load (JEDEC method)(Note 3)	I_{FSM}	40.0	Amp
Maximum instantaneous forward voltage at 25A for unidirectional Only(Note 4)	V_F	3.5/5.0	Volt
Operating and Storage Temperature Range	T_j T_{STG}	– 65 to + 150	℃

NOTE: (1) Non-repetitive current pulse per Fig.3 and derated above T_A = 25℃ per Fig.2.
(2) Mounted on Copper Pad area 1.6 × 1.6"(40 × 40mm) Per Fig5.
(3) 8.3ms single half sine-wave or eguivalent square wave, duty cycle = 4 pulses per Minutes maximum.
(4) V_F = 3.5V Max for Devices V(BR) ≤ 200V and V_F = 5.0V for Devices $V_{(BR)}$ > 200V.

RATINGS AND CHARACTERISTIC CURVES (P4KE SERIES)

FIGURE 1 – PEAK PULSE POWER RATING CURVE

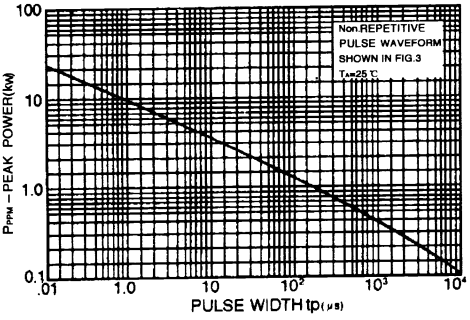


FIGURE 2 – PULSE DERATING CURVE

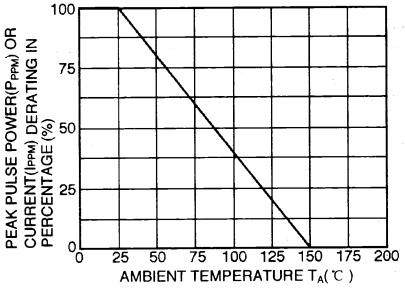


FIGURE 3 – PULSE WAVEFORM

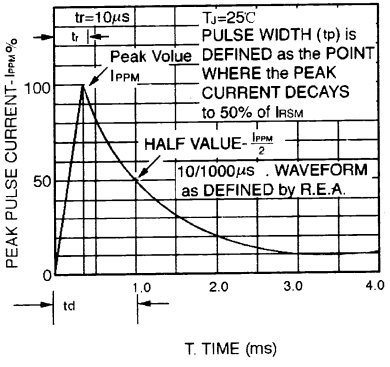


FIGURE 4 – TYPICAL JUNCTION CAPACITANCE
UNIDIRECTIONAL

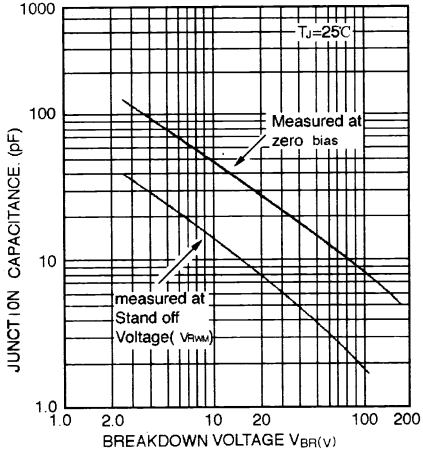


FIGURE 5 – STEADY STATE
POWER DERATING CURVE

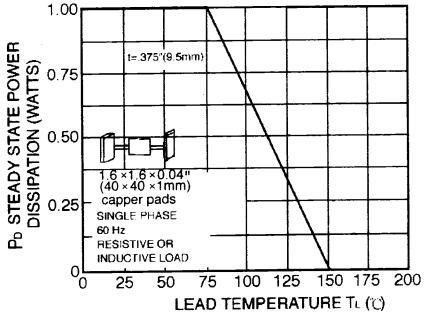
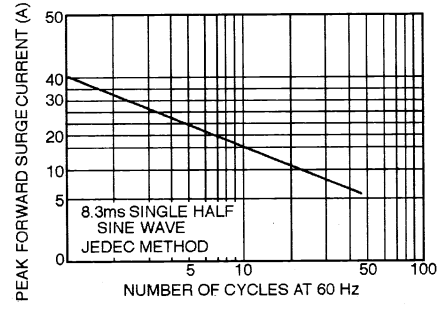


FIGURE 6 – MAXIMUM NON – REPETITVE FORWARD
SURGE CURRENT – UNIDIRECTIONAL ONLY



ELECTRICAL CHARACTERISTICS ($T_A = 25℃$ unless otherwise noted)

Device	Nominal Voltage (Volts)	Breakdown Voltage V(BR) (Volts) (Note 1)		@ I_T (mA)	stand – off Voltage V_{WM} (Volts)	Maximum Reverse Leakage @ V_{WM} I_D (μA) (NOTE 3)	Maximum Reverse Surge Current I_{PPM} (NOTE2) (Amps)	Maximum Reverse Voltage @ I_{PPM} (Clamping Voltage) V_C (Volts)	Maximum Temperature Coefficient of V(BR) (%/℃)
		Min	Max						
P4KE6.8	6.8	6.12	7.48	10	5.50	1000	38	10.8	0.057
P4KE6.8A	6.8	6.46	7.14	10	5.80	1000	40	10.5	0.057
P4KE7.5	7.5	6.75	8.25	10	6.05	500	36	11.7	0.061
P4KE7.5A	7.5	7.13	7.88	10	6.40	500	37	11.3	0.061
P4KE8.2	8.2	7.38	9.02	10	6.63	200	33	12.5	0.065
P4KE8.2A	8.2	7.79	8.61	10	7.02	200	35	12.1	0.065
P4KE9.1	9.1	8.19	10.0	10	7.37	50	30	13.8	0.068
P4KE9.1A	9.1	8.65	9.55	1.0	7.78	50	31	13.4	0.068
P4KE10	10	9.00	11.0	1.0	8.10	10	28	15.0	0.073
P4KE10A	10	9.50	10.5	1.0	8.55	10	29	14.5	0.073
P4KE11	11	9.90	12.1	1.0	8.92	5.0	26	16.2	0.075
P4KE11A	11	10.5	11.6	1.0	9.40	5.0	27	15.6	0.075
P4KE12	12	10.8	13.2	1.0	9.72	5.0	24	17.3	0.076
P4KE12A	12	11.4	12.6	1.0	10.2	5.0	25	16.7	0.078
P4KE13	13	11.7	14.3	1.0	10.5	5.0	22	19.0	0.081
P4KE13A	13	12.4	13.7	1.0	11.1	5.0	23	18.2	0.081
P4KE15	15	13.5	16.5	1.0	12.1	5.0	19	22.0	0.084
P4KE15A	15	14.3	15.8	1.0	12.8	5.0	20	21.2	0.084
P4KE16	16	14.4	17.6	1.0	12.9	5.0	18	23.5	0.086
P4KE16A	16	15.2	16.8	1.0	13.6	5.0	19	22.5	0.086
P4KE18	18	16.2	19.8	1.0	14.5	5.0	16	26.5	0.088
P4KE18A	18	17.1	18.9	1.0	15.3	5.0	17	25.2	0.088
P4KE20	20	18.0	22.0	1.0	16.2	5.0	14	29.1	0.090
P4KE20A	20	19.0	21.0	1.0	17.1	5.0	15	27.7	0.090
P4KE22	22	19.8	24.2	1.0	17.8	5.0	13	31.9	0.092
P4KE22A	22	20.9	23.1	1.0	18.8	5.0	14	30.6	0.092
P4KE24	24	21.6	26.4	1.0	19.4	5.0	12	34.7	0.094
P4KE24A	24	22.8	25.2	1.0	20.5	5.0	13	33.2	0.094
P4KE27	27	24.3	29.7	1.0	21.8	5.0	11	39.1	0.096
P4KE27A	27	25.7	28.4	1.0	23.1	5.0	11.2	37.5	0.096
P4KE30	30	27.0	33.0	1.0	24.3	5.0	10	43.5	0.097
P4KE30A	30	28.5	31.5	1.0	25.6	5.0	10	41.4	0.097
P4KE33	33	29.7	36.3	1.0	26.8	5.0	9	47.7	0.098
P4KE33A	33	31.4	34.7	1.0	28.2	5.0	9	45.7	0.098
P4KE36	36	32.4	39.6	1.0	29.1	5.0	8	52.0	0.099
P4KE36A	36	34.2	37.8	1.0	30.8	5.0	8.4	49.9	0.099
P4KE39	39	35.1	42.9	1.0	31.6	5.0	7.4	56.4	0.100
P4KE39A	39	37.1	41.0	1.0	33.3	5.0	7.8	53.9	0.100
P4KE43	43	38.7	47.3	1.0	34.8	5.0	6.8	61.9	0.101
P4KE43A	43	40.9	45.2	1.0	36.8	5.0	7.1	59.3	0.101
P4KE47	47	42.3	51.7	1.0	38.1	5.0	6.2	67.8	0.101
P4KE47A	47	44.7	49.4	1.0	40.2	5.0	6.4	64.8	0.101

Device	Nominal Voltage (Volts)	Breakdown Voltage $V_{(BR)}$ (Volts) (Note 1)		@ I_T (mA)	stand – off Voltage V_{WM} (Volts)	Maximum Reverse Leakage @ V_{WM} I_D (μA) (NOTE 3)	Maximum Reverse Surge Current I_{PPM} (NOTE2) (Amps)	Maximum Reverse Voltage @ IPPM (Clamping Voltage) V_C (Volts)	Maximum Temperature Coefficient of $V_{(BR)}$ (%/℃)
		Min	Max						
P4KE51	51	45.9	56.1	1.0	41.3	5.0	5.7	73.5	0.102
P4KE51A	51	48.5	53.6	1.0	43.6	5.0	6.0	70.1	0.102
P4KE56	56	50.4	61.6	1.0	45.4	5.0	5.2	80.5	0.103
P4KE56A	56	53.2	58.8	1.0	47.8	5.0	5.4	77.0	0.103
P4KE62	62	55.8	68.2	1.0	50.2	5.0	4.7	89.0	0.104
P4KE62A	62	58.9	65.1	1.0	53.0	5.0	5.0	85.0	0.104
P4KE68	68	61.2	74.8	1.0	55.1	5.0	4.2	96.0	0.104
P4KE68A	68	64.6	71.4	1.0	58.1	5.0	4.5	92.0	0.104
P4KE75	75	67.5	82.5	1.0	60.7	5.0	3.8	108.0	0.105
5P4KE75A	75	71.3	78.8	1.0	64.1	5.0	4.0	103.0	0.105
P4KE82	82	73.8	90.2	1.0	66.4	5.0	3.5	118.0	0.105
P4KE82A	82	77.9	86.1	1.0	70.1	5.0	3.7	113.0	0.105
P4KE91	91	81.9	100.0	1.0	73.7	5.0	3.2	131.8	0.106
P4KE91A	91	86.5	95.50	1.0	77.8	5.0	3.3	125.0	0.106
P4KE100	100	90.0	110.0	1.0	81.0	5.0	2.9	144.0	0.106
P4KE100A	100	95.0	105.0	1.0	85.5	5.0	3.0	137.0	0.106
P4KE110	110	99.0	121.0	1.0	89.2	5.0	2.6	158.0	0.107
P4KE110A	110	105.0	116.0	1.0	94.0	5.0	2.7	152.0	0.107
P4KE120	120	108.0	132.0	1.0	97.2	5.0	2.4	173.0	0.107
P4KE120A	120	114.0	126.0	1.0	102.0	5.0	2.5	165.0	0.107
P4KE130	130	117.0	143.0	1.0	105.0	5.0	2.2	187.0	0.107
P4KE130A	130	124.0	137.0	1.0	111.0	5.0	2.3	179.0	0.107
P4KE150	150	135.0	165.0	1.0	121.0	5.0	1.9	215.0	0.108
P4KE150A	150	143.0	158.0	1.0	128.0	5.0	2.0	207.0	0.108
P4KE160	160	144.0	176.0	1.0	130.0	5.0	1.8	230.0	0.108
P4KE160A	160	152.0	168.0	1.0	136.0	5.0	1.9	219.0	0.108
P4KE170	170	153.0	187.0	1.0	138.0	5.0	1.7	244.0	0.108
P4KE170A	170	162.0	179.0	1.0	145.0	5.0	1.8	234.0	0.108
P4KE180	180	162.0	198.0	1.0	146.0	5.0	1.6	258.0	0.108
P4KE180A	180	171.0	189.0	1.0	154.0	5.0	1.7	246.0	0.108
P4KE200	200	180.0	220.0	1.0	162.0	5.0	1.4	287.0	0.108
P4KE200A	200	190.0	210.0	1.0	171.0	5.0	1.51	274.0	0.108
P4KE220	220	198.0	242.0	1.0	175.0	5.0	1.2	344.0	0.108
P4KE220A	220	209.0	231.0	1.0	185.0	5.0	1.3	328.0	0.108
P4KE250	250	225.0	275.0	1.0	202.0	5.0	1.1	360.0	0.110
P4KE250A	250	237.0	263.0	1.0	214.0	5.0	1.2	344.0	0.110
P4KE300	300	270.0	330.3	1.0	243.0	5.0	0.97	430.0	0.110
P4KE300A	300	285.0	315.0	1.0	256.0	5.0	1.0	414.0	0.110
P4KE350	350	315.0	385.0	1.0	284.0	5.0	0.83	504.0	0.110
P4KE350A	350	332.0	368.0	1.0	300.0	5.0	0.87	482.0	0.110
P4KE400	400	360.0	440.0	1.0	324.0	5.0	0.73	574.0	0.110
P4KE400A	400	380.0	420.0	1.0	342.0	5.0	0.76	548.0	0.110

NOTES:

1. $V_{(BR)}$ Measured after I_T applied for 300us. 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.