



PINGWEI ENTERPRISE

## P4KE SERIES

### TRANSIENT VOLTAGE SUPPRESSORS

#### FEATURE

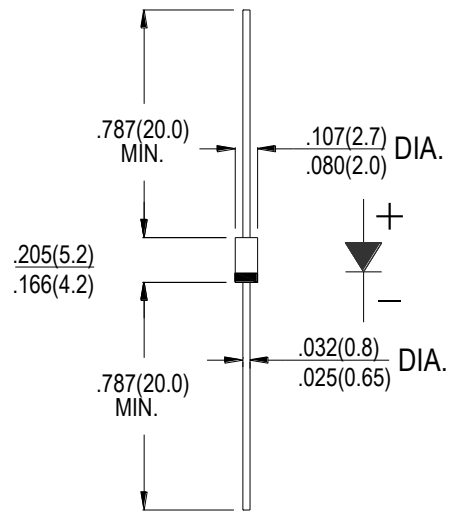
- . Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- . 400W surge capability at 10×100us waveform, Duty cycle: 0.01%
- . Excellent clamping capability
- . Low zener impedance
- . Fast response time: Typically less than 1.0ps from 0 volts to  $V_{BR}$  for unidirectional and 5.0ns for bidirectional
- . Typical  $I_R$  less than 1  $\mu$ A above 10V
- . High temperature soldering guaranteed: 260 °C /10 seconds / .375" lead length / 5lbs tension

#### MECHANICAL DATA

- . Terminal: Plated axial leads solderable per MIL-STD 202E, method 208C
- . Case: Molded with UL-94 Class V-0 recognized Flame Retardant Epoxy
- . Polarity: color band denotes cathode except bipolar

Voltage Range 6.8 to 400 V  
400 W Peak Power

#### DO-41



Dimensions in inches and (millimeters)

#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Type Number	SYMBOL	Value	units
Peak Power Dissipation at $T_A=25\text{ }^\circ\text{C}$ , $T_p=1\text{ms}$ (note 1)	$P_{PPM}$	Minimum 400	W
Steady State Power Dissipation .375" lead length at $T_L=75\text{ }^\circ\text{C}$ (note 2)	$P_D$	1.0	W
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (note 3)	$I_{FSM}$	40	A
Storage Temperature	$T_{STG}$	-55 to +150	°C
Operating Junction Temperature	$T_J$	-55 to +125	°C

#### Note:

1. Non-repetitive Current Pulse Per Fig.3 and Derated above  $T_a=25\text{ }^\circ\text{C}$  Per Fig.2 .
2. Mounted on Copper Pad Area of 1.6×1.6" (40×40mm) Per Fig.5 .
3. 8.3ms Single Half Sine-wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minutes Maximum.

#### Devices for Bipolar Applications

1. For Bidirectional Use C or CA Suffix for Types P4KE6.8 thru Types P4KE400.
2. Electrical Characteristics Apply in Both Directions.

**ELECTRICAL CHARACTERISTICS**(TA=25 °C unless otherwise noted)

Device		Nominal Voltage (V)	Breakdown Voltage @I <sub>T</sub> V <sub>BR</sub> (V)(note1)		Test Current I <sub>T</sub> (mA)	Stand-Off Voltage V <sub>WM</sub> (V)	Maximum Reverse Leakage @ V <sub>WM</sub> I <sub>D</sub> (μA)	Maximum Peak Pulse Current I <sub>PPM</sub> (note2)(A)	Maximum Clamping Voltage @I <sub>PPM</sub> V <sub>C</sub> (V)	Maximum Temperature Coefficient of V <sub>BR</sub> (%/ °C)
			Min	Max						
UNI	BI									
P4KE6.8	P4KE6.8C	6.8	6.12	7.48	10	5.50	1000	38	10.8	0.057
P4KE6.8A	P4KE6.8CA	6.8	6.46	7.14	10	5.80	1000	40	10.5	0.057
P4KE7.5	P4KE7.5C	7.5	6.75	8.25	10	6.05	500	35	11.7	0.061
P4KE7.5A	P4KE7.5CA	7.5	7.13	7.88	10	6.4	500	37	11.3	0.061
P4KE8.2	P4KE8.2C	8.2	7.38	9.02	10	6.63	200	33	12.5	0.065
P4KE8.2A	P4KE8.2CA	8.2	7.79	8.61	10	7.02	200	34	12.1	0.065
P4KE9.1	P4KE9.1C	9.1	8.19	10.0	1.0	7.37	50	30	13.8	0.068
P4KE9.1A	P4KE9.1CA	9.1	8.65	9.55	1.0	7.78	50	31	13.4	0.068
P4KE10	P4KE10C	10	9.00	11.0	1.0	8.10	10	28	15.0	0.073
P4KE10A	P4KE10CA	10	9.50	10.5	1.0	8.55	10	29	14.5	0.073
P4KE11	P4KE11C	11	9.90	12.1	1.0	8.92	5.0	26	16.2	0.075
P4KE11A	P4KE11CA	11	10.5	11.6	1.0	9.40	5.0	27	15.6	0.075
P4KE12	P4KE12C	12	10.8	13.2	1.0	9.72	5.0	24	17.3	0.078
P4KE12A	P4KE12CA	12	11.4	12.6	1.0	10.2	5.0	25	16.7	0.078
P4KE13	P4KE13C	13	11.7	14.3	1.0	10.5	5.0	22	19.0	0.081
P4KE13A	P4KE13CA	13	12.4	13.7	1.0	11.1	5.0	23	18.2	0.081
P4KE15	P4KE15C	15	13.5	16.5	1.0	12.1	5.0	19	22.0	0.084
P4KE15A	P4KE15CA	15	14.3	15.8	1.0	12.8	5.0	20	21.2	0.084
P4KE16	P4KE16C	16	14.4	17.6	1.0	12.9	5.0	17.8	23.5	0.086
P4KE16A	P4KE16CA	16	15.2	16.8	1.0	13.6	5.0	18.6	22.5	0.086
P4KE18	P4KE18C	18	16.2	19.8	1.0	14.5	5.0	16	26.5	0.088
P4KE18A	P4KE18CA	18	17.1	18.9	1.0	15.3	5.0	16.5	25.2	0.088
P4KE20	P4KE20C	20	18.0	22.0	1.0	16.2	5.0	14	29.1	0.090
P4KE20A	P4KE20CA	20	19.0	21.0	1.0	17.1	5.0	15	27.7	0.090
P4KE22	P4KE22C	22	19.8	24.2	1.0	17.8	5.0	13	31.9	0.092
P4KE22A	P4KE22CA	22	20.9	23.1	1.0	18.8	5.0	13.7	30.6	0.092
P4KE24	P4KE24C	24	21.6	26.4	1.0	19.4	5.0	12	34.7	0.094
P4KE24A	P4KE24CA	24	22.8	25.2	1.0	20.5	5.0	12.6	33.2	0.094
P4KE27	P4KE27C	27	24.3	29.7	1.0	21.8	5.0	10.7	39.1	0.096
P4KE27A	P4KE27CA	27	25.7	28.4	1.0	23.1	5.0	11.0	37.5	0.096
P4KE30	P4KE30C	30	27.0	33.0	1.0	24.3	5.0	9.6	43.5	0.097
P4KE30A	P4KE30CA	30	28.5	31.5	1.0	25.6	5.0	10	41.4	0.097
P4KE33	P4KE33C	33	29.7	36.3	1.0	26.8	5.0	8.8	47.7	0.098
P4KE33A	P4KE33CA	33	31.4	34.7	1.0	28.2	5.0	9.0	45.7	0.098
P4KE36	P4KE36C	36	32.4	39.6	1.0	29.1	5.0	8.0	52	0.099
P4KE36A	P4KE36CA	36	34.2	37.8	1.0	30.8	5.0	8.4	49.9	0.099
P4KE39	P4KE39C	39	35.1	42.9	1.0	31.6	5.0	7.4	56.4	0.100
P4KE39A	P4KE39CA	39	37.1	41.0	1.0	33.3	5.0	7.7	53.9	0.100
P4KE43	P4KE43C	43	38.7	47.3	1.0	34.8	5.0	6.7	61.9	0.101
P4KE43A	P4KE43CA	43	40.9	45.2	1.0	36.8	5.0	7.0	59.3	0.101
P4KE47	P4KE47C	47	42.3	51.7	1.0	38.1	5.0	6.2	67.8	0.101
P4KE47A	P4KE47CA	47	44.7	49.4	1.0	40.2	5.0	6.4	64.8	0.101
P4KE51	P4KE51C	51	45.9	56.1	1.0	41.3	5.0	5.7	73.5	0.102
P4KE51A	P4KE51CA	51	48.5	53.6	1.0	43.6	5.0	6.0	70.1	0.102
P4KE56	P4KE56C	56	50.4	61.6	1.0	45.4	5.0	5.2	80.5	0.103
P4KE56A	P4KE56CA	56	53.2	58.8	1.0	47.8	5.0	5.4	77	0.103
P4KE62	P4KE62C	62	55.8	68.2	1.0	50.2	5.0	4.7	89	0.104
P4KE62A	P4KE62CA	62	58.9	65.1	1.0	53.0	5.0	5.0	85	0.104

Device		Nominal Voltage (V)	Breakdown Voltage @I <sub>T</sub> V <sub>BR</sub> (V)(note1)		Test Current I <sub>T</sub> (mA)	Stand-Off Voltage V <sub>WM</sub> (V)	Maximum Reverse Leakage @ V <sub>WM</sub> I <sub>D</sub> (μA)	Maximum Peak Pulse Current I <sub>PPM</sub> (note2)(A)	Maximum Clamping Voltage @I <sub>PPM</sub> V <sub>C</sub> (V)	Maximum Temperature Coefficient of V <sub>BR</sub> (%/ °C)
			Min	Max						
UNI	BI									
P4KE68	P4KE68C	68	61.2	74.8	1.0	55.1	5.0	4.2	98	0.104
P4KE68A	P4KE68CA	68	64.6	71.4	1.0	58.1	5.0	4.5	92	0.104
P4KE75	P4KE75C	75	67.5	82.5	1.0	60.7	5.0	3.8	108	0.105
P4KE75A	P4KE75CA	75	71.3	78.8	1.0	64.1	5.0	4.0	103	0.105
P4KE82	P4KE82C	82	73.8	90.2	1.0	66.4	5.0	3.5	118	0.105
P4KE82A	P4KE82CA	82	77.9	86.1	1.0	70.1	5.0	3.7	113	0.105
P4KE91	P4KE91C	91	81.9	100.0	1.0	73.7	5.0	3.2	131	0.106
P4KE91A	P4KE91CA	91	86.5	95.5	1.0	77.8	5.0	3.3	125	0.106
P4KE100	P4KE100C	100	90.0	110.0	1.0	81.0	5.0	2.9	144	0.106
P4KE100A	P4KE100CA	100	95.0	105.0	1.0	85.5	5.0	3.0	137	0.106
P4KE110	P4KE110C	110	99.0	121.0	1.0	89.2	5.0	2.6	158	0.107
P4KE110A	P4KE110CA	110	105.0	116.0	1.0	94.0	5.0	2.7	152	0.107
P4KE120	P4KE120C	120	108.0	132.0	1.0	97.2	5.0	2.4	173	0.107
P4KE120A	P4KE120CA	120	114.0	126.0	1.0	102.0	5.0	2.5	165	0.107
P4KE130	P4KE130C	130	117.0	143.0	1.0	105.0	5.0	2.2	187	0.107
P4KE130A	P4KE130CA	130	124.0	137.0	1.0	111.0	5.0	2.3	179	0.107
P4KE150	P4KE150C	150	135.0	165.0	1.0	121.0	5.0	1.9	215	0.108
P4KE150A	P4KE150CA	150	143.0	158.0	1.0	128.0	5.0	2.0	207	0.108
P4KE160	P4KE160C	160	144.0	176.0	1.0	130.0	5.0	1.8	230	0.108
P4KE160A	P4KE160CA	160	152.0	168.0	1.0	136.0	5.0	1.9	219	0.108
P4KE170	P4KE170C	170	153.0	187.0	1.0	138.0	5.0	1.7	244	0.108
P4KE170A	P4KE170CA	170	162.0	179.0	1.0	145.0	5.0	1.8	234	0.108
P4KE180	P4KE180C	180	162.0	198.0	1.0	146.0	5.0	1.6	258	0.108
P4KE180A	P4KE180CA	180	171.0	189.0	1.0	154.0	5.0	1.7	246	0.108
P4KE200	P4KE200C	200	180.0	220.0	1.0	162.0	5.0	1.4	287	0.108
P4KE200A	P4KE200CA	200	190.0	210.0	1.0	171.0	5.0	1.51	274	0.108
P4KE220	P4KE220C	220	198.0	242.0	1.0	175.0	5.0	1.2	344	0.108
P4KE220A	P4KE220CA	220	209.0	231.0	1.0	185.0	5.0	1.3	328	0.108
P4KE250	P4KE250C	250	225.0	275.0	1.0	202.0	5.0	1.1	360	0.110
P4KE250A	P4KE250CA	250	237.0	263.0	1.0	214.0	5.0	1.2	344	0.110
P4KE300	P4KE300C	300	270.0	330.0	1.0	243.0	5.0	0.97	430	0.110
P4KE300A	P4KE300CA	300	285.0	315.0	1.0	256.0	5.0	1.0	414	0.110
P4KE350	P4KE350C	350	315.0	385.0	1.0	284.0	5.0	0.83	504	0.110
P4KE350A	P4KE350CA	350	332.0	368.0	1.0	300.0	5.0	0.87	482	0.110
P4KE400	P4KE400C	400	360.0	440.0	1.0	324.0	5.0	0.73	574	0.110
P4KE400A	P4KE400CA	400	380.0	420.0	1.0	342.0	5.0	0.76	548	0.110

**Note:**

1. V<sub>BR</sub> measured after I<sub>T</sub> applied for 300μs, I<sub>T</sub>=square wave pulse or equivalent.
2. Surge current waveform per Figure 3 and derate per Figure 2.
3. For bipolar types having V<sub>WM</sub> of 10 volts and under, the I<sub>D</sub> limit is doubled.
4. All terms and symbols are consistent with ANSI/IEEE C62.35.