

P4KE Series

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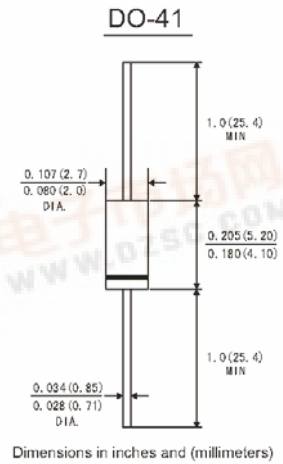
TRANSIENT VOLTAGE SUPPRESSORS

Features

- Glass passivated junction
- 400 W pulse capability on 10/1000 μ s wave form
- Excellent clamping capability
- Low Zener impedance
- Fast response time

Mechanical Data

- Case: DO-41 molded plastic body
- Terminals: Solder axial plated, solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end



Devices for bidirectional applications

- For bidirectional use C or CA suffix for types P4KE6.8 thru types P4KE440A (e.g. P4KE6.8C, P4KE440CA)
- Electrical characteristics apply in both directions

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Power Dissipation ¹⁾	P_{PPK}	Min. 400	W
Steady State Power Dissipation at $T_j = 75^\circ\text{C}$ Lead Length 0.375" (9.5 mm) ²⁾	P_D	1	W
Peak Forward Surge Current 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method), Unidirectional only ³⁾	I_{FSM}	40	A
Maximum Instantaneous Forward Voltage at 25 A, for unidirectional only ⁴⁾	V_F	3.5 / 6.5	V
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 175	$^\circ\text{C}$

¹⁾ Non-repetitive current pulse and derated above $T_a = 25^\circ\text{C}$.

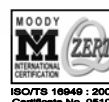
²⁾ Mounted on Copper pads area of 1.6 X 1.6" (40 X 40 mm).

³⁾ Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum. For uni-directional devices only.

⁴⁾ V_F : 3.5 V Max. for types of $V_{(BR)} \leq 200$ V, and V_F : 6.5 V Max. for types of $V_{(BR)} > 200$ V.

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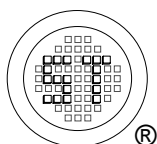
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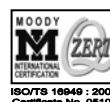
Electrical Characteristics (T_a = 25 °C unless otherwise specified)

Uni-directional / Bi-directional Type ³⁾	Stand-off Voltage V _{WM} (V)	Breakdown Voltage ¹⁾		Test Current I _T (mA)	Maximum Clamping Voltage V _C (V) at I _{PPM}	Maximum Peak Pulse Current I _{PPM} (A)	Maximum Reverse Leakage ²⁾ I _D (μA) at V _{WM}
		V _{BR} (V) Min. at I _T	V _{BR} (V) Max. at I _T				
P4KE6.8 / C	5.5	6.12	7.48	10	10.8	38	1000
P4KE6.8A / CA	5.8	6.45	7.14	10	10.5	40	1000
P4KE7.5 / C	6.05	6.75	8.25	10	11.7	35	500
P4KE7.5A / CA	6.4	7.13	7.88	10	11.3	37	500
P4KE8.2 / C	6.63	7.38	9.02	10	12.5	33	200
P4KE8.2A / CA	7.02	7.79	8.61	10	12.1	34	200
P4KE9.1 / C	7.37	8.19	10	1	13.8	30	50
P4KE9.1A / CA	7.78	8.65	9.55	1	13.4	31	50
P4KE10 / C	8.1	9	11	1	15	28	10
P4KE10A / CA	8.55	9.5	10.5	1	14.5	29	10
P4KE11 / C	8.92	9.9	12.1	1	16.2	26	5
P4KE11A / CA	9.4	10.5	11.6	1	15.6	27	5
P4KE12 / C	9.72	10.8	13.2	1	17.3	24	5
P4KE12A / CA	10.2	11.4	12.6	1	16.7	25	5
P4KE13 / C	10.5	11.7	14.3	1	19	22	5
P4KE13A / CA	11.1	12.4	13.7	1	18.2	23	5
P4KE15 / C	12.1	13.5	16.5	1	22	19	5
P4KE15A / CA	12.8	14.3	15.8	1	21.2	20	5
P4KE16 / C	12.9	14.4	17.6	1	23.5	17.8	5
P4KE16A / CA	13.6	15.2	16.8	1	22.5	18.6	5
P4KE18 / C	14.5	16.2	19.8	1	26.5	16	5
P4KE18A / CA	15.3	17.1	18.9	1	25.5	16.5	5
P4KE20 / C	16.2	18	22	1	29.1	14	5
P4KE20A / CA	17.1	19	21	1	27.7	15	5
P4KE22 / C	17.8	19.8	24.2	1	31.9	13	5
P4KE22A / CA	18.8	20.9	23.1	1	30.6	13.7	5
P4KE24 / C	19.4	21.6	26.4	1	34.7	12	5
P4KE24A / CA	20.5	22.8	25.2	1	33.2	12.6	5
P4KE27 / C	21.8	24.3	29.7	1	39.1	10.7	5
P4KE27A / CA	23.1	25.7	28.4	1	37.5	11	5
P4KE30 / C	24.3	27	33	1	43.5	9.6	5
P4KE30A / CA	25.6	28.5	31.5	1	41.4	10	5
P4KE33 / C	26.8	29.7	36.3	1	47.7	8.8	5
P4KE33A / CA	28.2	31.4	34.7	1	45.7	9	5
P4KE36 / C	29.1	32.4	39.6	1	52	8	5
P4KE36A / CA	30.8	34.2	37.8	1	49.9	8.4	5
P4KE39 / C	31.6	35.1	42.9	1	56.4	7.4	5
P4KE39A / CA	33.3	37.1	41	1	53.9	7.7	5
P4KE43 / C	34.8	38.7	47.3	1	61.9	6.7	5
P4KE43A / CA	36.8	40.9	45.2	1	59.3	7	5
P4KE47 / C	38.1	42.3	51.7	1	67.8	6.2	5
P4KE47A / CA	40.2	44.7	49.4	1	64.8	6.4	5
P4KE51 / C	41.3	45.9	56.1	1	73.5	5.7	5
P4KE51A / CA	43.6	48.5	53.6	1	70.1	6	5
P4KE56 / C	45.4	50.4	61.6	1	80.5	5.2	5
P4KE56A / CA	47.8	53.2	58.8	1	77	5.4	5



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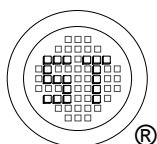
Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Uni-directional / Bi-directional Type ³⁾	Stand-off Voltage V_{WM} (V)	Breakdown Voltage ¹⁾		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) at I_{PPM}	Maximum Peak Pulse Current I_{PPM} (A)	Maximum Reverse Leakage ²⁾ I_D (μA) at V_{WM}
		V_{BR} (V) Min. at I_T	V_{BR} (V) Max. at I_T				
P4KE62 / C	50.2	55.8	68.2	1	89	4.7	5
P4KE62A / CA	53	58.9	65.1	1	85	5	5
P4KE68 / C	55.1	61.2	74.8	1	98	4.2	5
P4KE68A / CA	58.1	64.6	71.4	1	92	4.5	5
P4KE75 / C	60.7	67.5	82.5	1	108	3.8	5
P4KE75A / CA	64.1	71.3	78.8	1	103	4	5
P4KE82 / C	66.4	73.8	90.2	1	118	3.5	5
P4KE82A / CA	70.1	77.9	86.1	1	113	3.7	5
P4KE91 / C	73.7	81.9	100	1	131	3.2	5
P4KE91A / CA	77.8	86.5	95.5	1	125	3.3	5
P4KE100 / C	81	90	110	1	144	2.9	5
P4KE100A / CA	85.5	95	105	1	137	3	5
P4KE110 / C	89.2	99	121	1	158	2.6	5
P4KE110A / CA	94	105	116	1	152	2.7	5
P4KE120 / C	97.2	108	132	1	173	2.4	5
P4KE120A / CA	102	114	126	1	165	2.5	5
P4KE130 / C	105	117	143	1	187	2.2	5
P4KE130A / CA	111	124	137	1	179	2.3	5
P4KE150 / C	121	135	165	1	215	1.9	5
P4KE150A / CA	128	143	158	1	207	2	5
P4KE160 / C	130	144	176	1	230	1.8	5
P4KE160A / CA	136	152	168	1	219	1.9	5
P4KE170 / C	138	153	187	1	244	1.7	5
P4KE170A / CA	145	162	179	1	234	1.8	5
P4KE180 / C	146	162	198	1	258	1.6	5
P4KE180A / CA	154	171	189	1	246	1.7	5
P4KE200 / C	162	180	220	1	287	1.4	5
P4KE200A / CA	171	190	210	1	274	1.51	5
P4KE220 / C	175	198	242	1	344	1.2	5
P4KE220A / CA	185	209	231	1	328	1.3	5
P4KE250 / C	202	225	275	1	360	1.1	5
P4KE250A / CA	214	237	263	1	344	1.2	5
P4KE300 / C	243	270	330	1	430	0.97	5
P4KE300A / CA	256	285	315	1	414	1	5
P4KE350 / C	284	315	385	1	504	0.83	5
P4KE350A / CA	300	332	368	1	482	0.87	5
P4KE400 / C	324	360	440	1	574	0.73	5
P4KE400A / CA	342	380	420	1	548	0.76	5
P4KE440 / C	356	396	484	1	631	0.66	5
P4KE440A / CA	376	418	462	1	602	0.69	5

¹⁾ V_{BR} measured after I_T applied for 300 μs square wave pulse or equivalent.

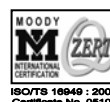
²⁾ For bidirectional types having V_{RWM} of 10 V and less, the I_D limit is doubled.

³⁾ For bidirectional use C or CA suffix types, the electrical characteristics apply in both directions.



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FIG. 1-PEAK PULSE POWER CURVE

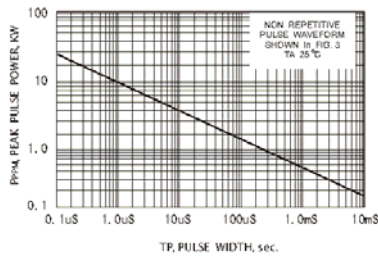


FIG. 3-PULSE WAVEFORM

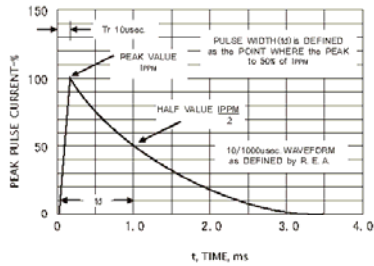


FIG. 5-TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

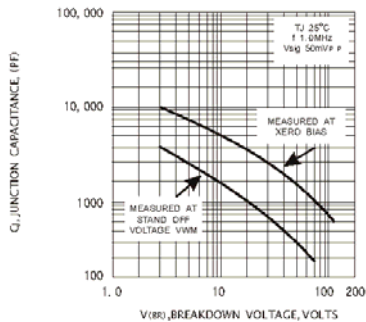


FIG. 2-PULSE DERATING CURVE

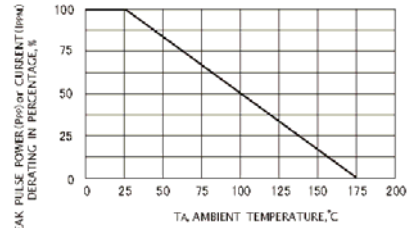


FIG. 4-STEADY STATE POWER DERATING CURVE

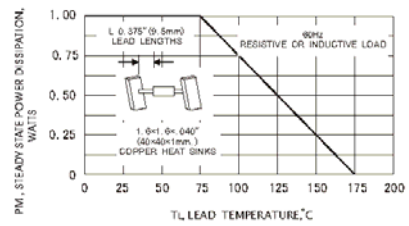
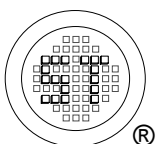
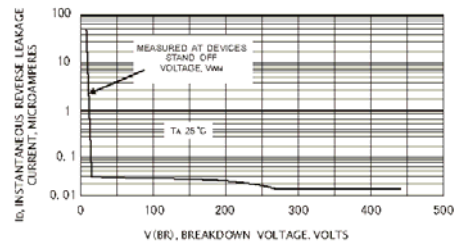
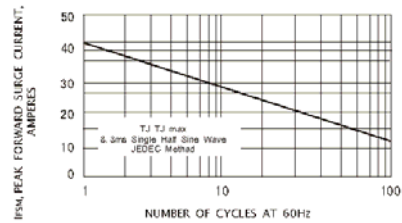
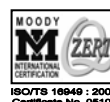


FIG. 6-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



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