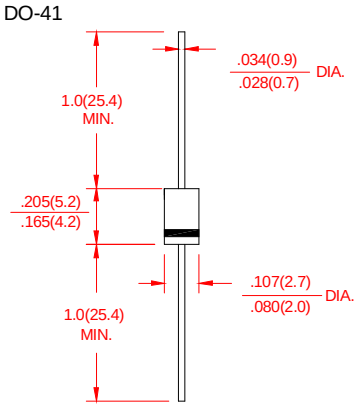
PASSIVATED JUNCTION TRANSIENT VOLTAGE SUPPERSSOR

P4KE6.8 THRU P4KE440CA(GPP)
P4KE6.8J THRU P4KE440CAJ(OPEN JUNCTION)

Breakdown Voltage 6.8 to 400 Volts
Peak Pulse Power 400 Watts

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated or silastic guard junction (open junction)
- 400W peak pulse power capability with a 10/1000μs Waveform, repetition rate (duty cycle): 0.0%1
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time: typically less than 1.0ps from 0 Volts to $V_{(BR)}$ for unidirectional and 5.0ns for bidirectional types
- Devices with $V_{(BR)} \geqslant 10V$, I_D are typically I_D less than 1.0μA
- High temperature soldering guaranteed: 265℃/10 seconds, 0.375" (9.5mm) lead length, 51bs.(2.3kg) tension



Dimensions in inches and (millimeters)

MECHANICAL DATA

- Cass: JEDEC DO-204AL,molded plastic body over passivated junction
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Color bands denotes positive end (cathode) except for bidirectional types
- Mounting position: any
- Weight: 0.012 ounces, 0.3 gram

DEVICES FOR BIDRECTIONAL APPLICATIONS

- For bidirectional use C or CA suffix for types P4KE7.5 THRU TYPES P4K440 (e.g. P4KE7.5CA, P4KE440CA).Electrical Characteristics apply in both directions.
- Suffix A denotes ±5% tolerance device, No suffix A denotes ±10% tolerance device

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

- Ratings at 25℃ ambient temperature unless otherwise specified

Ratings	Symbols	Value	Unit
Peak Pulse power dissipation with a 10/1000μs waveform(NOTE1,FIG.1)	P_{PPM}	Minimum 400	Watts
Peak Pulse current with a 10/1000μs waveform (NOTE1,FIG.3)	I_{PPM}	See Table 1	Watt
Steady Stage Power Dissipation at T_T=75℃ Lead lengths 0.375"(9.5)(Note2)	$P_{M(AV)}$	1.0	Amps
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) (Note3)	I_{FSM}	40.0	Amps
Maximum instantaneous forward voltage at 25A for unidirectional only (NOTE 3)	V_F	3.5/6.5	Volts
Operating Junction and Storage Temperature Range	T_J, T_{STG}	50 to +150	℃

Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A=25℃ per Fig.2
2. Mounted on copper pads to each terminal of 0.31 in (8.0mm2) per Fig 5.
3. Measured at 8.3ms single half sine-wave or equivalent square wave duty cycle = 4 pulses per minutes maximum.
4. V_F=3.0 Volts max. for devices of $V_{(BR)} \leqslant 200V$, and V_F=6.5 Volts max. for devices of $V_{(BR)} \geqslant 200v$

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P4KE6.8J THRU P4KE440CAJ(OPEN JUNCTION) — **Peak Pulse Power** **400 Watts**

Electrical Characteristic at (T_A =25℃ unless otherwise noted) TABLE1

Device Type	Breakdown Voltage $V_{(BR)}$(Volts) (Note 1)		Test Current at I_T (mA)	Stand-off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D (μA)	Maximum Peak Pulse Current I_{PPM} (Note 2) (Amps)	Maximum Clamping Voltage at I_{PPM} V_C(Volts)	Maximum Temperature Coefficient of $V_{(BR)}$ (%/℃)
	MIN	MAX						
P4KE6.8/J	6.12	7.48	10	5.5	1000	37	10.8	0.06
P4KE6.8A/J	6.45	7.14	10	5.8	1000	38.1	10.5	0.06
P4KE7.5/J	6.75	8.25	10	6.05	500	34.2	11.7	0.064
P4KE7.5A/J	7.13	7.88	10	6.4	500	35.4	11.3	0.064
P4KE8.2/J	7.38	9.02	10	6.63	200	32	12.5	0.068
P4KE8.2A/J	7.79	8.61	10	7.02	200	33.1	12.1	0.068
P4KE9.1/J	8.19	10	1	7.37	50	29	13.8	0.071
P4KE9.1A/J	7.65	9.55	1	7.78	50	29.9	13.4	0.071
P4KE10/J	9	11	1	8.1	10	26.7	15	0.076
P4KE10A/J	9.5	10.5	1	8.55	10	27.6	14.5	0.076
P4KE11/J	9.9	12.1	1	8.92	5	24.7	16.2	0.078
P4KE11A/J	10.5	11.6	1	9.4	5	25.6	15.6	0.078
P4KE12/J	10.8	13.2	1	9372	5	23.1	17.3	0.081
P4KE12A/J	11.4	12.6	1	10.2	5	24	16.7	0.081
P4KE13/J	11.7	14.3	1	10.5	5	21.1	19	0.084
P4KE13A/J	12.4	13.7	1	11.1	5	22	18.2	0.084
P4KE15/J	13.5	16.5	1	12.1	5	18.2	22	0.087
P4KE15A/J	14.3	15.8	1	12.8	5	18.9	21.2	0.087
P4KE16/J	14.4	17.6	1	12.9	5	17	23.5	0.089
P4KE16A/J	15.2	16.8	1	13.6	5	17.8	22.5	0.089
P4KE18/J	16.2	19.8	1	14.5	5	15.1	26.5	0.091
P4KE18A/J	17.1	18.9	1	15.3	5	15.9	25.2	0.091
P4KE20/J	18	22	1	16.2	5	13.7	29.1	0.093
P4KE20A/J	19	21	1	17.1	5	14.4	27.7	0.093
P4KE22/J	19.8	24.2	1	17.8	5	12.5	31.9	0.095
P4KE22A/J	20.9	23.1	1	18.8	5	13.1	30.6	0.095
P4KE24/J	21.6	26.4	1	19.4	5	11.5	34.7	0.097
P4KE24A/J	22.8	25.2	1	20.5	5	12	33.2	0.097
P4KE27/J	24.3	29.7	1	21.8	5	10.2	39.1	0.099
P4KE27A/J	25.7	28.4	1	23.1	5	10.7	37.5	0.099
P4KE30/J	27	33	1	24.3	5	92	43.5	0.1
P4KE30A/J	28.5	31.5	1	25.6	5	9.7	41.4	0.1
P4KE33/J	29.7	36.3	1	26.8	5	8.4	47.7	0.101
P4KE33A/J	31.4	34.7	1	28.2	5	8.8	45.7	0.101
P4KE36/J	32.4	39.6	1	29.1	5	7.7	52	0.102
P4KE36A/J	34.2	37.8	1	30.8	5	8	49.9	0.102
P4KE39/J	35.1	42.9	1	31.6	5	7.1	56.4	0.103
P4KE39A/J	37.1	41	1	33.3	5	7.4	53.9	0.103
P4KE43/J	38.7	47.3	1	34.8	5	6.5	61.9	0.104
P4KE43A/J	40.9	45.2	1	36.8	5	6.7	59.3	0.104
P4KE47/J	42.3	51.7	1	38.1	5	5.9	67.8	0.104
P4KE47A/J	44.7	49.4	1	40.2	5	6.2	64.8	0.104
P4KE51/J	45.7	56.1	1	41.3	5	5.4	73.5	0.105
P4KE51A/J	48.5	43.6	1	43.6	5	5.7	70.1	0.105
P4KE56/J	50.4	61.6	1	45.4	5	5	80.5	0.106
P4KE56AJ/	53.2	58.8	1	47.8	5	5.2	77	0.106
P4KE62/J	55.8	68.8	1	50.2	5	4.5	89	0.107
P4KE62A/J	58.9	65.1	1	53.0	5	4.7	85	0.107

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P4KE6.8J THRU P4KE440CAJ(OPEN JUNCTION) **Peak Pulse Power 400 Watts**

Electrical Characteristic at (T_A =25℃ unless otherwise noted) TABLE 1 (Cont'd)

Device Type	Breakdown Voltage $V_{(BR)}$(Volts) (Note 1)		Test Current at I_T (mA)	Stand-off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D (μ A) (Note3)	Maximum Peak Pulse Current I_{PPM} (Note 2) (Amps)	Maximum Clamping Voltage at I_{PPM} V_C(Volts)	Maximum Temperature Coefficient of $V_{(BR)}$ (%/℃)
	MIN	MAX						
P4KE68/J	61.2	74.8	1	55.1	5	4.1	98	0.104
P4KE68A/J	64.6	71.4	1	58.1	5	4.3	92	0.104
P4KE75/J	67.5	82.5	1	60.7	5	3.7	105	0.105
P4KE75A/J	71.3	78.8	1	64.1	5	3.9	103	0.105
P4KE82/J	73.8	90.2	1	66.4	5	3.4	118	0.105
P4KE82A/J	77.9	86.1	1	70.1	5	3.5	113	0.105
P4KE91/J	81.9	100	1	73.7	5	3.1	131	0.106
P4KE91A/J	86.5	95.5	1	77.8	5	3.2	125	0.106
P4KE100J/	90	110	1	81	5	2.8	144	0.106
P4KE100A/J	95	105	1	85.5	5	2.9	137	0.106
P4KE110/J	99	121	1	89.2	5	2.5	158	0.107
P4KE110A/J	105	116	1	94	5	2.6	152	0.107
P4KE120/J	108	132	1	97.2	5	2.3	173	0.107
P4KE120A/J	114	126	1	102	5	2.4	165	0.107
P4KE130/J	117	143	1	105	5	2.1	187	0.107
P4KE130A/J	124	137	1	111	5	2.2	179	0.107
P4KE150/J	135	165	1	121	5	1.9	215	0.108
P4KE150A/J	143	159	1	128	5	1.9	207	0.108
P4KE160/J	144	175	1	130	5	1.7	230	0.108
P4KE160A/J	152	167	1	136	5	1.8	219	0.108
P4KE170/J	153	187	1	138	5	1.6	244	0.108
P4KE170A/J	162	179	1	145	5	1.7	234	0.108
P4KE180/J	162	197	1	146	5	1.6	258	0.108
P4KE180A/J	171	189	1	154	5	1.6	246	0.108
P4KE200/J	180	220	1	162	5	1.4	287	0.108
P4KE200A/J	190	210	1	171	5	1.5	274	0.108
P4KE220/J	198	242	1	175	5	1.2	344	0.108
P4KE220A/J	209	231	1	185	5	1.2	328	0.108
P4KE250/J	25	275	1	202	5	1.1	360	0.11
P4KE250A/J	237	267	1	214	5	1.2	344	0.11
P4KE300/J	270	330	1	243	5	0.93	430	0.11
P4KE300A/J	285	315	1	245	5	1	414	0.11
P4KE350/J	315	385	1	284	5	0.79	504	0.11
P4KE350A/J	332	368	1	300	5	0.83	482	0.11
P4KE400/J	360	440	1	324	5	0.7	574	0.11
P4KE400A/J	380	420	1	342	5	0.73	548	0.11
P4KE440/J	396	484	1	356	5	0.63	631	0.11
P4KE440A/J	418	462	1	376	5	0.66	602	0.11

Notes:

(1) V(BR) measured after I_T applied for 300ms I_T =square wave pulse or equivalent

(2) Surge current waveform per Figure 3 and derate per Fig.2

(3) For bidirectional type having V_{WM} of 10 volts and less, the I_D limit is doubled

(4) All terms and symbols are consistent with ANSI/IEEE C62.35

(5) No suffix is Gpp passivated junction, Suffix "J" is open junction (silastic guard junction)

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RATING AND CHARACTERISTIC CURVES P4KE6.8/J THRU P4KE440CA/J

FIG.1- PEAK PULSE POWER RATING CURVE

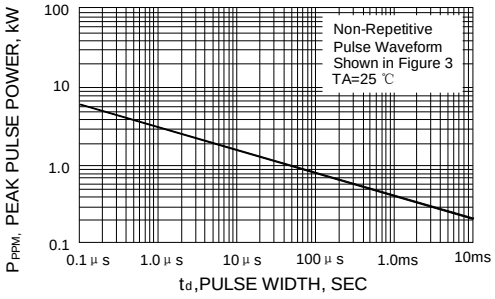

FIG.2- PULSE DERATING CURVE

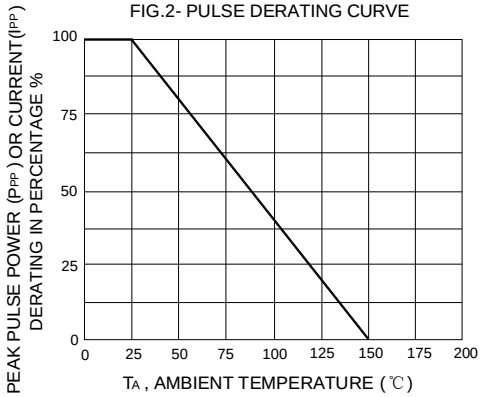

FIG.3- PULSE WAVEFORM

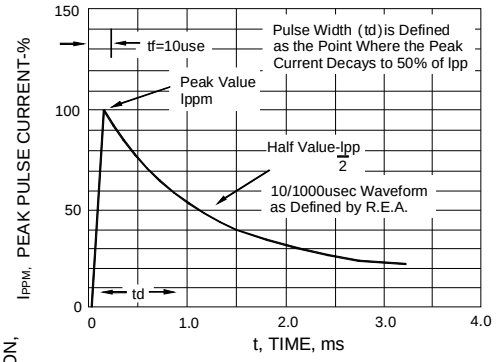

FIG.4- TYPICAL JUNCTION CAPACITANCE
UNIDIRECTIONAL

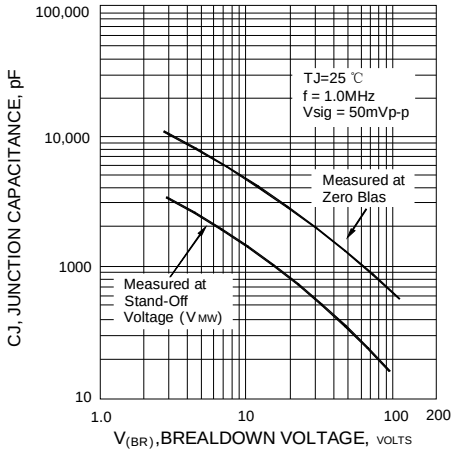

FIG.5- STEADY STATE POWER DERATING CURVE

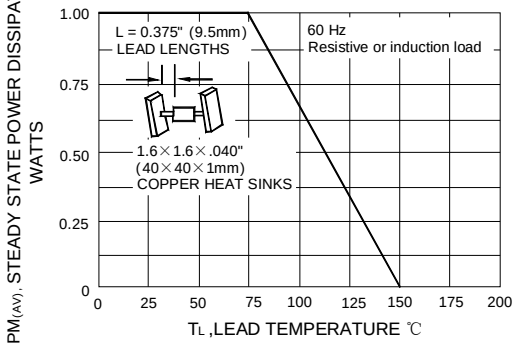

FIG.6 - MAXMIUM NON-REPETITIVE PEAK FORWARD
SURGE CURRENT UNIDIRECTIONAL ONLY

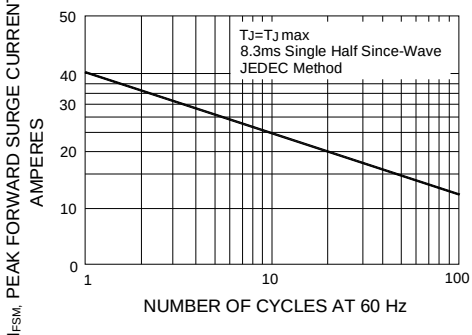

FIG.7- TYPICAL REVERSE LEAKAGE CHARACTERISTICS