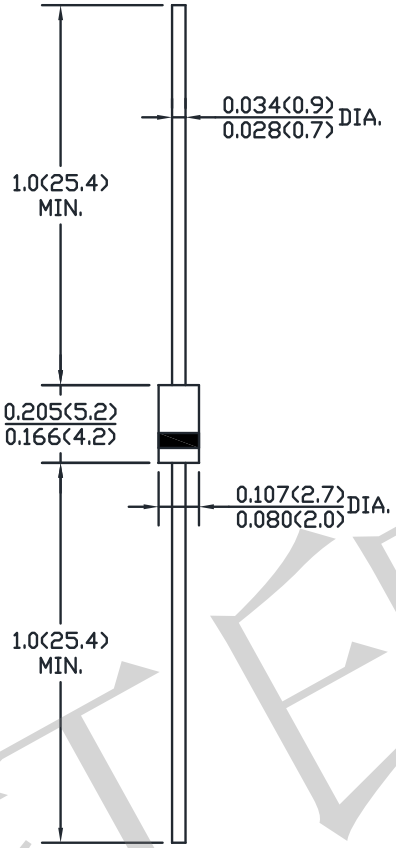
P4KE6.8 thru P4KE440CA

Transient Voltage Suppressor

Breakdown Voltage 6.8 to 440 Volts
Peak Pulse Power 400 Watts

CASE: DO-204AL (DO-41)



Dimensions in inches and (millimeters)

Features

- Breakdown Voltages (V_{BR}) from 6.8 to 440V
- 400W peak pulse power capability with a 10/1000μs waveform, repetitive rate (duty cycle):0.01%
- Fast Response Time
- Low incremental surge resistance
- Excellent clamping capability
- Available in uni-directional and bi-directional
- High temperature soldering guaranteed: 265℃ /10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3kg) tension

Application

- Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on IC_S, MOSFE, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication

Mechanical Data

- **Case:** Void-free transfer molded thermosetting epoxy body meeting UL94V-O
- **Terminals:** Tin-Lead or ROHS Compliant annealed matte-Tin plating readily solderable per MIL-STD-750, Method 2026
- **Marking:** Body marked with part number
- **Polarity:** Band denotes cathode. Bidirectional not marked
- **Weight:** 0.3g（Approximately）

Maximum Ratings and Electrical Characteristics @ 25°C unless otherwise specified

Symbol	Conditions	Value	Unit
P_{PPM}	Peak pulse power capability with a 10/1000μs	400	W
I_{PPM}	Peak pulse current with a 10/1000μs	SEE TABLE1	A
$P_{M(AV)}$	Steady state power at T_L=25℃ 0.375"(10mm) from body	2.5	W
	Steady state power at T_A=25℃ when mounted on FR4 PC described for thermal resistance	1.13	W
I_{FSM}	Peak forward surge current,8.3ms single half sine-wave unidirectional only(1)	40	A
V_F	Maximum instantaneous forward voltage at 30A for unidirectional only(2)	3.5/5.0	V
$R_{\theta JL}$	Thermal resistance junction to lead	50	℃/W
$R_{\theta JA}$	Thermal resistance junction to ambient	110	℃/W
T_J, T_{STG}	Operating and Storage Temperature	-65 to +150	℃

Notes:
(1) Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum
(2) V_F=3.5Vfor P4KE220(A) and below; V_F=5.0V for P4KE250(A) and above

Electrical Characteristics @ 25°C (Unless Otherwise Noted) TABLE1

Type Number	Breakdown Voltage V_{BR} @ I_{BR}			Rated Stand Off Voltage	Maximum Standby current I_D @ V_{WM}	Maximum Peak Pulse Current	Maximum Clamping Voltage V_C @ I_{PP}	Maximum Temperature Coefficient of $V_{(BR)}$
	MIN	MAX						
	V_{BR}(V)		I_{BR}(mA)	V_{WM}(V)	I_D(μA)	I_{PP} (A)	V_C(V)	$\alpha_{v(BR)}$ (%/℃)
P4KE6.8	6.12	7.48	10	5.50	500	37.0	10.8	.057
P4KE6.8A	6.45	7.14	10	5.80	500	38.0	10.5	.057
P4KE7.5	6.75	8.25	10	6.05	200	34.0	11.7	.061
P4KE7.5A	7.13	7.88	10	6.40	200	35.0	11.3	.061
P4KE8.2	7.38	9.02	10	6.63	100	32.0	12.5	.065
P4KE8.2A	7.79	8.61	10	7.02	100	33.0	12.1	.065
P4KE9.1	8.19	10.0	1	7.37	20	29.0	13.8	.068
P4KE9.1A	8.65	9.55	1	7.78	20	30.0	13.4	.068
P4KE10	9.00	11.0	1	8.10	20	27.0	15.0	.073
P4KE10A	9.50	10.5	1	8.55	5	28.0	14.5	.073
P4KE11	9.90	12.1	1	8.92	2	25.0	16.2	.075
P4KE11A	10.5	11.6	1	9.40	2	26.0	15.6	.075
P4KE12	10.8	13.2	1	9.72	1	23.0	17.3	.078
P4KE12A	11.4	12.6	1	10.2	1	24.0	16.7	.078
P4KE13	11.7	14.3	1	10.5	1	21.0	19.0	.081
P4KE13A	12.4	13.7	1	11.1	1	22.0	18.2	.081
P4KE15	13.5	16.5	1	12.1	1	18.0	22.0	.084
P4KE15A	14.3	15.8	1	12.8	1	19.0	21.2	.084
P4KE16	14.4	17.6	1	12.9	1	17.0	23.5	.086
P4KE16A	15.2	16.8	1	13.6	1	18.0	22.5	.086
P4KE18	16.2	19.8	1	14.5	1	15.0	26.5	.088
P4KE18A	17.1	18.9	1	15.3	1	16.0	25.2	.088
P4KE20	18.0	22.0	1	16.2	1	14.0	29.1	.090
P4KE20A	19.0	21.0	1	17.1	1	14.5	27.7	.090
P4KE22	19.8	24.2	1	17.8	1	12.5	31.9	.092
P4KE22A	20.9	23.1	1	18.8	1	13.0	30.6	.092
P4KE24	21.6	26.4	1	19.4	1	11.5	34.7	.094
P4KE24A	22.8	25.2	1	20.5	1	12.0	33.2	.094
P4KE27	24.3	29.7	1	21.8	1	10.0	39.1	.096
P4KE27A	25.7	28.4	1	23.1	1	11.0	37.5	.096
P4KE30	27.0	33.0	1	24.3	1	9.0	43.5	.097
P4KE30A	28.5	31.5	1	25.6	1	9.5	41.4	.097
P4KE33	29.7	36.3	1	26.8	1	8.5	47.7	.098
P4KE33A	31.4	34.7	1	28.2	1	9.0	45.7	.098
P4KE36	32.4	39.6	1	29.1	1	7.5	52.0	.099
P4KE36A	34.2	37.8	1	30.8	1	8.0	49.9	.099
P4KE39	35.1	42.9	1	31.6	1	7.0	56.4	.100
P4KE39A	37.1	41.0	1	33.3	1	7.5	53.9	.100
P4KE43	38.7	47.3	1	34.8	1	6.5	61.9	.101
P4KE43A	40.9	45.2	1	36.8	1	7.0	59.3	.101
P4KE47	42.3	51.7	1	38.1	1	5.9	67.8	.101
P4KE47A	44.7	49.4	1	40.2	1	6.2	64.8	.101
P4KE51	45.9	56.1	1	41.3	1	5.4	73.5	.102
P4KE51A	48.5	53.6	1	43.6	1	5.7	70.1	.102
P4KE56	50.4	61.6	1	45.4	1	5.0	80.5	.103
P4KE56A	53.2	58.8	1	47.8	1	5.2	77.0	.103
P4KE62	55.8	68.2	1	50.2	1	4.5	89.0	.104
P4KE62A	58.9	65.1	1	53.0	1	4.7	85.0	.104
P4KE68	61.2	74.8	1	55.1	1	4.1	98.0	.104
P4KE68A	64.6	71.4	1	58.1	1	4.4	92.0	.104
P4KE75	67.5	82.5	1	60.7	1	3.7	108.0	.105
P4KE75A	71.3	78.8	1	64.1	1	3.9	103.0	.105

Electrical Characteristics @ 25°C (Unless Otherwise Noted) TABLE1

Type Number	Breakdown Voltage V_{BR} @ I_{BR}			Rated Stand Off Voltage	Maximum Standby current I_D @ V_{WM}	Maximum Peak Pulse Current	Maximum Clamping Voltage V_C @ I_{PP}	Maximum Temperature Coefficient of V_{BR}
	MIN	MAX						
	V_{BR}(V)		I_{BR}(mA)	V_{WM}(V)	I_D(μA)	I_{PP} (A)	V_C(V)	%/℃
P4KE82	73.8	90.2	1	66.4	1	3.4	118.0	.105
P4KE82A	77.9	86.1	1	70.1	1	3.5	113.0	.105
P4KE91	81.9	100.0	1	73.7	1	3.1	131.0	.106
P4KE91A	86.5	95.5	1	77.8	1	3.2	125.0	.106
P4KE100	90.0	110.0	1	81.0	1	2.8	144.0	.106
P4KE100A	95.0	105.0	1	85.5	1	2.9	137.0	.106
P4KE110	99.0	121.0	1	89.2	1	2.5	158.0	.107
P4KE110A	105.0	116.0	1	94.0	1	2.6	152.0	.107
P4KE120	108.0	132.0	1	97.2	1	2.3	173.0	.107
P4KE120A	114.0	126.0	1	102.0	1	2.4	165.0	.107
P4KE130	117.0	143.0	1	105.0	1	2.1	187.0	.107
P4KE130A	124.0	137.0	1	111.0	1	2.2	179.0	.107
P4KE150	135.0	165.0	1	121.0	1	1.9	215.0	.108
P4KE150A	143.0	158.0	1	128.0	1	1.95	207.0	.108
P4KE160	144.0	176.0	1	130.0	1	1.7	230.0	.108
P4KE160A	152.0	168.0	1	136.0	1	1.8	219.0	.108
P4KE170	153.0	187.0	1	138.0	1	1.6	244.0	.108
P4KE170A	162.0	179.0	1	145.0	1	1.7	234.0	.108
P4KE180	162.0	198.0	1	146.0	1	1.5	258.0	.108
P4KE180A	171.0	189.0	1	154.0	1	1.6	246.0	.108
P4KE200	180.0	220.0	1	162.0	1	1.4	287.0	.108
P4KE200A	190.0	210.0	1	171.0	1	1.5	274.0	.108
P4KE220	198.0	242.0	1	175.0	1	1.0	344.0	.110
P4KE220A	209.0	231.0	1	185.0	1	1.0	328.0	.110
P4KE250	225.0	275.0	1	202.0	1	1.0	360.0	.110
P4KE250A	237.0	263.0	1	214.0	1	1.0	344.0	.110
P4KE300	270.0	330.0	1	243.0	1	1.0	430.0	.110
P4KE300A	285.0	315.0	1	256.0	1	1.0	414.0	.110
P4KE350	315.0	385.0	1	284.0	1	1.0	504.0	.110
P4KE350A	333.0	368.0	1	300.0	1	1.0	482.0	.110
P4KE400	360.0	440.0	1	324.0	1	1.0	574.0	.110
P4KE400A	380.0	420.0	1	342.0	1	1.0	548.0	.110
P4KE440	396.0	484.0	1	356.0	1	1.0	631.0	.110
P4KE440A	418.0	462.0	1	376.0	1	1.0	602.0	.110

1. For bi-directional construction, indicate a C or CA suffix after part number, i.e. P4KE200C or P4KE200CA

Characteristic Curve

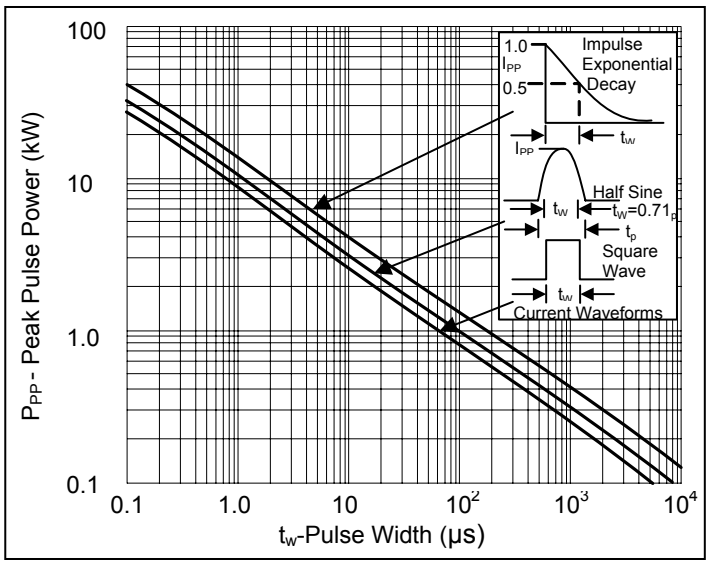


Fig. 1 Peak Pulse Power vs. Pulse Time

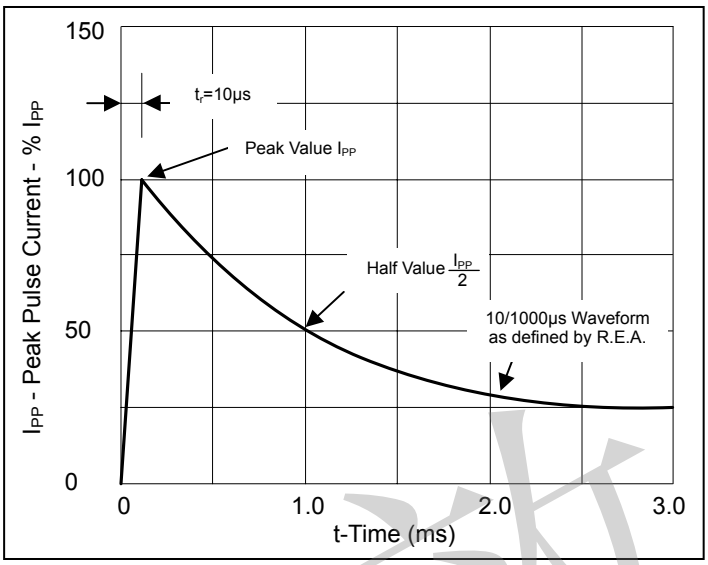


Fig.2 Pulse Waveform for Exponential Surge

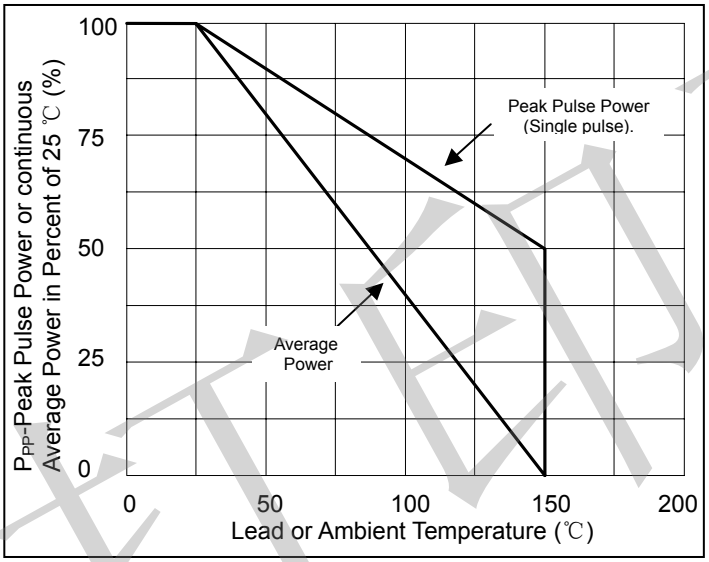


Fig.3 Derating Curve

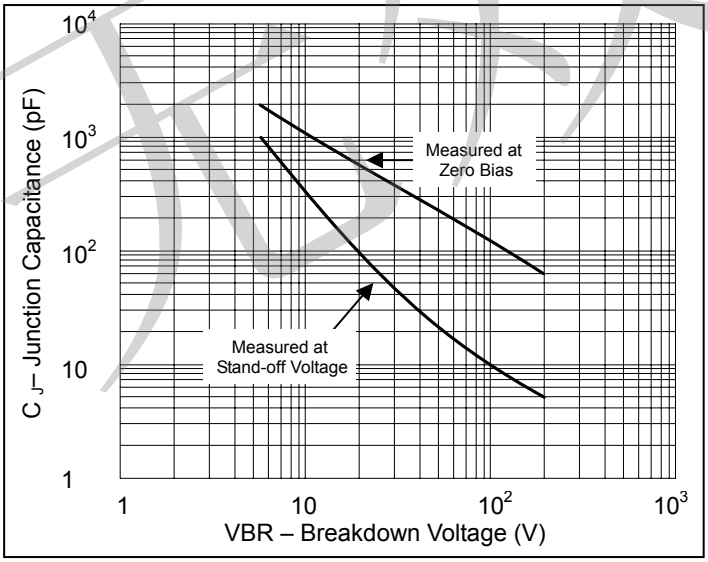


Fig.4 Typical Capacitance vs. Breakdown Voltage (Unipolar)

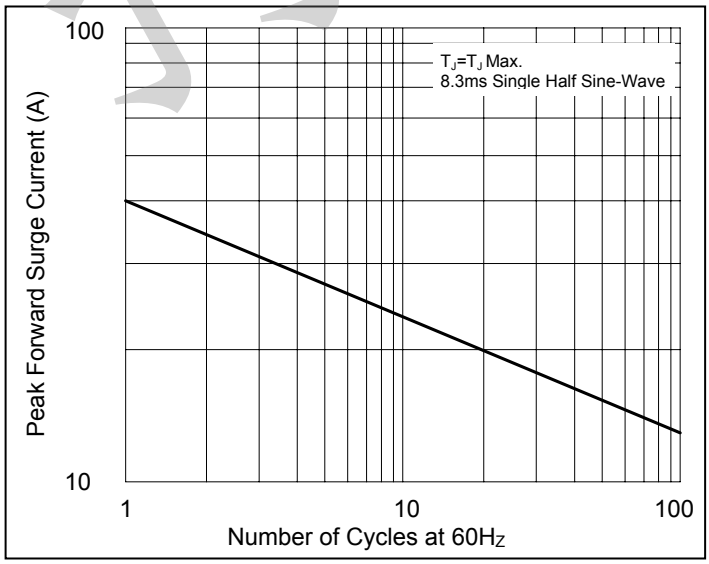


Fig.5 Max. Non-Repetitive Forward Surge Current Uni-Directional Only