DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

P4KE6.8-P4KE400A

TRANISENT VOLTAGE SUPPRESSOR

FEATURES

- Available as “HR” (high reliability) screened per MIL-PRF-19500, JANTX level. Add “HR” suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding “-PBF” suffix.
- For Bidirectional construction, indicate a C or CA suffix after part number, i.e. P4KE170CA.

MAXIMUM RATINGS

Peak Pulse Power Dissipation @ 25°C:	400 Watts
Steady State Power:	2.5 Watts @ T_L = 25°C at 3/8” (10mm) from body, or 1.13 Watt at T_A = 25°C on FR4 PC board described for thermal resistance
Forward Voltage @ 25°C:	3.5 V @ 30 A with 8.3 ms half-sine wave (unidirectional only)
Operating and Storage Temperature:	-65° to +175°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Type Number	Rated Stand-Off Voltage V_{WM}	Breakdown Voltage $V_{(BR)}$			Maximum Clamping Voltage V_C MAX. @ I_{pp}	Maximum Reverse Leakage Current I_D @ V_{WM}	Maximum Peak Pulse Current I_{pp}	Maximum Temperature Coefficient Of ∞ $V_{(BR)}$
		Min	Max	I_T mA				
	V	V_{DC}	V_{DC}		V	µADC	A	%/°C
P4KE6.8	5.50	6.12	7.48	10	10.8	500	37	.057
P4KE6.8A	5.80	6.45	7.14	10	10.5	500	38	.057
P4KE7.5	6.05	6.75	8.25	10	11.7	200	34	.061
P4KE7.5A	6.40	7.13	7.88	10	11.3	200	35	.061
P4KE8.2	6.63	7.38	9.02	10	12.5	100	32	.065
P4KE8.2A	7.02	7.79	8.61	10	12.1	100	33	.065
P4KE9.1	7.37	8.19	10.0	1	13.8	20	29	.068
P4KE9.1A	7.78	8.65	9.55	1	13.4	20	30	.068
P4KE10	8.10	9.00	11.0	1	15.0	5	27	.073
P4KE10A	8.55	9.50	10.5	1	14.5	5	28	.073
P4KE11	8.92	9.90	12.1	1	16.2	2	25	.075
P4KE11A	9.40	10.5	11.6	1	15.6	2	26	.075
P4KE12	9.72	10.8	13.2	1	17.3	1	23	.078
P4KE12A	10.2	11.4	12.6	1	16.7	1	24	.078
P4KE13	10.5	11.7	14.3	1	19.0	1	21	.081
P4KE13A	11.1	12.4	13.7	1	18.2	1	22	.081
P4KE15	12.1	13.5	16.5	1	22.0	1	18	.084
P4KE15A	12.8	14.3	15.8	1	21.2	1	19	.084
P4KE16	12.9	14.4	17.6	1	23.5	1	17	.086
P4KE16A	13.6	15.2	16.8	1	22.5	1	18	.086
P4KE18	14.5	16.2	19.8	1	26.5	1	15	.088
P4KE18A	15.3	17.1	18.0	1	25.2	1	16	.088
P4KE20	16.2	18.0	22.0	1	29.1	1	14	.090
P4KE20A	17.1	19.0	21.0	1	27.7	1	14.5	.090

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		Min	Max	I_T mA				
	V	V_{DC}	V_{DC}		V	µADC	A	%/°C
P4KE22	17.8	19.8	24.2	1	31.9	1	12.5	.092
P4KE22A	18.8	20.9	23.1	1	30.6	1	13	.092
P4KE24	19.4	21.6	26.4	1	34.7	1	11.5	.094
P4KE24A	20.5	22.8	25.2	1	33.2	1	12	.094
P4KE27	21.8	24.3	29.7	1	39.1	1	10	.096
P4KE27A	23.1	25.7	28.4	1	37.5	1	11	.096
P4KE30	24.3	27.0	33.0	1	43.5	1	9.0	.097
P4KE30A	25.6	28.5	31.5	1	41.4	1	9.5	.097
P4KE33	26.8	29.7	36.3	1	47.7	1	8.5	.098
P4KE33A	28.2	31.4	34.7	1	45.7	1	9.0	.098
P4KE36	29.1	32.4	39.6	1	52.0	1	7.5	.099
P4KE36A	30.8	34.2	37.8	1	49.9	1	8.0	.099
P4KE39	31.6	35.1	42.9	1	56.4	1	7.0	.100
P4KE39A	33.3	37.1	41.0	1	53.9	1	7.5	.100
P4KE43	34.8	38.7	47.3	1	61.9	1	6.5	.101
P4KE43A	36.8	40.9	45.2	1	59.3	1	7.0	.101
P4KE47	38.1	42.3	51.7	1	67.8	1	5.9	.101
P4KE47A	40.2	44.7	49.4	1	64.8	1	6.2	.101
P4KE51	41.3	45.9	56.1	1	73.5	1	5.4	.102
P4KE51A	43.6	48.5	53.6	1	70.1	1	5.7	.102
P4KE56	45.6	50.4	61.6	1	80.5	1	5.0	.103
P4KE56A	47.8	53.2	58.8	1	77.0	1	5.2	.103
P4KE62	50.2	55.8	68.2	1	89.0	1	4.5	.104
P4KE62A	53.0	58.9	65.1	1	85.0	1	4.7	.104
P4KE68	55.1	61.2	74.8	1	98.0	1	4.1	.104
P4KE68A	58.1	64.6	71.4	1	92.0	1	4.4	.104
P4KE75	60.7	67.5	82.5	1	108.0	1	3.7	.105
P4KE75A	64.1	71.3	78.8	1	103.0	1	3.9	.105
P4KE82	66.4	73.8	90.2	1	118.0	1	3.4	.105
P4KE82A	70.1	77.9	86.1	1	113.0	1	3.5	.105
P4KE91	73.7	81.9	100.0	1	131.0	1	3.1	.106
P4KE91A	77.8	86.5	95.5	1	125.0	1	3.2	.106
P4KE100	81.0	90.0	110.0	1	144.0	1	2.8	.106
P4KE100A	85.5	95.0	105.0	1	137.0	1	2.9	.106
P4KE110	89.2	99.0	121.0	1	158.0	1	2.5	.107
P4KE110A	94.0	105.0	116.0	1	152.0	1	2.6	.107

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		Min	Max	I_T mA				
	V	V_{DC}	V_{DC}		V	µADC	A	%/°C
P4KE120	97.2	108.0	132.0	1	173.0	1	2.3	.107
P4KE120A	102.0	114.0	126.0	1	165.0	1	2.4	.107
P4KE130	105.0	117.0	143.0	1	187.0	1	2.1	.107
P4KE130A	111.0	124.0	137.0	1	179.0	1	2.2	.107
P4KE150	121.0	135.0	165.0	1	215.0	1	1.9	.108
P4KE150A	128.0	143.0	158.0	1	207.0	1	1.9	.108
P4KE160	130.0	144.0	176.0	1	230.0	1	1.7	.108
P4KE160A	136.0	152.0	168.0	1	219.0	1	1.8	.108
P4KE170	138.0	153.0	187.0	1	244.0	1	1.6	.108
P4KE170A	145.0	162.0	179.0	1	234.0	1	1.7	.108
P4KE180	146.0	162.0	198.0	1	258.0	1	1.5	.108
P4KE180A	154.0	171.0	189.0	1	246.0	1	1.6	.108
P4KE200	162.0	180.0	220.0	1	287.0	1	1.4	.108
P4KE200A	171.0	190.0	210.0	1	274.0	1	1.5	.108
P4KE220	175.0	198.0	242.0	1	344.0	1	1.0	.110
P4KE220A	185.0	209.0	231.0	1	328.0	1	1.0	.110
P4KE250	202.0	225.0	275.0	1	360.0	1	1.0	.110
P4KE250A	214.0	237.0	263.0	1	344.0	1	1.0	.110
P4KE300	243.0	270.0	330.0	1	430.0	1	1.0	.110
P4KE300A	256.0	285.0	315.0	1	414.0	1	1.0	.110
P4KE350	284.0	315.0	385.0	1	504.0	1	1.0	.110
P4KE350A	300.0	333.0	368.0	1	482.0	1	1.0	.110
P4KE400	324.0	360.0	440.0	1	574.0	1	1.0	.110
P4KE400A	342.0	380.0	420.0	1	548.0	1	1.0	.110

Forward Voltage (V_F) @ 30 amps peak, 8.3 ms sine wave equal to 3.5 volts maximum for P4KE6.8 to 200. (Excluding Bidirectional)

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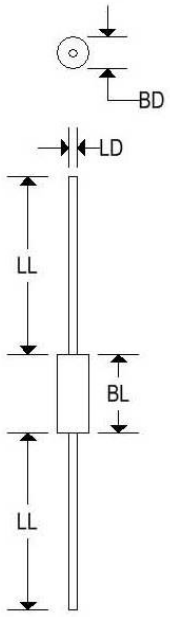
MECHANICAL CHARACTERISTICS

Case	DO-41
Marking	Body painted, alpha-numeric
Polarity	Cathode band



	DO-41			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	-	0.107	-	2.720
BL	-	0.205	-	5.207
LD	0.028	0.034	0.711	0.864
LL	1.000	-	25.400	-

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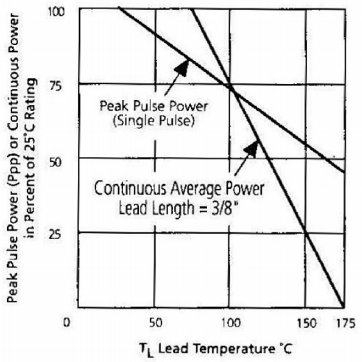

FIGURE 1
Derating Curve

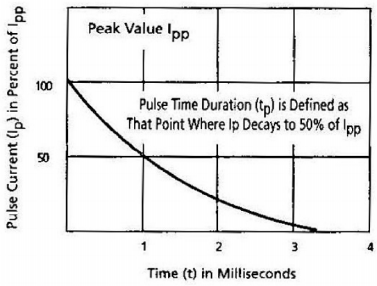

FIGURE 2
Pulse Waveform For Exponential Surge

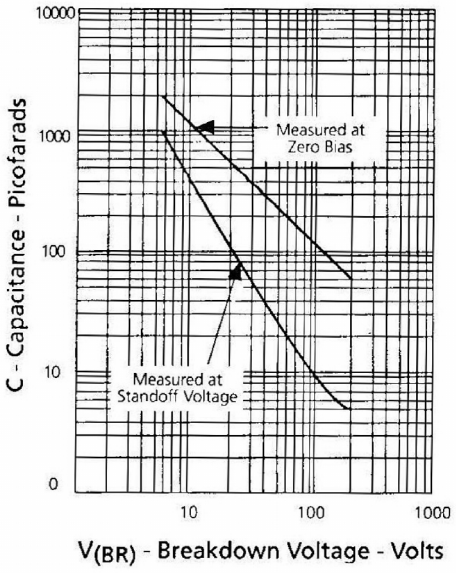

FIGURE 3
P4KE Typical Capacitance vs Breakdown Voltage (Unipolar)

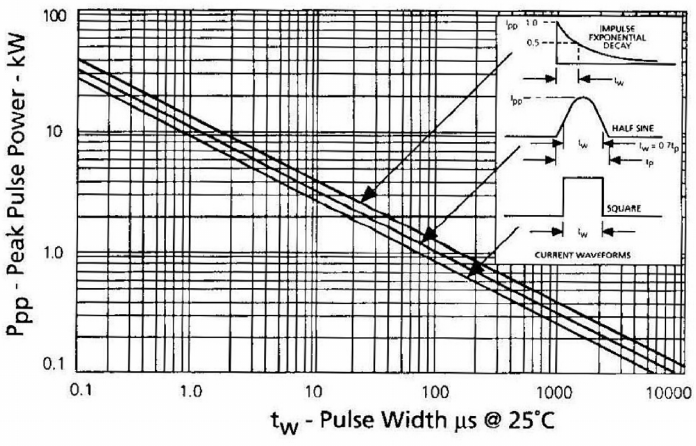

FIGURE 4
Peak Pulse Power vs Pulse Time