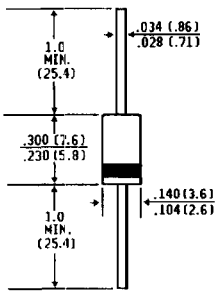
P6KA6.8 THRU P6KA43A

AUTOMOTIVE TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE - 6.8 to 43 Volts 600 Watt Peak Pulse Power

FEATURES

DO-204AC



Dimensions in inches and (millimeters)

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated chip junction
- Exclusive G.I. PAR construction
- 600W Peak Pulse Power surge capability on 10/1000 μs waveform
- Excellent clamping capability
- Repetition Rate (duty cycle): 0.01%
- Low incremental surge resistance
- Fast response time: typically less than 1.0 ps from 0 volts to BV for unidirectional.
- Typical I_D less than 10μA above 10V at 175°C
- High temperature soldering guaranteed: 300°C/10 seconds/.375", (9.5mm) lead length/5lbs., (2.3 kg) tension
- Designed to handle under the hood applications

MECHANICAL DATA

Case: JEDEC DO-204AC molded plastic over passivated junction
Terminals: Plated Axial leads, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes positive end (cathode)
Mounting Position: Any
Weight: 0.015 ounce, 0.4 gram

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load.

RATING	*SYMBOL*	*VALUE*	*UNITS*
Peak Pulse Power Dissipation at Tp=1ms (NOTE 1, FIGURE 1)	P_{PPM}	Minimum 600	Watts
Pulse Pulse Current on 10/1000 μs waveform (NOTE 1, FIG.3)	I_{PPM}	SEE TABLE 1	Amps
Steady State Power Dissipation at T_L=75°C Lead Lengths .375", (9.5mm) (NOTE 2)	$P_{M(AV)}$	5.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (NOTE 3) Unidirectional Only	I_{FSM}	70.0	Amps
Maximum Instantaneous Forward Voltage at 50 A (NOTE 3) Unidirectional Only	V_F	3.5	Volts
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-65 to +185	°C

NOTES:
1. Non-repetitive current pulse, per Fig. 3 and derated above T_A=25°C per Fig. 2.
2. Mounted on Copper Leaf area of 1.57 in^2 (40mm^2) per Figure 5.
3. Measured on 8.3ms single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minutes maximum.

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

DEVICE TYPE	Breakdown Voltage $V_{(BR)}$ Volts (NOTE 1) MIN	MAX	at IT (mA)	Reverse Stand off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D (µA)	T_C=150°C 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 $V_{(BR)}$ (%/°C)
P6KA6.8	6.12	7.48	10	5.50	500	1000	59.7	10.8	0.057
P6KA6.8A	6.45	7.14	10	5.80	500	1000	61.4	10.5	0.057
P6KA7.5	6.75	8.25	10	6.05	250	500	58.1	11.7	0.061
P6KA7.5A	7.13	7.88	10	6.40	250	500	57.1	11.3	0.061
P6KA8.2	7.38	9.02	10	6.63	100	200	51.6	12.5	0.065
P6KA8.2A	7.79	8.61	10	7.02	100	200	53.3	12.1	0.065
P6KA9.1	8.19	10.0	1.0	7.37	25	100	46.7	13.8	0.068
P6KA9.1A	8.65	9.55	1.0	7.78	25	100	48.1	13.4	0.068
P6KA10	9.00	11.0	1.0	8.10	10	50	43.0	15.0	0.073
P6KA10A	9.50	10.5	1.0	8.55	10	50	44.5	14.5	0.073
P6KA11	9.90	12.1	1.0	8.92	5	20.0	39.8	16.2	0.075
P6KA11A	10.5	11.6	1.0	9.40	5	20.0	41.3	15.6	0.076
P6KA12	10.8	13.2	1.0	9.72	2.0	10.0	37.3	17.3	0.076
P6KA12A	11.4	12.6	1.0	10.2	2.0	10.0	38.6	16.7	0.078
P6KA13	11.7	14.3	1.0	10.5	2.0	10.0	35.9	19.0	0.081
P6KA13A	12.4	13.7	1.0	11.1	2.0	10.0	35.4	18.2	0.081
P6KA15	13.5	16.3	1.0	12.1	2.0	10.0	29.3	22.0	0.084
P6KA15A	14.3	15.8	1.0	12.8	2.0	10.0	30.4	21.2	0.084
P6KA16	14.4	17.6	1.0	12.9	2.0	10.0	27.4	23.5	0.086
P6KA16A	15.2	16.8	1.0	13.6	2.0	10.0	28.7	22.5	0.086
P6KA18	16.2	19.8	1.0	14.5	2.0	10.0	24.3	26.5	0.088
P6KA18A	17.1	18.9	1.0	15.3	2.0	10.0	25.6	25.2	0.088
P6KA20	18.0	22.0	1.0	16.2	2.0	10.0	22.2	29.1	0.090
P6KA20A	19.0	21.0	1.0	17.1	2.0	10.0	23.3	27.7	0.090
P6KA22	19.8	24.2	1.0	17.8	2.0	10.0	20.2	31.9	0.092
P6KA22A	20.9	23.1	1.0	18.8	2.0	10.0	21.1	30.6	0.092
P6KA24	21.6	26.4	1.0	19.4	2.0	10.0	18.6	34.7	0.094
P6KA24A	22.8	25.2	1.0	20.5	2.0	10.0	19.4	33.6	0.094
P6KA27	24.3	29.7	1.0	21.8	2.0	10.0	16.5	39.1	0.096
P6KA27A	25.7	28.4	1.0	23.1	2.0	10.0	17.2	37.5	0.096
P6KA30	27.0	33.0	1.0	24.3	2.0	10.0	14.8	43.5	0.097
P6KA30A	28.5	31.5	1.0	25.6	2.0	10.0	15.6	41.4	0.097
P6KA33	29.7	36.3	1.0	26.8	2.0	10.0	13.5	47.7	0.098
P6KA33A	31.4	34.7	1.0	28.2	2.0	10.0	14.1	45.7	0.098
P6KA36	32.4	39.6	1.0	29.1	2.0	10.0	12.4	52.0	0.099
P6KA36A	34.2	37.8	1.0	30.8	2.0	10.0	12.9	49.9	0.099
P6KA39	35.1	42.9	1.0	31.6	2.0	10.0	11.4	56.4	0.100
P6KA39A	37.1	41.0	1.0	33.3	2.0	10.0	12.0	53.9	0.100
P6KA43	38.7	47.3	1.0	34.8	2.0	10.0	10.4	61.9	0.101
P6KA43A	40.9	45.2	1.0	36.8	2.0	10.0	10.9	59.3	0.101

NOTES:
1. V_{BR} measured after I_T applied for 300 µs. I_T = Square Wave Pulse or equivalent.
2. Surge Current Waveform per Figure 3 and Derate per Figure 2.
3. All terms and symbols are consistant with ANSI/IEEE C62.35.

FIGURE 1 - PEAK PULSE POWER RATING VERSUS PULSE TIME CURVE

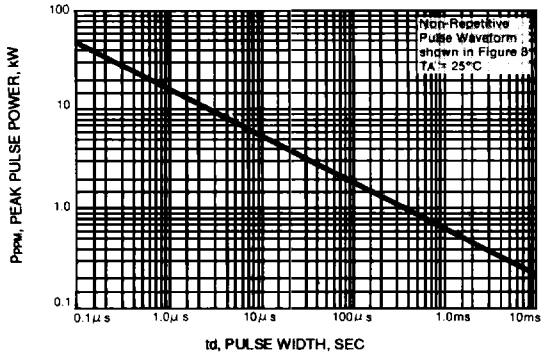


FIGURE 2 — PULSE DERATING CURVE

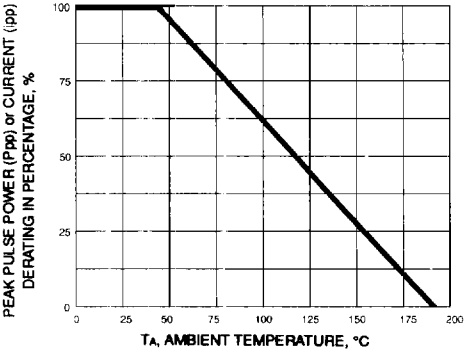


FIGURE 3 — PULSE WAVEFORM

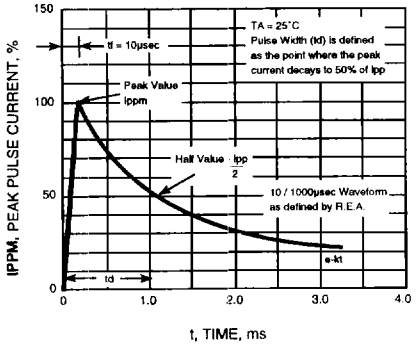


FIG.4-TYPICAL JUNCTION CAPACITANCE
UNIDIRECTIONAL

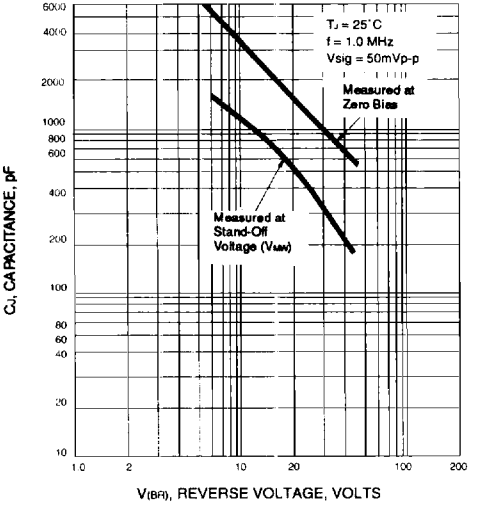


FIG. 5-STEADY STATE POWER DERATING
CURVE

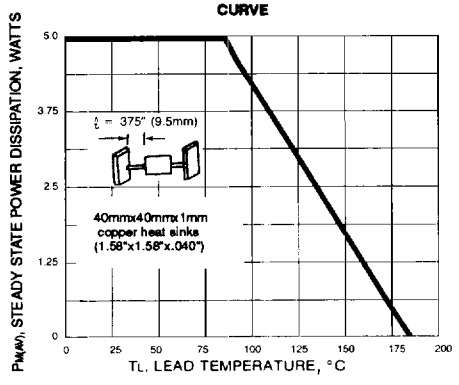


FIG.6-MAXIMUM NON-REPETITIVE
PEAK FORWARD SURGE CURRENT
UNIDIRECTIONAL