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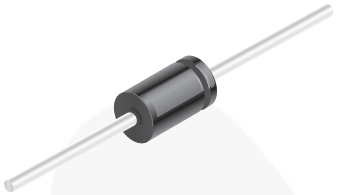
FAIRCHILD SEMICONDUCTOR®

June 2013

P6KE6V8(C)A - P6KE440(C)A
600 W Transient Voltage Suppressors

Features

- Glass-Passivated Junction
- 600 W Peak Pulse Power Capability at 1.0 ms
- Excellent Clamping Capability
- Low Incremental Surge Resistance
- Fast Response Time; Typically
  < 1.0 ps from 0 V to BV for
  Uni-directional and 5.0 ns for Bi-directional
- Typical I_R < 1.0 mA Above 10 V



DO-15

COLOR BAND DENOTES CATHODE
ON UNIDIRECTIONAL DEVICES ONLY. NO

Applications

- Devices for Bipolar Applications
- Bi-directional Types Use CA Suffix
- Electrical Characteristics Apply in Both Directions

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Units
P_{PPM}	Peak Pulse Power Dissipation at t_P = 1 ms	600	W
I_{PPM}	Peak Pulse Current	see table	A
P_D	Power Dissipation 0.375-inch Lead Length at T_A = 75°C	5.0	W
I_{FSM}	Non-Repetitive Peak Forward Surge Current Superimposed on Rated Load (JEDEC Method)(1)	100	A
T_{stg}	Storage Temperature Range	-65 to +175	°C
T_J	Operating Junction Temperature	175	°C

Note:

1. Measured on 8.3 ms single half-sine wave; duty cycle = 4 pulses per minute maximum.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Uni-directional Bi-directional (C) Device	Reverse Stand-off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V)		Test Current I_T (mA)	Clamping Voltage @I_{PPM} V_C (V)	Peak Pulse Current I_{PPM} (A)	Reverse Leakage V_{RWM} I_R (µA)(2)	Temperature Coefficient V_{BR} (%/°C)
		Min.	Max.					
P6KE6V8(C)A	5.80	6.45	7.14	10	10.5	57.1	1000	0.057
P6KE7V5(C)A	6.40	7.13	7.88	10	11.3	53.1	500	0.061
P6KE8V2(C)A	7.02	7.79	8.61	10	12.1	50.0	200	0.065
P6KE9V1(C)A	7.78	8.65	9.55	1	13.4	45.0	50	0.068
P6KE10(C)A	8.55	9.50	10.5	1	14.5	41.0	10	0.073
P6KE11(C)A	9.40	10.5	11.6	1	15.6	38.0	5	0.075
P6KE12(C)A	10.2	11.4	12.6	1	16.7	36.0	5	0.078
P6KE13(C)A	11.1	12.4	13.7	1	18.2	33.0	5	0.081
P6KE15(C)A	12.8	14.3	15.8	1	21.2	28.0	5	0.084
P6KE16(C)A	13.6	15.2	16.8	1	22.5	27.0	5	0.086
P6KE18(C)A	15.3	17.1	18.9	1	25.2	24.0	5	0.088
P6KE20(C)A	17.1	19.0	21.0	1	27.7	22.0	5	0.090
P6KE22(C)A	18.8	20.9	23.1	1	30.6	20.0	5	0.092
P6KE24(C)A	20.5	22.8	25.2	1	33.2	18.1	5	0.094
P6KE27(C)A	23.1	25.7	28.4	1	37.5	16.0	5	0.096
P6KE30(C)A	25.6	28.5	31.5	1	41.4	14.5	5	0.097
P6KE33(C)A	28.2	31.4	34.7	1	45.7	13.2	5	0.098
P6KE36(C)A	30.8	34.2	37.8	1	49.9	12.0	5	0.099
P6KE39(C)A	33.3	37.1	41.0	1	53.9	11.2	5	0.100
P6KE43(C)A	36.8	40.9	45.2	1	59.3	10.1	5	0.101
P6KE47(C)A	40.2	44.7	49.4	1	64.8	9.3	5	0.101
P6KE51(C)A	43.6	48.5	53.6	1	70.1	8.6	5	0.102
P6KE56(C)A	47.8	53.2	58.8	1	77.0	7.8	5	0.103
P6KE62(C)A	53.0	58.9	65.1	1	85.0	7.1	5	0.104
P6KE68(C)A	58.1	64.6	71.4	1	92.0	6.5	5	0.104
P6KE75(C)A	64.1	71.3	78.8	1	103.0	5.8	5	0.105
P6KE82(C)A	70.1	77.9	86.1	1	113.0	5.3	5	0.105
P6KE91(C)A	77.8	86.5	95.5	1	125.0	4.8	5	0.106

Electrical Characteristics (continued)

Values are at T_A = 25°C unless otherwise noted.

Uni-directional Bi-directional (C) Device	Reverse Stand-off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V)		Test Current I_T (mA)	Clamping Voltage @I_{PPM} V_C (V)	Peak Pulse Current I_{PPM} (A)	Reverse Leakage V_{RWM} I_R (μA)(2)	Temperature Coefficient V_{BR} (%/°C)
		Min.	Max.					
P6KE100(C)A	85.5	95.0	105.0	1	137.0	4.4	5	0.106
P6KE110(C)A	94.0	105.0	116.0	1	152.0	4.0	5	0.107
P6KE120(C)A	102.0	114.0	126.0	1	165.0	3.6	5	0.107
P6KE130(C)A	111.0	124.0	137.0	1	179.0	3.4	5	0.107
P6KE150(C)A	128.0	143.0	158.0	1	207.0	2.9	5	0.108
P6KE160(C)A	136.0	152.0	168.0	1	219.0	2.7	5	0.108
P6KE170(C)A	145.0	162.0	179.0	1	234.0	2.6	5	0.108
P6KE180(C)A	154.0	171.0	189.0	1	246.0	2.4	5	0.108
P6KE200(C)A	171.0	190.0	210.0	1	274.0	2.2	5	0.108
P6KE220(C)A	185.0	209.0	231.0	1	328.0	1.9	5	0.108
P6KE250(C)A	214.0	237.0	263.0	1	344.0	1.8	5	0.110
P6KE300(C)A	256.0	285.0	315.0	1	414.0	1.5	5	0.110
P6KE350(C)A	300.0	332.0	368.0	1	482.0	1.3	5	0.110
P6KE400(C)A	342.0	380.0	420.0	1	548.0	1.1	5	0.110
P6KE440(C)A	376.0	418.0	462.0	1	602.0	1.0	5	0.110

Note:

2. For bi-directional parts with V_{RWM} < 10 V, the I_R maximum limit is doubled.

Typical Performance Characteristics

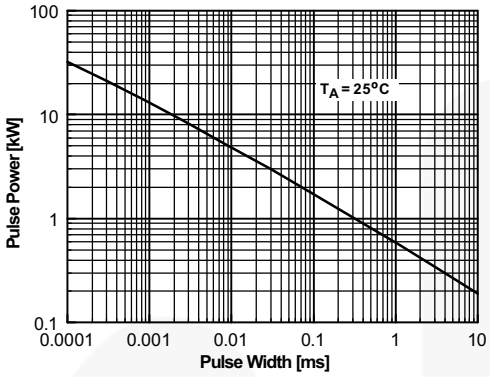


Figure 1. Peak Pulse Power Rating Curve

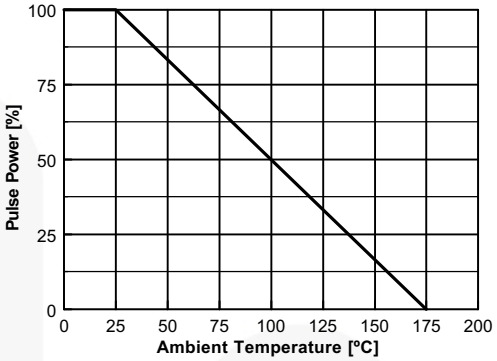


Figure 2. Pulse Derating Curve

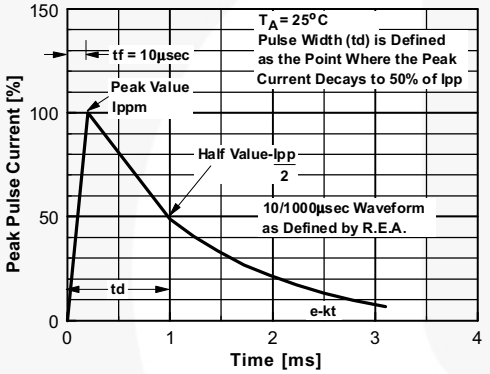


Figure 3. Pulse Waveform

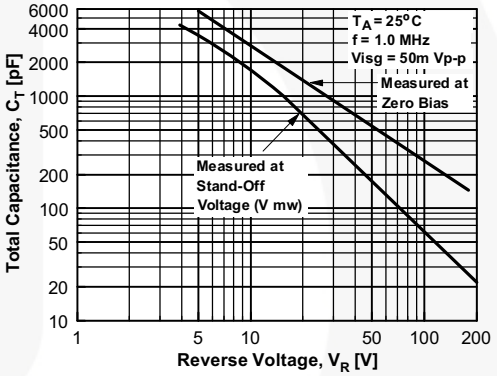


Figure 4. Total Capacitance - Uni-directional

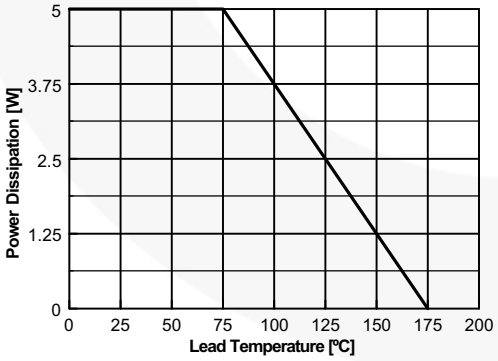


Figure 5. Steady-State Power Derating Curve

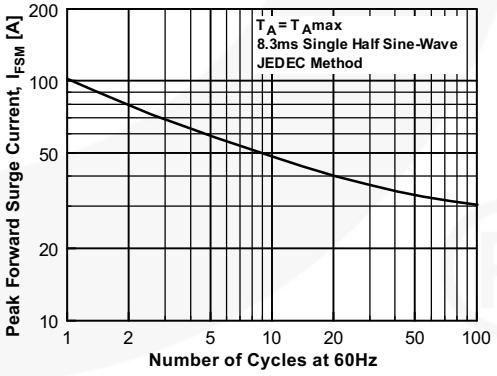
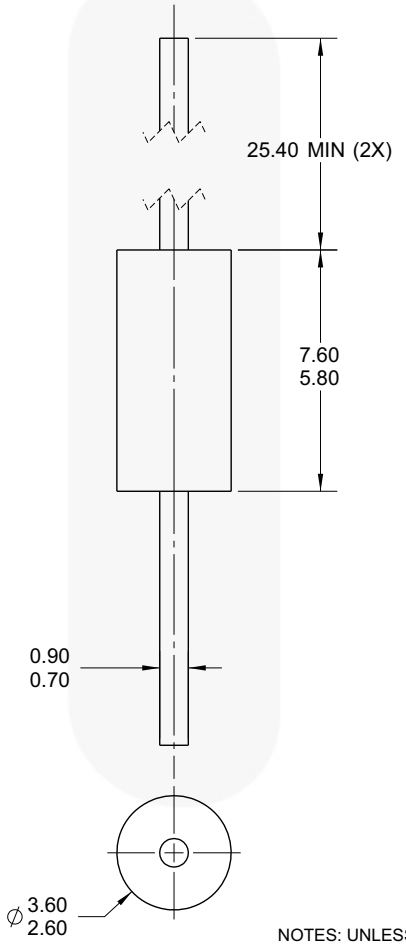


Figure 6. Non-Repetitive Surge Current

Physical Dimensions

DO-15



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B) PLASTIC PACKAGE BODY.
D) ALL DIMENSIONS ARE IN MILLIMETERS.
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Figure 7. AXIAL LEADED, JEDEC DO204, VARIATION AC (ACTIVE)

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