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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<sub>R</sub> < 1.0 mA Above 10 V</li>



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  $T_A = 25^{\circ}\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Units
P <sub>PPM</sub>	Peak Pulse Power Dissipation at t <sub>P</sub> = 1 ms	600	W
I <sub>PPM</sub>	Peak Pulse Current	see table	Α
P <sub>D</sub>	Power Dissipation 0.375-inch Lead Length at T <sub>A</sub> = 75°C	5.0	W
I <sub>FSM</sub>	Non-Repetitive Peak Forward Surge Current Superimposed on Rated Load (JEDEC Method) <sup>(1)</sup>	100	А
T <sub>stg</sub>	Storage Temperature Range	-65 to +175	°C
T <sub>J</sub>	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  $T_A = 25^{\circ}C$  unless otherwise noted.

Uni-directional Bi-directional (C) Device	Reverse Stand-off Voltage V <sub>RWM</sub> (V)	Breakdown Voltage V <sub>BR</sub> (V)		Test Current	Clamping Voltage	Peak Pulse Current	Reverse Leakage V <sub>RWM</sub>	Temperature Coefficient
		Min.	Max.	I <sub>T</sub> (mA)	@I <sub>PPM</sub> V <sub>C</sub> (V)	I <sub>PPM</sub> (A)	I <sub>R</sub> (μ <b>A)</b> <sup>(2)</sup>	<sup>RWM</sup> <sub>μ<b>A</b>)<sup>(2)</sup> V<sub>BR</sub> (%/°C)</sub>
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 <sub>RWM</sub> (V)	Breakdown Voltage V <sub>BR</sub> (V)		Test Current	Clamping Voltage	Peak Pulse Current	Reverse Leakage V <sub>RWM</sub>	Temperature Coefficient V <sub>BR</sub> (%/°C)
Device		Min.	Max.	IT (IIIA)	@I <sub>PPM</sub> V <sub>C</sub> (V)	I <sub>PPM</sub> (A)	I <sub>R</sub> (μ <b>A</b> ) <sup>(2)</sup>	VBR (707 O)
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**

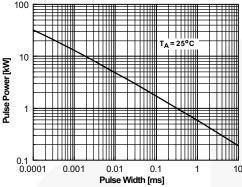


Figure 1. Peak Pulse Power Rating Curve

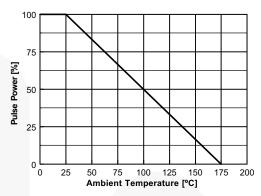


Figure 2. Pulse Derating Curve

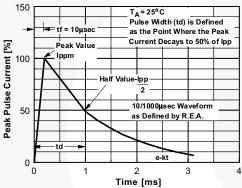


Figure 3. Pulse Waveform

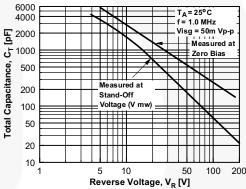


Figure 4. Total Capacitance - Uni-directional

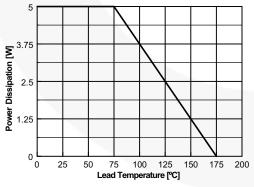


Figure 5. Steady-State Power Derating Curve

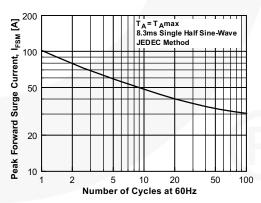
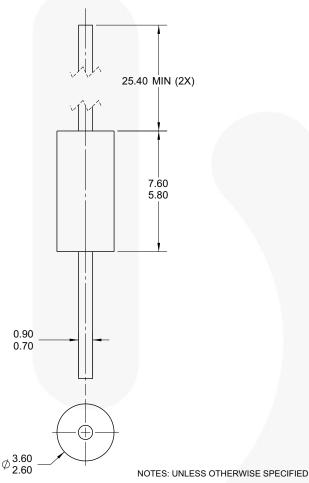


Figure 6. Non-Repetitive Surge Current

## **Physical Dimensions**

## DO-15



- A) PACKAGE STANDARD REFERENCE:
- JEDEC DO-204 VARIATION AC. PLASTIC PACKAGE BODY.
- D) ALL DIMENSIONS ARE IN MILLIMETERS.
  E) DRAWING FILE NAME: DO15AREV1

Figure 7. AXIAL LEADED, JEDEC DO204, VARIATION AC (ACTIVE)

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Definition of Terms					
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