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May 2015

1V5KE6V8(C)A - 1V5KE440(C)A

1500 W Transient Voltage Suppressors

Features

- Glass-Passivated Junction
- 1500 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,
5.0 ns for Bidirectional
- Typical I_R : 1.0 μ A Above 10 V
- UL Certified: UL #E258596
- 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	Unit
P_{PPM}	Peak Pulse Power Dissipation $t_p = 1$ ms	1500	W
I_{PPM}	Peak Pulse Current	see table	A
I_{FSM}	Non-Repetitive Peak Forward Surge Current Superimposed on Rated Load (JEDEC Method) ⁽¹⁾	200	A
T_{stg}	Storage Temperature Range	-55 to +175	$^\circ\text{C}$
T_J	Operating Junction Temperature	-55 to +175	$^\circ\text{C}$

Note:

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

Thermal Characteristics

Symbol	Parameter	Value	Unit
P_D	Power Dissipation .375 inch lead length at $T_A = 75^\circ\text{C}$	5.0	W

Electrical Characteristics

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 at I _{PPM} V _C (V)	Peak Pulse Current I _{PPM} (A)	Reverse Leakage at V _{RWM} I _R (μA) ⁽²⁾
		Min.	Max.				
1V5KE6V8(C)A	5.80	6.45	7.14	10	10.5	143	1000
1V5KE7V5(C)A	6.40	7.13	7.88	10	11.3	133	500
1V5KE8V2(C)A	7.02	7.79	8.61	10	12.1	124	200
1V5KE9V1(C)A	7.78	8.65	9.55	1	13.4	112	50
1V5KE10(C)A	8.55	9.50	10.5	1	14.5	103	10
1V5KE11(C)A	9.40	10.5	11.6	1	15.6	96.2	5
1V5KE12(C)A	10.2	11.4	12.6	1	16.7	90.0	5
1V5KE13(C)A	11.1	12.4	13.7	1	18.2	82.0	5
1V5KE15(C)A	12.8	14.3	15.8	1	21.2	71.0	5
1V5KE16(C)A	13.6	15.2	16.8	1	22.5	67.0	5
1V5KE18(C)A	15.3	17.1	18.9	1	26.2	59.5	5
1V5KE20(C)A	17.1	19.0	21.0	1	27.7	54.2	5
1V5KE22(C)A	18.8	20.9	23.1	1	30.6	49.0	5
1V5KE24(C)A	20.5	22.8	25.2	1	33.2	45.2	5
1V5KE27(C)A	23.1	25.7	28.4	1	37.5	40.0	5
1V5KE30(C)A	25.6	28.5	31.5	1	41.4	36.2	5
1V5KE33(C)A	28.2	31.4	34.7	1	45.7	33.0	5
1V5KE36(C)A	30.8	34.2	37.8	1	49.9	30.1	5
1V5KE39(C)A	33.3	37.1	41.0	1	53.9	28.0	5
1V5KE43(C)A	36.8	40.9	45.2	1	59.3	25.3	5
1V5KE47(C)A	40.2	44.7	49.4	1	64.8	23.2	5
1V5KE51(C)A	43.6	48.5	53.6	1	70.1	21.4	5
1V5KE56(C)A	47.8	53.2	58.8	1	77.0	19.5	5
1VKE62(C)A	53.0	58.9	65.1	1	85.0	17.7	5
1V5KE68(C)A	58.1	64.6	71.4	1	92.0	16.3	5
1V5KE75(C)A	64.1	71.3	78.8	1	104.0	14.6	5
1V5KE82(C)A	70.1	77.9	86.1	1	113.0	13.3	5
1V5KE91(C)A	77.8	86.5	95.5	1	125.0	12.0	5
1V5KE100(C)A	85.5	95.0	105.0	1	137.0	11.0	5
1V5KE110(C)A	94.0	106.0	116.0	1	152.0	9.9	5
1V5KE120(C)A	102.0	114.0	126.0	1	165.0	9.1	5
1V5KE130(C)A	111.0	124.0	137.0	1	179.0	8.4	5
1V5KE150(C)A	128.0	143.0	158.0	1	207.0	7.2	5
1V5KE160(C)A	136.0	152.0	168.0	1	219.0	6.8	5

Electrical Characteristics (Continued)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 at I _{PPM} V _C (V)	Peak Pulse Current I _{PPM} (A)	Reverse Leakage at V _{RWM} I _R (μA) ⁽²⁾
		Min.	Max.				
1V5KE170(C)A	145.0	162.0	179.0	1	234.0	6.4	5
1V5KE180(C)A	154.0	171.0	189.0	1	246.0	6.1	5
1V5KE200(C)A	171.0	190.0	210.0	1	274.0	5.5	5
1V5KE220(C)A	185.0	209.0	231.0	1	328.0	4.6	5
1V5KE250(C)A	214.0	237.0	263.0	1	344.0	4.5	5
1V5KE300(C)A	256.0	285.0	315.0	1	414.0	3.8	5
1V5KE350(C)A	300.0	333.0	368.0	1	482.0	3.2	5
1V5KE400(C)A	342.0	380.0	420.0	1	548.0	2.8	5
1V5KE440(C)A	376.0	418.0	462.0	1	602.0	2.6	5

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

Typical Performance Characteristics

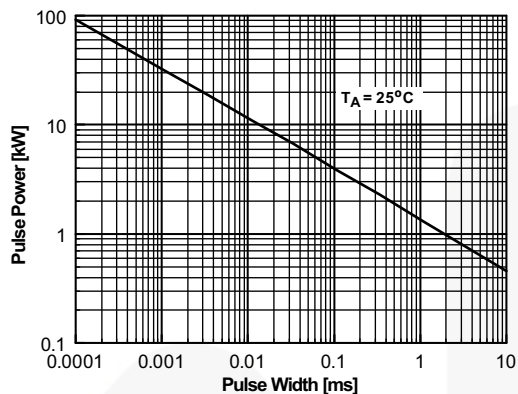


Figure 1. Peak Pulse Power Rating Curve

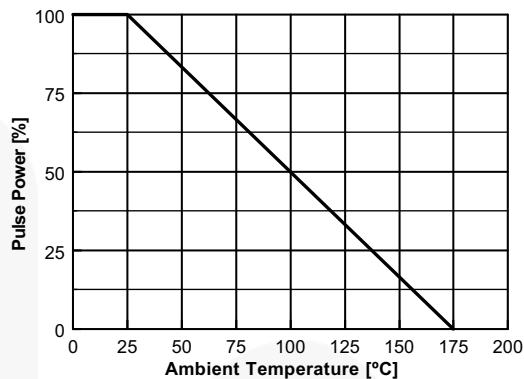


Figure 2. Pulse Derating Curve

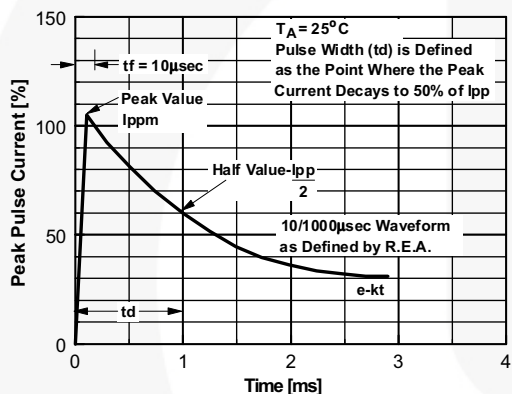


Figure 3. Pulse Waveform

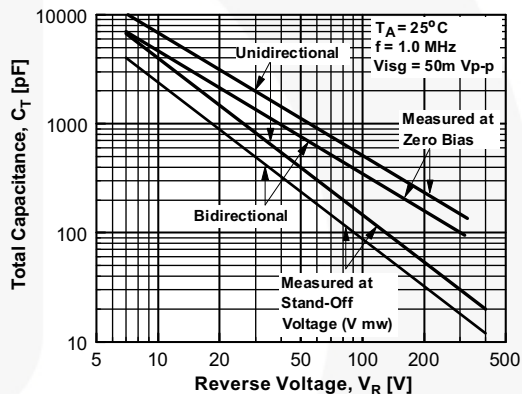


Figure 4. Total Capacitance

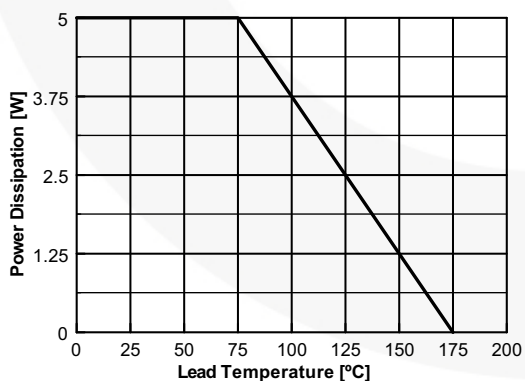


Figure 5. Steady State Power Derating Curve

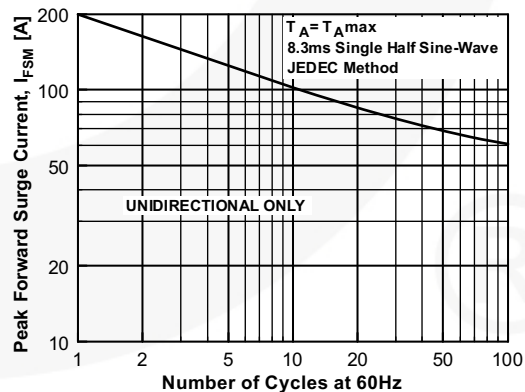


Figure 6. Non-Repetitive Surge Current

Physical Dimension

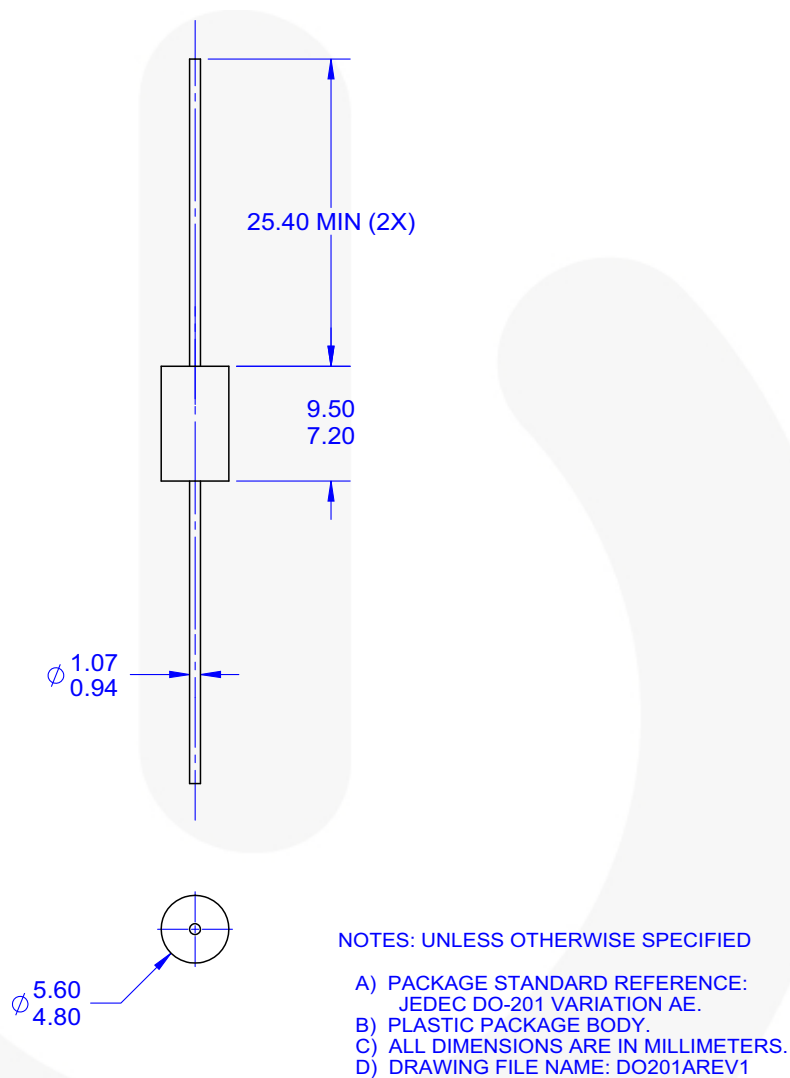


Figure 7. AXIAL LEADED, JEDEC DO201AE



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