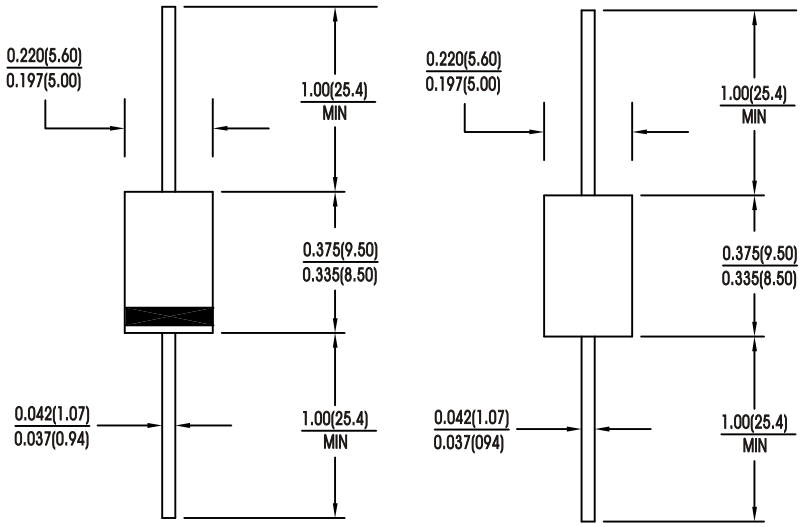
# 1.5KE6.8(A) THRU 1.5KE440(A)
# 1.5KE6.8C(A) THRU 1.5KE440C(A)

**VOLTAGE -6.8 TO 440 VOLTS 1500 WATT PEAK POWER**

## FEATURES:

- Plastic package has Underwrites Laboratory Flammability Classification 94V-0
- 1500W Surge capability at 1ms
- Excellent clamping capability
- Low zener impedance
- Fast response time : typicaill less than 1.0 ps from 0 volts to BV min
- Typical $I_R$ less than 1uA above 10V
- High temperature soldering guaranteed : 260℃ /10 seconds/0.375"(9.5mm) lead length/5lbs.,(2.3kg) tension

## DO-201AE




Suffix " ","A" UNDIRECTIONAL

Suffix "C","CA" DIRECTIONAL

Dimensions in inches and (millimeters)

## MECHANICAL DATA

Case: Molded plastic
Terminals: Axial leads, Solderable per MIL-STD-202, Method 208
Polarity: Color band denoted cathode except Bipolar
Mounting Position: Any
Weight: 1.2 grams

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25℃ ambient temp. unless otherwise specified.
Single phase, half sine wave, 60 Hz, resistive or inductive load.
For capacitive load, derate current by 20 %.

| Characteristic | Symbol | Value | Units |
|---|---|---|---|
| Minimum Peak Power Dissipation at Ta=25℃, $T_P$ =1ms (NOTE1) | $P_{PK}$ | 1500 | W |
| Maximum Peak pulse current | $I_{PPM}$ | SEE TABLE 1-3 | Amps |
| Maximum Forward Surge Current, 8.3ms (NOTE3) Single Hlaf Sine-Wave Supermposed on rated load (jedec Method) | $I_{FSM}$ | 200 | Amps |
| Operating and Storage temperature range | $T_J$, Tstg | -55 to+175 | ℃ |

NOTES :
1. Non-repetitive current pulse, per Fig.3 and derated above Ta=25℃ per Fig.2
2. Mounted on Copper Lead area of 0.79in$^2$ (20mm$^2$)
3. 8.3mS Singal half sine-wave, duty cycle=4pulse per minutes maximun
4. For birdirectional use "C" Suffix for 10% tolerance, "CA" suffix for 5% tolerance

Figure 1.-Pulse Rating Cure

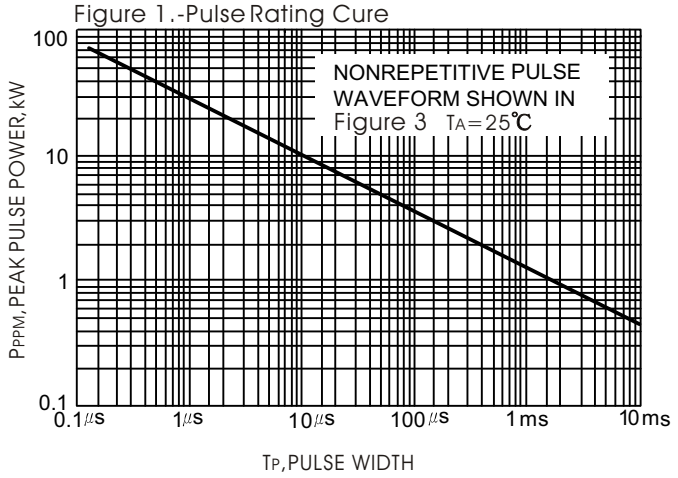



Figure 2.-Pulse Derating Cure

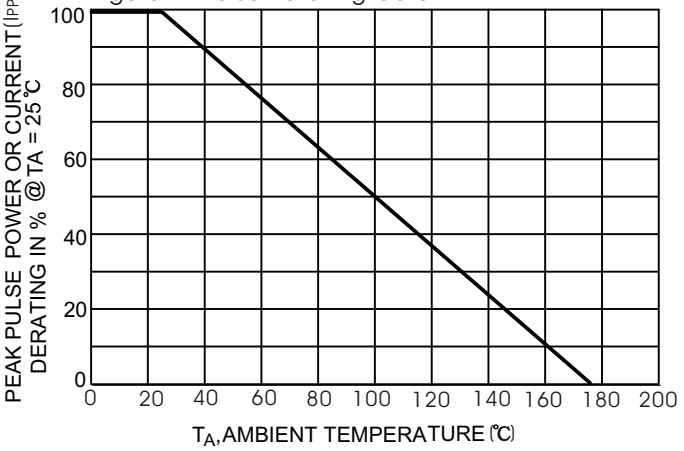



Figure 3.-Pulse Waveform

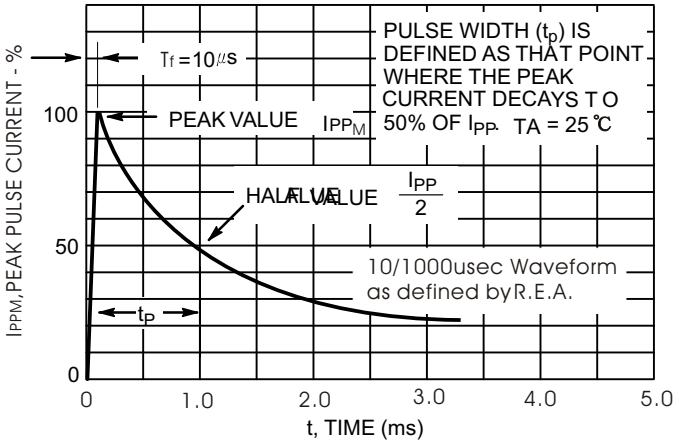



Figure 4.-TYPICAL JUNCTION CAPACITANCE

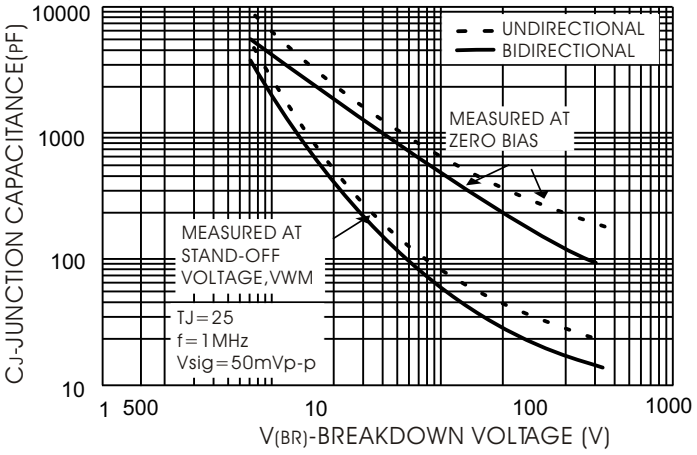
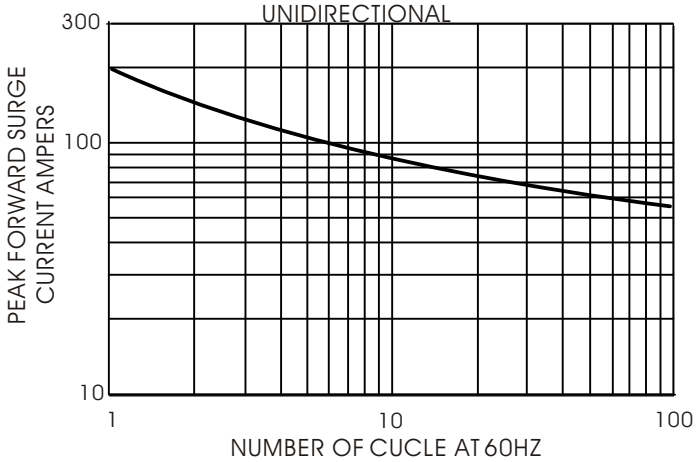



Figure 5.-Maximum Non-Repetitive Peak Forward Surge Current UNIDIRECTIONAL



# 1500 WATT AXIAL LEAD TVS 1.5KE6.8(A)(C)(CA) THRU 1.5KE440(A)(C)(CA)

TABLE 1

| Device Type | Breakdown $V_{BR}$ Voltage at $I_T$(Voltage) | | Test Current $I_T$ | Working Peak Reverse Voltage $V_{RWM}$ | Maximun Reverse Leakage at $V_{RWM}$ $I_R$(μA) | Maximun Peak Pulse Current $I_{PPM}$ | Maximmum Clamping Voltage $V_C$ | Maximun Temperature coefficient of $V_{BR}$ | Device |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | mA | Volts | μA | Amps | Volts | %/℃ | |
| 1.5KE6.8(C) | 6.12 | 7.48 | 10 | 5.50 | 1000 | 139 | 10.8 | 0.057 | 1N6267(C) |
| 1.5KE6.8A(CA) | 6.45 | 7.14 | 10 | 5.80 | 1000 | 143 | 10.5 | 0.057 | 1N6267A(CA) |
| 1.5KE7.5(C) | 6.75 | 8.25 | 10 | 6.05 | 500 | 128 | 11.7 | 0.061 | 1N6268(C) |
| 1.5KE7.5A(CA) | 7.13 | 7.88 | 10 | 6.40 | 500 | 132 | 11.3 | 0.061 | 1N6268A(CA) |
| 1.5KE8.2(C) | 7.38 | 9.02 | 10 | 6.63 | 200 | 120 | 12.5 | 0.065 | 1N6269(C) |
| 1.5KE8.2A(CA) | 7.79 | 8.61 | 10 | 7.02 | 200 | 124 | 12.1 | 0.065 | 1N6269A(CA) |
| 1.5KE9.1(C) | 8.19 | 10.0 | 1.0 | 7.37 | 50 | 109 | 13.8 | 0.068 | 1N6270(C) |
| 1.5KE9.1A(CA) | 8.65 | 9.55 | 1.0 | 7.78 | 50 | 112 | 13.4 | 0.068 | 1N6270A(CA) |
| 1.5KE10(C) | 9.00 | 11.0 | 1.0 | 8.10 | 10 | 100 | 15.0 | 0.073 | 1N6271(C) |
| 1.5KE10A(CA) | 9.50 | 10.5 | 1.0 | 8.55 | 10 | 103 | 14.5 | 0.073 | 1N6271A(CA) |
| 1.5KE11(C) | 9.90 | 12.1 | 1.0 | 8.92 | 5.0 | 93.0 | 16.2 | 0.075 | 1N6272(C) |
| 1.5KE11A(CA) | 10.5 | 11.6 | 1.0 | 9.40 | 5.0 | 96.0 | 15.6 | 0.075 | 1N6272A(CA) |
| 1.5KE12(C) | 10.8 | 13.2 | 1.0 | 9.72 | 5.0 | 87.0 | 17.3 | 0.078 | 1N6273(C) |
| 1.5KE12A(CA) | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 90.0 | 16.7 | 0.078 | 1N6273A(CA) |
| 1.5KE13(C) | 11.7 | 14.3 | 1.0 | 10.5 | 5.0 | 79.0 | 19.0 | 0.081 | 1N6274(C) |
| 1.5KE13A(CA) | 12.4 | 13.7 | 1.0 | 11.1 | 5.0 | 82.0 | 18.2 | 0.081 | 1N6274A(CA) |
| 1.5KE15(C) | 13.5 | 16.5 | 1.0 | 12.1 | 5.0 | 68.0 | 22.0 | 0.084 | 1N6275(C) |
| 1.5KE15A(CA) | 14.3 | 15.8 | 1.0 | 12.8 | 5.0 | 71.0 | 21.2 | 0.084 | 1N6275A(CA) |
| 1.5KE16(C) | 14.4 | 17.6 | 1.0 | 12.9 | 5.0 | 64.0 | 23.5 | 0.086 | 1N6276(C) |
| 1.5KE16A(CA) | 15.2 | 16.8 | 1.0 | 13.6 | 5.0 | 67.0 | 22.5 | 0.086 | 1N6276A(CA) |
| 1.5KE18(C) | 16.2 | 19.8 | 1.0 | 14.5 | 5.0 | 56.5 | 26.5 | 0.088 | 1N6277(C) |
| 1.5KE18A(CA) | 17.1 | 18.9 | 1.0 | 15.3 | 5.0 | 59.5 | 25.2 | 0.088 | 1N6277A(CA) |
| 1.5KE20(C) | 18.0 | 22.0 | 1.0 | 16.2 | 5.0 | 51.5 | 29.1 | 0.090 | 1N6278(C) |
| 1.5KE20A(CA) | 19.0 | 21.0 | 1.0 | 17.1 | 5.0 | 54.0 | 27.7 | 0.090 | 1N6278A(CA) |
| 1.5KE22(C) | 19.8 | 24.2 | 1.0 | 17.8 | 5.0 | 47.0 | 31.9 | 0.092 | 1N6279(C) |
| 1.5KE22A(CA) | 20.9 | 23.1 | 1.0 | 18.8 | 5.0 | 49.0 | 30.6 | 0.092 | 1N6279A(CA) |
| 1.5KE24(C) | 21.6 | 26.4 | 1.0 | 19.4 | 5.0 | 43.0 | 34.7 | 0.094 | 1N6280(C) |
| 1.5KE24A(CA) | 22.8 | 25.2 | 1.0 | 20.5 | 5.0 | 45.0 | 33.2 | 0.094 | 1N6280A(CA) |
| 1.5KE27(C) | 24.3 | 29.7 | 1.0 | 21.8 | 5.0 | 38.5 | 39.1 | 0.096 | 1N6281(C) |
| 1.5KE27A(CA) | 25.7 | 28.4 | 1.0 | 23.1 | 5.0 | 40.0 | 37.5 | 0.096 | 1N6281A(CA) |
| 1.5KE30(C) | 27.0 | 33.0 | 1.0 | 24.3 | 5.0 | 34.5 | 43.5 | 0.097 | 1N6282(C) |
| 1.5KE30A(CA) | 28.5 | 31.5 | 1.0 | 25.6 | 5.0 | 36.0 | 41.4 | 0.097 | 1N6282A(CA) |
| 1.5KE33(C) | 29.7 | 36.3 | 1.0 | 26.8 | 5.0 | 31.5 | 47.7 | 0.098 | 1N6283(C) |
| 1.5KE33A(CA) | 31.4 | 34.7 | 1.0 | 28.2 | 5.0 | 33.0 | 45.7 | 0.098 | 1N6283A(CA) |
| 1.5KE36(C) | 32.4 | 39.6 | 1.0 | 29.1 | 5.0 | 29.0 | 52.0 | 0.099 | 1N6284(C) |
| 1.5KE36A(CA) | 34.2 | 37.8 | 1.0 | 30.8 | 5.0 | 30.0 | 49.9 | 0.099 | 1N6284A(CA) |
| 1.5KE39(C) | 35.1 | 42.9 | 1.0 | 31.6 | 5.0 | 26.5 | 56.4 | 0.100 | 1N6285(C) |
| 1.5KE39A(CA) | 37.1 | 41.0 | 1.0 | 33.3 | 5.0 | 28.0 | 53.9 | 0.100 | 1N6285A(CA) |
| 1.5KE43(C) | 38.7 | 47.3 | 1.0 | 34.8 | 5.0 | 24.0 | 61.9 | 0.101 | 1N6286(C) |
| 1.5KE43A(CA) | 40.9 | 45.2 | 1.0 | 36.8 | 5.0 | 25.3 | 59.3 | 0.101 | 1N6286A(CA) |
| 1.5KE47(C) | 42.3 | 51.7 | 1.0 | 36.1 | 5.0 | 22.2 | 67.8 | 0.101 | 1N6287(C) |
| 1.5KE47A(CA) | 44.7 | 49.4 | 1.0 | 40.2 | 5.0 | 23.2 | 64.8 | 0.101 | 1N6287A(CA) |

TABLE 2

| Device Type | Breakdown $V_{BR}$ Voltage at $I_T$(Voltage) | | Test Current $I_T$ | Working Peak Reverse Voltage $V_{RWM}$ | Maximun Reverse Leakage at $V_{RWM}$ $I_R$(μA) | Maximun Peak Pulse Current $I_{PPM}$ | Maximmum Clamping Voltage $V_C$ | Maximun Temperature coefficient of $V_{BR}$ | |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | mA | Volts | μA | Amps | Volts | %/ ℃ | |
| 1.5KE51(C) | 45.9 | 56.1 | 1.0 | 41.3 | 5.0 | 20.4 | 73.5 | 0.102 | 1N6288(C) |
| 1.5KE51A(CA) | 48.5 | 53.6 | 1.0 | 43.6 | 5.0 | 21.4 | 70.1 | 0.102 | 1N6288A(CA) |
| 1.5KE56(C) | 50.4 | 61.8 | 1.0 | 45.4 | 5.0 | 18.6 | 80.5 | 0.103 | 1N6289(C) |
| 1.5KE56A(CA) | 53.2 | 58.8 | 1.0 | 47.8 | 5.0 | 19.5 | 77.0 | 0.103 | 1N6289A(CA) |
| 1.5KE62(C) | 55.8 | 68.2 | 1.0 | 50.2 | 5.0 | 16.9 | 89.0 | 0.104 | 1N6290(C) |
| 1.5KE62A(CA) | 58.9 | 65.1 | 1.0 | 53.0 | 5.0 | 17.7 | 85.0 | 0.104 | 1N6290A(CA) |
| 1.5KE68(C) | 61.2 | 74.8 | 1.0 | 55.1 | 5.0 | 15.3 | 98.0 | 0.104 | 1N6291(C) |
| 1.5KE68A(CA) | 64.6 | 71.4 | 1.0 | 58.1 | 5.0 | 16.3 | 92.0 | 0.104 | 1N6291A(CA) |
| 1.5KE75(C) | 67.5 | 82.5 | 1.0 | 60.7 | 5.0 | 13.9 | 108.0 | 0.105 | 1N6292(C) |
| 1.5KE75A(CA) | 71.3 | 78.8 | 1.0 | 64.1 | 5.0 | 14.6 | 103.0 | 0.105 | 1N6292A(CA) |
| 1.5KE82(C) | 73.8 | 90.2 | 1.0 | 66.4 | 5.0 | 12.7 | 118.0 | 0.105 | 1N6293(C) |
| 1.5KE82A(CA) | 77.9 | 86.1 | 1.0 | 70.1 | 5.0 | 13.3 | 113.0 | 0.105 | 1N6293A(CA) |
| 1.5KE91(C) | 81.9 | 100.0 | 1.0 | 73.7 | 5.0 | 11.4 | 131.8 | 0.106 | 1N6294(C) |
| 1.5KE91A(CA) | 86.5 | 95.50 | 1.0 | 77.8 | 5.0 | 12.0 | 125.0 | 0.106 | 1N6294A(CA) |
| 1.5KE100(C) | 90.0 | 110.0 | 1.0 | 81.0 | 5.0 | 10.4 | 144.0 | 0.106 | 1N6295(C) |
| 1.5KE100A(CA) | 95.0 | 105.0 | 1.0 | 85.5 | 5.0 | 11.0 | 137.0 | 0.106 | 1N6295A(CA) |
| 1.5KE110(C) | 99.0 | 121.0 | 1.0 | 89.2 | 5.0 | 9.5 | 158.0 | 0.107 | 1N6296(C) |
| 1.5KE110A(CA) | 106.0 | 116.0 | 1.0 | 94.0 | 5.0 | 9.9 | 152.0 | 0.107 | 1N6296A(CA) |
| 1.5KE120(C) | 108.0 | 132.0 | 1.0 | 97.2 | 5.0 | 8.7 | 173.0 | 0.107 | 1N6297(C) |
| 1.5KE120A(CA) | 114.0 | 126.0 | 1.0 | 102.0 | 5.0 | 9.1 | 165.0 | 0.107 | 1N6297A(CA) |
| 1.5KE130(C) | 117.0 | 143.0 | 1.0 | 106.0 | 5.0 | 8.0 | 187.0 | 0.107 | 1N6298(C) |
| 1.5KE130A(CA) | 124.0 | 137.0 | 1.0 | 111.0 | 5.0 | 8.4 | 179.0 | 0.107 | 1N6298A(CA) |
| 1.5KE150(C) | 136.0 | 165.0 | 1.0 | 121.0 | 5.0 | 7.0 | 215.0 | 0.108 | 1N6299(C) |
| 1.5KE150A(CA) | 143.0 | 158.0 | 1.0 | 128.0 | 5.0 | 7.2 | 207.0 | 0.108 | 1N6299A(CA) |
| 1.5KE160(C) | 144.0 | 176.0 | 1.0 | 130.0 | 5.0 | 6.5 | 230.0 | 0.108 | 1N6300(C) |
| 1.5KE160A(CA) | 152.0 | 168.0 | 1.0 | 136.0 | 5.0 | 6.8 | 219.0 | 0.108 | 1N6300A(CA) |
| 1.5KE170(C) | 153.0 | 187.0 | 1.0 | 138.0 | 5.0 | 6.2 | 244.0 | 0.108 | 1N6301(C) |
| 1.5KE170A(CA) | 162.0 | 179.0 | 1.0 | 145.0 | 5.0 | 6.4 | 234.0 | 0.108 | 1N6301A(CA) |
| 1.5KE180(C) | 162.0 | 198.0 | 1.0 | 146.0 | 5.0 | 5.8 | 258.0 | 0.108 | 1N6302(C) |
| 1.5KE180A(CA) | 171.0 | 189.0 | 1.0 | 154.0 | 5.0 | 6.1 | 246.0 | 0.108 | 1N6302A(CA) |
| 1.5KE200(C) | 180.0 | 220.0 | 1.0 | 162.0 | 5.0 | 5.2 | 287.0 | 0.108 | 1N6303(C) |
| 1.5KE200A(CA) | 190.0 | 210.0 | 1.0 | 171.0 | 5.0 | 5.5 | 274.0 | 0.108 | 1N6303A(CA) |
| 1.5KE220(C) | 196.0 | 242.0 | 1.0 | 175.0 | 5.0 | 4.4 | 344.0 | 0.108 | |
| 1.5KE220A(CA) | 209.0 | 231.0 | 1.0 | 185.0 | 5.0 | 4.6 | 328.0 | 0.108 | |
| 1.5KE250(C) | 225.0 | 275.0 | 1.0 | 202.0 | 5.0 | 4.2 | 360.0 | 0.110 | |
| 1.5KE250A(CA) | 237.0 | 263.0 | 1.0 | 214.0 | 5.0 | 4.4 | 344.0 | 0.110 | |
| 1.5KE300(C) | 270.0 | 330.0 | 1.0 | 243.0 | 5.0 | 3.5 | 430.0 | 0.110 | |
| 1.5KE300A(CA) | 285.0 | 315.0 | 1.0 | 256.0 | 5.0 | 3.6 | 414.0 | 0.110 | |
| 1.5KE350(C) | 315.0 | 385.0 | 1.0 | 284.0 | 5.0 | 3.0 | 504.0 | 0.110 | |
| 1.5KE350A(CA) | 333.0 | 368.0 | 1.0 | 300.0 | 5.0 | 3.1 | 482.0 | 0.110 | |
| 1.5KE400(C) | 360.0 | 440.0 | 1.0 | 324.0 | 5.0 | 2.6 | 574.0 | 0.110 | |
| 1.5KE400A(CA) | 380.0 | 420.0 | 1.0 | 342.0 | 5.0 | 2.7 | 548.0 | 0.110 | |

TABLE 3

| Device Type | Breakdown $V_{BR}$ Voltage at $I_T$(Voltage) | | Test Current $I_T$ | Working Peak Reverse Voltage $V_{RWM}$ | Maximun Reverse Leakage at $V_{RWM}$ $I_R$(uA) | Maximun Peak Pulse Current $I_{PPM}$ | Maximmum Clamping Voltage $V_C$ | Maximun Temperature coefficient of $V_{BR}$ | |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | mA | Volts | μA | Amps | Volts | %/ ℃ | |
| 1.5KE440(C) | 396.0 | 484.0 | 1.0 | 356.0 | 5.0 | 2.4 | 631.0 | 0.110 | |
| 1.5KE440A(CA) | 418.0 | 462.0 | 1.0 | 376.0 | 5.0 | 2.5 | 602.0 | 0.110 | |

NOTES: 1.$V_{BR}$ Measured after $I_T$ applied for 300 us, IT=square wave pulse or equivalent
2.Surge current wavefrom per figure 3 and derated per figure 2
3.$V_F$=3.5V max, $I_F$=100A(1.5KE6.8(A)(C)(CA) Thru 1.5KE91(A)(C)(CA))
4.$V_F$=5.0Vmax,$I_F$=100A(1.5KE100(A)(C)(CA) Thru 1.5KE440(A)(C)(CA))
pw=8.3ms, duty cycle=4 pulses per minute maximum
5.For bipolar types having $V_{RWM}$ of 10 voltage and under,the $I_R$ limit is doubled