# 1.5KE SERIES

1500 WATT PEAK POWER TRANSIENT VOLTAGE SUPPRESSORS

GW



## VOLTAGE RANGE

5.8 to 509 Volts

1500 Watts Peak Power

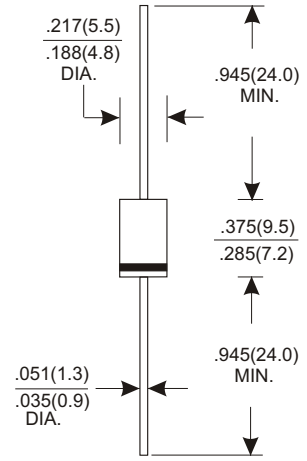
## FEATURES

* 1500 Watts Surge Capability at 1ms
* Excellent clamping capability
* Low zener impedance
* Fast response time
* Low reverse leakage

## MECHANICAL DATA

* Case: Molded plastic
* Epoxy: UL 94V-0 rate flame retardant
* Lead: Axial leads, solderable per MIL-STD-202, method 208 guranteed
* Polarity: Color band denotes cathode end except Bidirectional
* Mounting position: Any

**DO-201**




Dimensions in inches and (millimeters)

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature uniess otherwies specified.
Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| RATINGS | SYMBOL | VALUE | UNITS |
|---|---|---|---|
| Peak Power Dissipation at $T_A$=25°C, $T_P$=1ms(NOTE 1) | $P_{PK}$ | Minimum 1500 | Watts |
| Power Dissipation on infinite heatsink at $T_L$=75°C | $P_D$ | 6.5 | Watt |
| Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 2) | $I_{FSM}$ | 200 | Amps |
| Maximum Instantenous Forward Voltage at 25.0A for Unidirectional only (NOTE 3) | $V_F$ | 3.5/6.5 | Volts |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +150 | °C |

NOTES:
1. Non-repetitive current pulse per Fig. 3 and derated above $T_A$=25°C per Fig. 2.
2. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.
3. $V_F$<3.5V for devices of $V_{BR}$<200V and $V_F$<6.5V for devices of $V_{BR}$>201V.

## DEVICES FOR BIPOLAR APPLICATIONS

1. For Bidirectional use C or CA Suffix for types 1.5KE6.8 thru 1.5KE600.
2. Electrical characteristics apply in both directions.

# RATING AND CHARACTERISTIC CURVES (1.5KE SERIES)

FIG.1-PEAK PULSE POWER DERATING CURVE

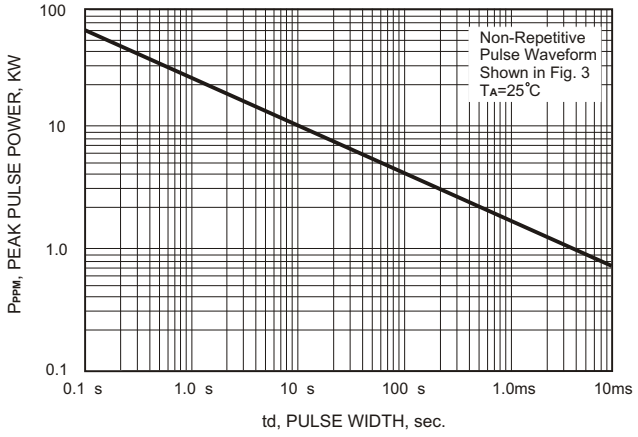



FIG.2-PULSE DERATING CURVE

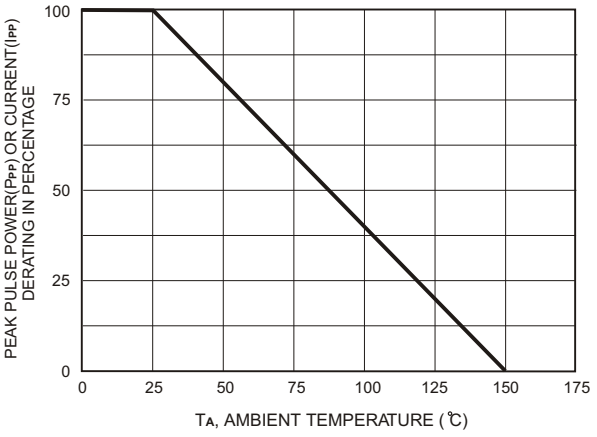



FIG.3-PULSE WAVE FORM

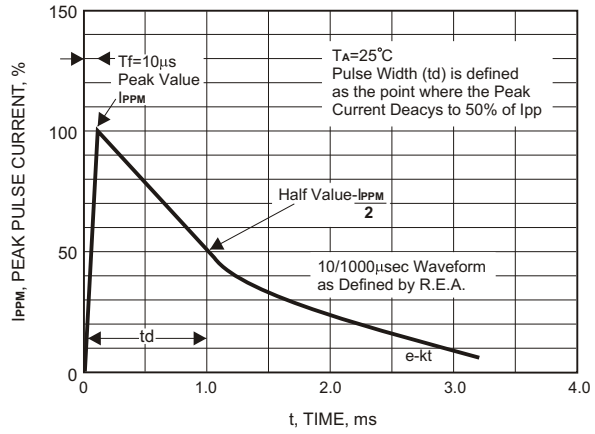



FIG.4-TYPICAL JUNCTION CAPACITANCE

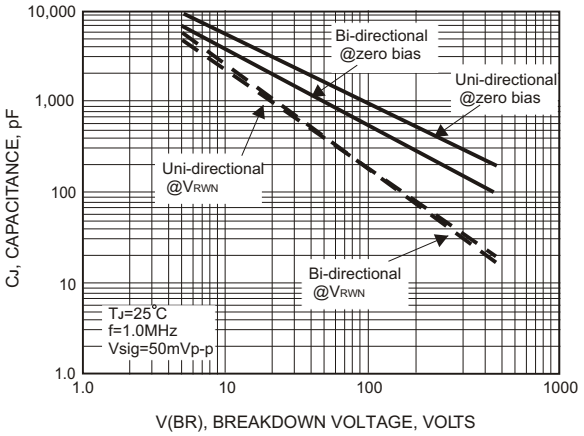



FIG.5-STEADY STATE POWER DERATING CURVE

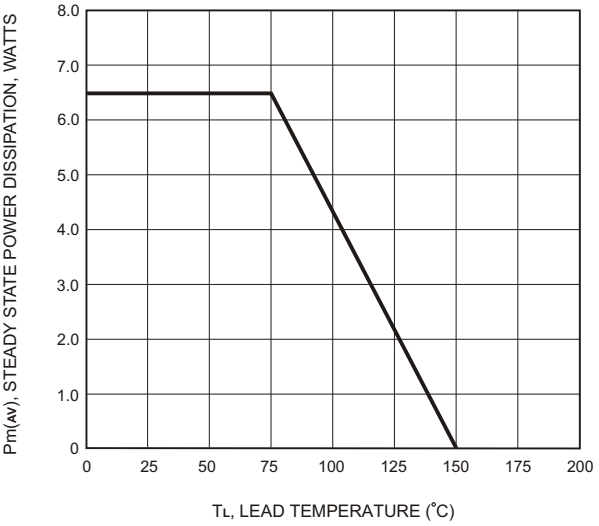
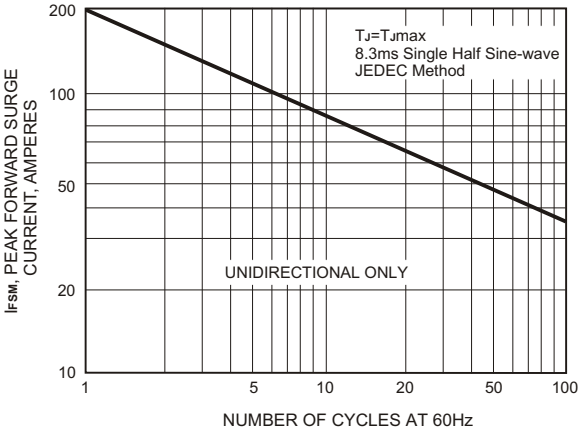



FIG.6-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT, UNIDIRECTIONAL



# 1500 Watt Surface Mount TVS

| Part Number (Uni) | Part Number (Bi) | Reverse Standoff Voltage | Breakdown Voltage $V_{BR}$ @ $I_T$ | | | Maximum Reverse Leakage @ VR | Maximum Peak Pulse Current | Maximum Clamping Voltage @ Ipp |
|---|---|---|---|---|---|---|---|---|
| | | VR (V) | Min (V) | Max (V) | $I_T$ (mA) | IR (μA) | Ipp (A) | Vc (V) |
| 1.5KE6.8A | 1.5KE6.8CA | 5.8 | 6.45 | 7.14 | 10 | 1000 | 144.8 | 10.5 |
| 1.5KE7.5A | 1.5KE7.5CA | 6.4 | 7.13 | 7.88 | 10 | 500 | 134.5 | 11.3 |
| 1.5KE8.2A | 1.5KE8.2CA | 7.0 | 7.79 | 8.61 | 10 | 200 | 125.6 | 12.1 |
| 1.5KE9.1A | 1.5KE9.1CA | 7.8 | 8.65 | 9.55 | 1 | 50 | 113.4 | 13.4 |
| 1.5KE10A | 1.5KE10CA | 8.6 | 9.50 | 10.50 | 1 | 10 | 104.8 | 14.5 |
| 1.5KE11A | 1.5KE11CA | 9.4 | 10.50 | 11.60 | 1 | 5 | 97.4 | 15.6 |
| 1.5KE12A | 1.5KE12CA | 10.2 | 11.40 | 12.60 | 1 | 5 | 91.0 | 16.7 |
| 1.5KE13A | 1.5KE13CA | 11.1 | 12.40 | 13.70 | 1 | 1 | 83.5 | 18.2 |
| 1.5KE15A | 1.5KE15CA | 12.8 | 14.30 | 15.80 | 1 | 1 | 71.7 | 21.2 |
| 1.5KE16A | 1.5KE16CA | 13.6 | 15.20 | 16.80 | 1 | 1 | 67.6 | 22.5 |
| 1.5KE18A | 1.5KE18CA | 15.3 | 17.10 | 18.90 | 1 | 1 | 60.3 | 25.5 |
| 1.5KE20A | 1.5KE20CA | 17.1 | 19.00 | 21.00 | 1 | 1 | 54.9 | 27.7 |
| 1.5KE22A | 1.5KE22CA | 18.8 | 20.90 | 23.10 | 1 | 1 | 49.7 | 30.6 |
| 1.5KE24A | 1.5KE24CA | 20.5 | 22.80 | 25.20 | 1 | 1 | 45.8 | 33.2 |
| 1.5KE27A | 1.5KE27CA | 23.1 | 25.70 | 28.40 | 1 | 1 | 40.5 | 37.5 |
| 1.5KE30A | 1.5KE30CA | 25.6 | 28.50 | 31.50 | 1 | 1 | 36.7 | 41.4 |
| 1.5KE33A | 1.5KE33CA | 28.2 | 31.40 | 34.70 | 1 | 1 | 33.3 | 45.7 |
| 1.5KE36A | 1.5KE36CA | 30.8 | 34.20 | 37.80 | 1 | 1 | 30.5 | 49.9 |
| 1.5KE39A | 1.5KE39CA | 33.3 | 37.10 | 41.00 | 1 | 1 | 28.2 | 53.9 |
| 1.5KE43A | 1.5KE43CA | 36.8 | 40.90 | 45.20 | 1 | 1 | 25.6 | 59.3 |
| 1.5KE47A | 1.5KE47CA | 40.2 | 44.70 | 49.40 | 1 | 1 | 23.5 | 64.8 |
| 1.5KE51A | 1.5KE51CA | 43.6 | 48.50 | 53.60 | 1 | 1 | 21.7 | 70.1 |
| 1.5KE56A | 1.5KE56CA | 47.8 | 53.20 | 58.80 | 1 | 1 | 19.7 | 77.0 |
| 1.5KE62A | 1.5KE62CA | 53.0 | 58.90 | 65.10 | 1 | 1 | 17.9 | 85.0 |
| 1.5KE68A | 1.5KE68CA | 58.1 | 64.60 | 71.40 | 1 | 1 | 16.5 | 92.0 |
| 1.5KE75A | 1.5KE75CA | 64.1 | 71.30 | 78.80 | 1 | 1 | 14.8 | 103.0 |
| 1.5KE82A | 1.5KE82CA | 70.1 | 77.90 | 86.10 | 1 | 1 | 13.5 | 113.0 |
| 1.5KE91A | 1.5KE91CA | 77.8 | 86.50 | 95.50 | 1 | 1 | 12.2 | 125.0 |
| 1.5KE100A | 1.5KE100CA | 85.5 | 95.00 | 105.00 | 1 | 1 | 11.1 | 137.0 |
| 1.5KE110A | 1.5KE110CA | 94.0 | 105.00 | 116.00 | 1 | 1 | 10.0 | 152.0 |
| 1.5KE120A | 1.5KE120CA | 102.0 | 114.00 | 126.00 | 1 | 1 | 9.2 | 165.0 |
| 1.5KE130A | 1.5KE130CA | 111.0 | 124.00 | 137.00 | 1 | 1 | 8.5 | 179.0 |
| 1.5KE150A | 1.5KE150CA | 128.0 | 143.00 | 158.00 | 1 | 1 | 7.3 | 207.0 |
| 1.5KE160A | 1.5KE160CA | 136.0 | 152.00 | 168.00 | 1 | 1 | 6.9 | 219.0 |
| 1.5KE170A | 1.5KE170CA | 145.0 | 162.00 | 179.00 | 1 | 1 | 6.5 | 234.0 |
| 1.5KE180A | 1.5KE180CA | 154.0 | 171.00 | 189.00 | 1 | 1 | 6.2 | 246.0 |
| 1.5KE200A | 1.5KE200CA | 171.0 | 190.00 | 210.00 | 1 | 1 | 5.5 | 274.0 |
| 1.5KE220A | 1.5KE220CA | 185.0 | 209.00 | 231.00 | 1 | 1 | 4.6 | 328.0 |
| 1.5KE250A | 1.5KE250CA | 214.0 | 237.00 | 263.00 | 1 | 1 | 4.4 | 344.0 |
| 1.5KE300A | 1.5KE300CA | 256.0 | 285.00 | 315.00 | 1 | 1 | 3.7 | 414.0 |
| 1.5KE350A | 1.5KE350CA | 300.0 | 332.00 | 368.00 | 1 | 1 | 3.2 | 482.0 |
| 1.5KE400A | 1.5KE400CA | 342.0 | 380.00 | 420.00 | 1 | 1 | 2.8 | 548.0 |
| 1.5KE440A | 1.5KE440CA | 376.0 | 418.00 | 462.00 | 1 | 1 | 2.5 | 602.0 |
| 1.5KE480A | 1.5KE480CA | 408.0 | 456.00 | 504.00 | 1 | 1 | 2.3 | 658.0 |
| 1.5KE510A | 1.5KE510CA | 434.0 | 485.00 | 535.00 | 1 | 1 | 2.1 | 698.0 |
| 1.5KE530A | 1.5KE530CA | 450.0 | 503.00 | 556.00 | 1 | 1 | 2.1 | 725.0 |
| 1.5KE540A | 1.5KE540CA | 459.0 | 513.00 | 567.00 | 1 | 1 | 2.0 | 740.0 |
| 1.5KE550A | 1.5KE550CA | 467.0 | 522.50 | 577.50 | 1 | 1 | 2.0 | 760.0 |
| 1.5KE600A | 1.5KE600CA | 509.0 | 570.00 | 630.00 | 1 | 1 | 1.8 | 780.0 |