

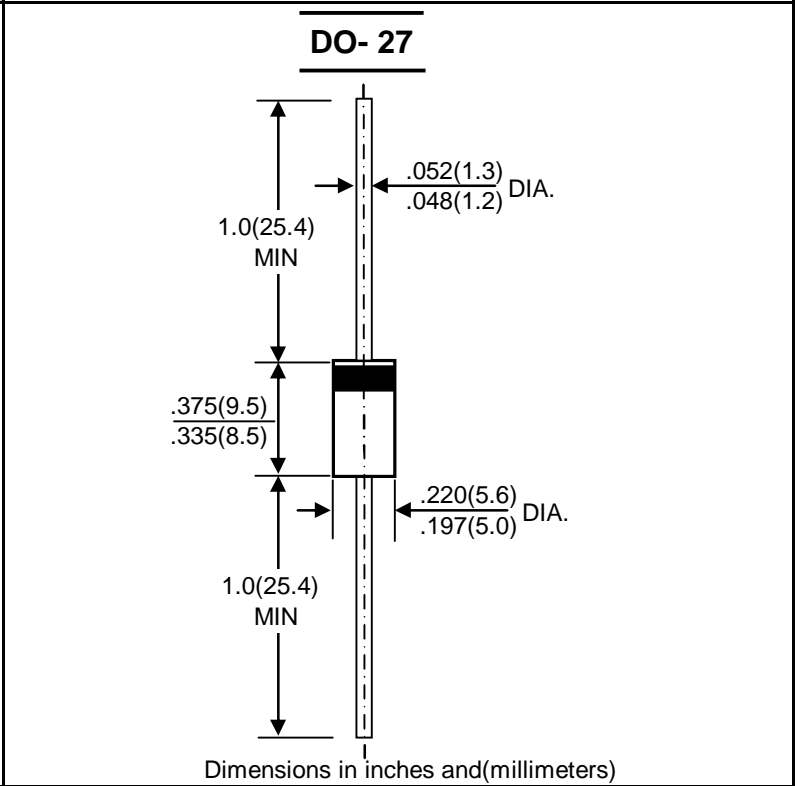
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|--|--|
| <b>GLASS PASSIVATED<br/>UNIDIRECTIONAL AND BIDIRECTIONAL<br/>TRANSIENT VOLTAGE SUPPRESSORS</b> | <b>REVERSE VOLTAGE - 6.8 to 440 Volts</b><br><b>POWER DISSIPATION - 1500 Watts</b> |
|--|--|

**FEATURES**

- Glass passivate chip
- low leakage
- Uni and bidirectional unit
- Excellent clamping capability
- Plastic material has UL recognition 94V-0
- Fast response time

**MECHANICAL DATA**

- Case : Molded Plastic
- Marking : Unidirectional -type number and cathode band  
Bidirectional-type number only
- Weight :1.2 grams



**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave ,60Hz, resistive or inductive load.

For capacitive load, derate current by 20%

| CHARACTERISTICS   | SYMBOL             | VALUE        | UNIT  |
|---|--------------------|--------------|-------|
| Peak Power Dissipation at T <sub>A</sub> =25°C<br>TP=1ms (NOTE1)  | P <sub>PK</sub>    | Minimum 1500 | WATTS |
| Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave<br>Super Imposed on Rated Load (JEDEC Method) | I <sub>FSM</sub>   | 200          | AMPS  |
| Steady State Power Dissipation at T <sub>L</sub> =75°C<br>Lead Lengths 0.375"(9.5mm), See Fig. 4        | P <sub>M(AV)</sub> | 5.0          | WATTS |
| Maximum Instantaneous Forward Voltage<br>at 50A for Unidirectional Devices Only (NOTE2)                 | V <sub>F</sub>     | See NOTE 3   | VOLTS |
| Operating Temperature Range   | T <sub>J</sub>     | -55 to + 150 | °C    |
| Storage Temperature Range   | T <sub>STG</sub>   | -55 to + 175 | °C    |

NOTES:1. Non-repetitive current pulse ,per Fig. 5 and derated above T<sub>A</sub>=25°C per Fig. 1 .

2. 8.3ms single half-wave duty cycle=4 pulses per minutes maximum (uni-directional units only).

3. V<sub>F</sub>=3.5V on 1.5KE6.8 thru 1.5KE200A devices and V<sub>F</sub>=5.0V on 1.5KE1100 thru 1.5KE400A devices.

**RATING AND CHARACTERISTIC CURVES**  
**1.5KE SERIES**



FIG.1-PULSE DERATING CURVE

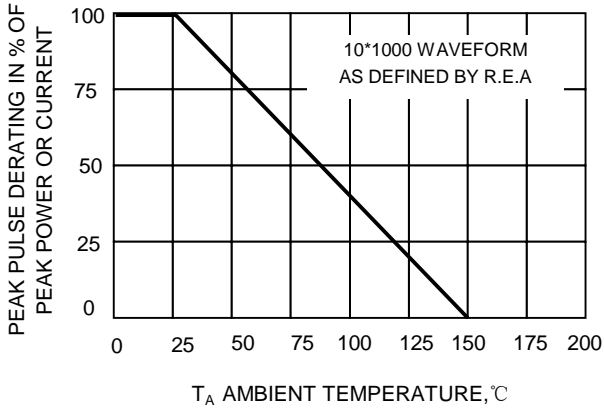


FIG.2-TYPICAL JUNCTION CAPACITANCE

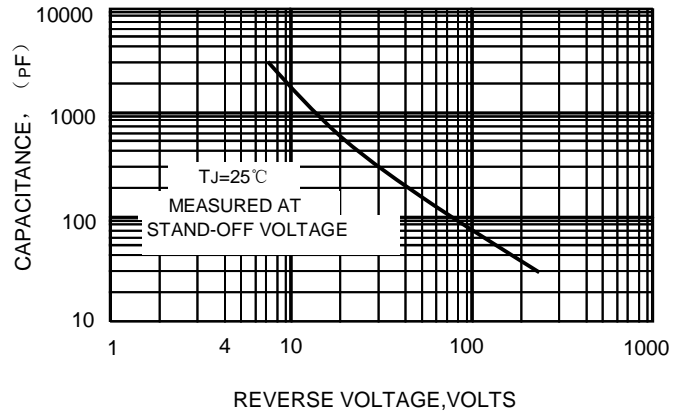


FIG.3-PULSE RATING CURVE

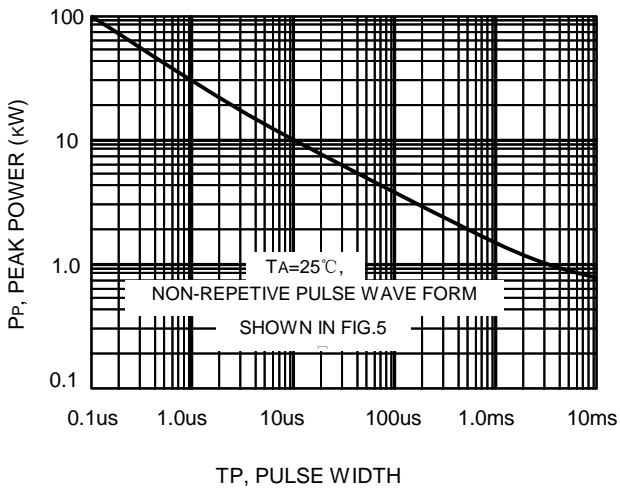


FIG.4-STEADY STATE POWER DERATING CURVE

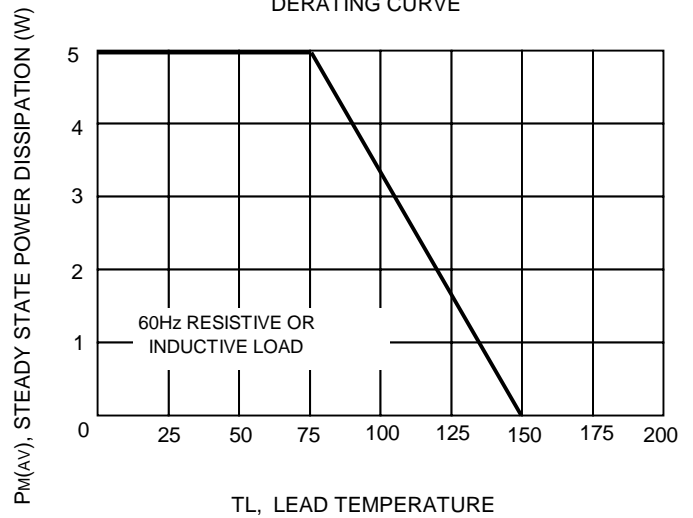
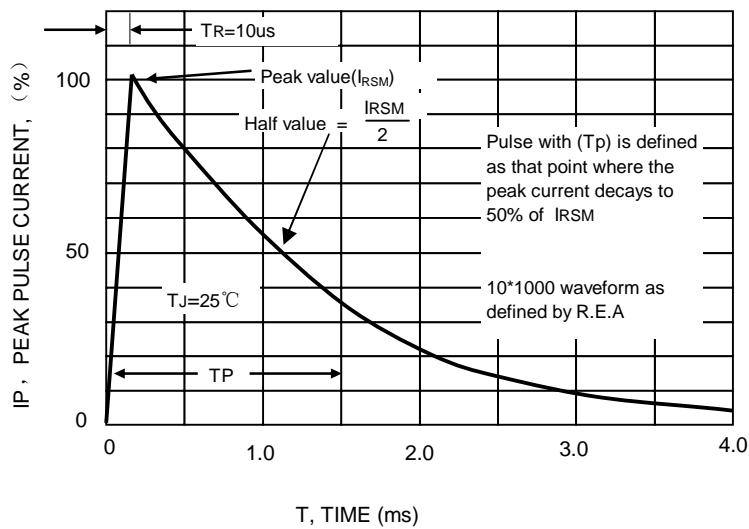


FIG.5 -PULSE WAVEFORM





# 1.5KE SERIES

| Type Number | Type Number | Reverse Standoff Voltage | Breakdown Voltage BV Lots@It |       |       | Max. Reverse Leakage | Max. Clamping Voltage | Max. Peak Pulse | Max. Voltage Temp. |
|-------------|-------------|--------------------------|------------------------------|-------|-------|----------------------|-----------------------|-----------------|--------------------|
|             |             |                          | (UNI)                        | (BI)  | VR(V) |                      |                       |                 |                    |
| 1.5KE6.8    | 1.5KE6.8C   | 5.50                     | 6.12                         | 7.48  | 10    | 1000                 | 10.8                  | 139.0           | 0.057              |
| 1.5KE6.8A   | 1.5KE6.8CA  | 5.80                     | 6.45                         | 7.14  | 10    | 1000                 | 10.5                  | 143.0           | 0.057              |
| 1.5KE7.5    | 1.5KE7.5C   | 6.05                     | 6.75                         | 8.25  | 10    | 500                  | 11.7                  | 128.0           | 0.061              |
| 1.5KE7.5A   | 1.5KE7.5CA  | 6.40                     | 7.13                         | 7.88  | 10    | 500                  | 11.3                  | 132.0           | 0.061              |
| 1.5KE8.2    | 1.5KE8.2C   | 6.63                     | 7.38                         | 9.02  | 10    | 200                  | 12.5                  | 120.0           | 0.065              |
| 1.5KE8.2A   | 1.5KE8.2CA  | 7.02                     | 7.79                         | 8.61  | 10    | 200                  | 12.1                  | 124.0           | 0.065              |
| 1.5KE9.1    | 1.5KE9.1C   | 7.37                     | 8.19                         | 10.00 | 1     | 50                   | 13.8                  | 109.0           | 0.068              |
| 1.5KE9.1A   | 1.5KE9.1CA  | 7.78                     | 8.65                         | 9.55  | 1     | 50                   | 13.4                  | 112.0           | 0.068              |
| 1.5KE10     | 1.5KE10C    | 8.10                     | 9.00                         | 11.00 | 1     | 10                   | 15.0                  | 100.0           | 0.073              |
| 1.5KE10A    | 1.5KE10CA   | 8.55                     | 9.50                         | 10.50 | 1     | 10                   | 14.5                  | 103.0           | 0.073              |
| 1.5KE11     | 1.5KE11C    | 8.92                     | 9.90                         | 12.10 | 1     | 5                    | 16.2                  | 93.0            | 0.075              |
| 1.5KE11A    | 1.5KE11CA   | 9.40                     | 10.50                        | 11.60 | 1     | 5                    | 15.6                  | 96.0            | 0.075              |
| 1.5KE12     | 1.5KE12C    | 9.72                     | 10.80                        | 13.20 | 1     | 5                    | 17.3                  | 87.0            | 0.078              |
| 1.5KE12A    | 1.5KE12CA   | 10.20                    | 11.40                        | 12.60 | 1     | 5                    | 16.7                  | 90.0            | 0.078              |
| 1.5KE13     | 1.5KE13C    | 10.50                    | 11.70                        | 14.30 | 1     | 5                    | 19.0                  | 79.0            | 0.081              |
| 1.5KE13A    | 1.5KE13CA   | 11.10                    | 12.40                        | 13.70 | 1     | 5                    | 18.2                  | 82.0            | 0.081              |
| 1.5KE15     | 1.5KE15C    | 12.10                    | 13.50                        | 16.50 | 1     | 5                    | 22.0                  | 68.0            | 0.084              |
| 1.5KE15A    | 1.5KE15CA   | 12.80                    | 14.30                        | 15.80 | 1     | 5                    | 21.2                  | 71.0            | 0.084              |
| 1.5KE16     | 1.5KE16C    | 12.90                    | 14.40                        | 17.60 | 1     | 5                    | 23.5                  | 64.0            | 0.086              |
| 1.5KE16A    | 1.5KE16CA   | 13.60                    | 15.20                        | 16.80 | 1     | 5                    | 22.5                  | 67.0            | 0.086              |
| 1.5KE18     | 1.5KE18C    | 14.50                    | 16.20                        | 19.80 | 1     | 5                    | 26.5                  | 56.5            | 0.088              |
| 1.5KE18A    | 1.5KE18CA   | 15.30                    | 17.10                        | 18.90 | 1     | 5                    | 25.2                  | 59.5            | 0.088              |
| 1.5KE20     | 1.5KE20C    | 16.20                    | 18.00                        | 22.00 | 1     | 5                    | 29.1                  | 51.5            | 0.090              |
| 1.5KE20A    | 1.5KE20CA   | 17.10                    | 19.00                        | 21.00 | 1     | 5                    | 27.7                  | 54.0            | 0.090              |
| 1.5KE22     | 1.5KE22C    | 17.80                    | 19.80                        | 24.20 | 1     | 5                    | 31.9                  | 47.0            | 0.092              |
| 1.5KE22A    | 1.5KE22CA   | 18.80                    | 20.90                        | 23.10 | 1     | 5                    | 30.6                  | 49.0            | 0.092              |
| 1.5KE24     | 1.5KE24C    | 19.40                    | 21.60                        | 26.40 | 1     | 5                    | 34.7                  | 43.0            | 0.094              |
| 1.5KE24A    | 1.5KE24CA   | 20.50                    | 22.80                        | 25.20 | 1     | 5                    | 33.2                  | 45.0            | 0.094              |
| 1.5KE27     | 1.5KE27C    | 21.80                    | 24.30                        | 29.70 | 1     | 5                    | 39.1                  | 38.5            | 0.096              |
| 1.5KE27A    | 1.5KE27CA   | 23.10                    | 25.70                        | 28.40 | 1     | 5                    | 37.5                  | 40.0            | 0.096              |
| 1.5KE30     | 1.5KE30C    | 24.30                    | 27.00                        | 33.00 | 1     | 5                    | 43.5                  | 34.5            | 0.097              |
| 1.5KE30A    | 1.5KE30CA   | 25.60                    | 28.50                        | 31.50 | 1     | 5                    | 41.4                  | 36.0            | 0.097              |
| 1.5KE33     | 1.5KE33C    | 26.80                    | 29.70                        | 36.30 | 1     | 5                    | 47.7                  | 31.5            | 0.098              |
| 1.5KE33A    | 1.5KE33CA   | 28.20                    | 31.40                        | 34.70 | 1     | 5                    | 45.7                  | 33.0            | 0.098              |
| 1.5KE36     | 1.5KE36C    | 29.10                    | 32.40                        | 39.60 | 1     | 5                    | 52.0                  | 29.0            | 0.099              |
| 1.5KE36A    | 1.5KE36CA   | 30.80                    | 34.20                        | 37.80 | 1     | 5                    | 49.9                  | 30.0            | 0.099              |
| 1.5KE39     | 1.5KE39C    | 31.60                    | 35.10                        | 42.90 | 1     | 5                    | 56.4                  | 26.5            | 0.100              |
| 1.5KE39A    | 1.5KE39CA   | 33.30                    | 37.10                        | 41.00 | 1     | 5                    | 53.9                  | 28.0            | 0.100              |
| 1.5KE43     | 1.5KE43C    | 34.80                    | 38.70                        | 47.30 | 1     | 5                    | 61.9                  | 24.0            | 0.101              |
| 1.5KE43A    | 1.5KE43CA   | 36.80                    | 40.90                        | 45.20 | 1     | 5                    | 59.3                  | 25.3            | 0.101              |
| 1.5KE47     | 1.5KE47C    | 38.10                    | 42.30                        | 51.70 | 1     | 5                    | 67.8                  | 22.2            | 0.101              |
| 1.5KE47A    | 1.5KE47CA   | 40.20                    | 44.70                        | 49.40 | 1     | 5                    | 64.8                  | 23.2            | 0.101              |
| 1.5KE51     | 1.5KE51C    | 41.30                    | 45.90                        | 56.10 | 1     | 5                    | 73.5                  | 20.4            | 0.102              |
| 1.5KE51A    | 1.5KE51CA   | 43.60                    | 48.50                        | 53.60 | 1     | 5                    | 70.1                  | 21.4            | 0.102              |
| 1.5KE56     | 1.5KE56C    | 45.40                    | 50.40                        | 61.60 | 1     | 5                    | 80.5                  | 18.6            | 0.103              |
| 1.5KE56A    | 1.5KE56CA   | 47.80                    | 53.20                        | 58.80 | 1     | 5                    | 77.0                  | 19.5            | 0.103              |

# 1.5KE SERIES



| Type Number | Type Number | Reverse Standoff Voltage | Breakdown Voltage BV Volts@It |        |        | Max. Reverse Leakage | Max. Clamping Voltage | Max. Peak Pulse | Max. Voltage Temp. |
|-------------|-------------|--------------------------|-------------------------------|--------|--------|----------------------|-----------------------|-----------------|--------------------|
|             |             |                          | Min(V)                        | Max(V) | It(mA) |                      |                       |                 |                    |
| (UNI)       | (BI)        | VR(V)                    | Min(V)                        | Max(V) | It(mA) | IR(uA)               | Vc(V)                 | Ipp(A)          | %/°C               |
| 1.5KE62     | 1.5KE62C    | 50.2                     | 55.8                          | 68.2   | 1      | 5                    | 89.0                  | 16.90           | 0.104              |
| 1.5KE62A    | 1.5KE62CA   | 53.0                     | 58.9                          | 65.1   | 1      | 5                    | 85.0                  | 17.70           | 0.104              |
| 1.5KE68     | 1.5KE68C    | 55.1                     | 61.2                          | 74.8   | 1      | 5                    | 98.0                  | 15.30           | 0.104              |
| 1.5KE68A    | 1.5KE68CA   | 58.1                     | 64.6                          | 71.4   | 1      | 5                    | 92.0                  | 16.30           | 0.104              |
| 1.5KE75     | 1.5KE75C    | 60.7                     | 67.5                          | 82.5   | 1      | 5                    | 108.0                 | 13.90           | 0.105              |
| 1.5KE75A    | 1.5KE75CA   | 64.7                     | 71.3                          | 78.8   | 1      | 5                    | 103.0                 | 14.60           | 0.105              |
| 1.5KE82     | 1.5KE82C    | 66.4                     | 73.8                          | 90.2   | 1      | 5                    | 118.0                 | 12.70           | 0.105              |
| 1.5KE82A    | 1.5KE82CA   | 70.1                     | 77.9                          | 86.1   | 1      | 5                    | 113.0                 | 13.30           | 0.105              |
| 1.5KE91     | 1.5KE91C    | 73.7                     | 81.9                          | 100.0  | 1      | 5                    | 131.0                 | 11.40           | 0.106              |
| 1.5KE91A    | 1.5KE91CA   | 77.8                     | 86.5                          | 95.5   | 1      | 5                    | 125.0                 | 12.00           | 0.106              |
| 1.5KE100    | 1.5KE100C   | 81.0                     | 90.0                          | 110.0  | 1      | 5                    | 144.0                 | 10.40           | 0.106              |
| 1.5KE100A   | 1.5KE100CA  | 85.5                     | 95.0                          | 105.0  | 1      | 5                    | 137.0                 | 11.00           | 0.106              |
| 1.5KE110    | 1.5KE110C   | 89.2                     | 99.0                          | 121.0  | 1      | 5                    | 158.0                 | 9.50            | 0.107              |
| 1.5KE110A   | 1.5KE110CA  | 94.0                     | 105.0                         | 116.0  | 1      | 5                    | 152.0                 | 9.90            | 0.107              |
| 1.5KE120    | 1.5KE120C   | 97.2                     | 108.0                         | 132.0  | 1      | 5                    | 173.0                 | 8.70            | 0.107              |
| 1.5KE120A   | 1.5KE120CA  | 102.0                    | 114.0                         | 126.0  | 1      | 5                    | 165.0                 | 9.10            | 0.107              |
| 1.5KE130    | 1.5KE130C   | 105.0                    | 117.0                         | 143.0  | 1      | 5                    | 187.0                 | 8.00            | 0.107              |
| 1.5KE130A   | 1.5KE130CA  | 111.0                    | 124.0                         | 137.0  | 1      | 5                    | 179.0                 | 8.40            | 0.107              |
| 1.5KE150    | 1.5KE150C   | 121.0                    | 135.0                         | 165.0  | 1      | 5                    | 215.0                 | 7.00            | 0.108              |
| 1.5KE150A   | 1.5KE150CA  | 128.0                    | 143.0                         | 158.0  | 1      | 5                    | 207.0                 | 7.20            | 0.108              |
| 1.5KE160    | 1.5KE160C   | 130.0                    | 144.0                         | 176.0  | 1      | 5                    | 230.0                 | 6.50            | 0.108              |
| 1.5KE160A   | 1.5KE160CA  | 136.0                    | 152.0                         | 168.0  | 1      | 5                    | 219.0                 | 6.80            | 0.108              |
| 1.5KE170    | 1.5KE170C   | 138.0                    | 153.0                         | 187.0  | 1      | 5                    | 244.0                 | 6.20            | 0.108              |
| 1.5KE170A   | 1.5KE170CA  | 145.0                    | 162.0                         | 179.0  | 1      | 5                    | 234.0                 | 6.40            | 0.108              |
| 1.5KE180    | 1.5KE180C   | 146.0                    | 162.0                         | 198.0  | 1      | 5                    | 258.0                 | 5.80            | 0.108              |
| 1.5KE180A   | 1.5KE180CA  | 154.0                    | 171.0                         | 189.0  | 1      | 5                    | 246.0                 | 6.10            | 0.108              |
| 1.5KE200    | 1.5KE200C   | 162.0                    | 180.0                         | 220.0  | 1      | 5                    | 287.0                 | 5.20            | 0.108              |
| 1.5KE200A   | 1.5KE200CA  | 171.0                    | 190.0                         | 210.0  | 1      | 5                    | 274.0                 | 5.50            | 0.108              |
| 1.5KE220    | 1.5KE220C   | 175.0                    | 198.0                         | 242.0  | 1      | 5                    | 344.0                 | 4.30            | 0.108              |
| 1.5KE220A   | 1.5KE220CA  | 185.0                    | 209.0                         | 231.0  | 1      | 5                    | 328.0                 | 4.60            | 0.108              |
| 1.5KE250    | 1.5KE250C   | 202.0                    | 225.0                         | 275.0  | 1      | 5                    | 360.0                 | 5.00            | 0.110              |
| 1.5KE250A   | 1.5KE250CA  | 214.0                    | 237.0                         | 263.0  | 1      | 5                    | 344.4                 | 5.00            | 0.110              |
| 1.5KE300    | 1.5KE300C   | 243.0                    | 270.0                         | 330.0  | 1      | 5                    | 430.0                 | 5.00            | 0.110              |
| 1.5KE300A   | 1.5KE300CA  | 256.0                    | 285.0                         | 315.0  | 1      | 5                    | 414.0                 | 5.00            | 0.110              |
| 1.5KE350    | 1.5KE350C   | 284.0                    | 315.0                         | 385.0  | 1      | 5                    | 504.0                 | 4.00            | 0.110              |
| 1.5KE350A   | 1.5KE350CA  | 300.0                    | 332.0                         | 368.0  | 1      | 5                    | 482.0                 | 4.00            | 0.110              |
| 1.5KE400    | 1.5KE400C   | 324.0                    | 360.0                         | 440.0  | 1      | 5                    | 574.0                 | 4.00            | 0.110              |
| 1.5KE400A   | 1.5KE400CA  | 342.0                    | 380.0                         | 420.0  | 1      | 5                    | 548.0                 | 4.00            | 0.110              |

NOTES: Suffix'C' denotes bidirectional device . Suffix'A' denotes 5% tolerance device .no suffix denotes 10% tolerance device .

1. For bidirectional devices having VR of 10volts and under ,the IR limit is doubled .