

**GLASS PASSIVATED  
UNIDIRECTIONAL AND BIDIRECTIONAL  
TRANSIENT VOLTAGE SUPPRESSORS**

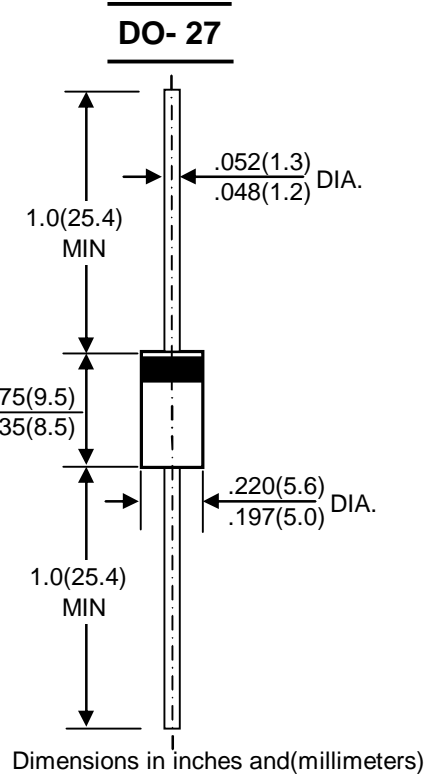
REVERSE VOLTAGE - **6.8 to 440** Volts  
POWER DISSIPATION - **1500** Watts

**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.

FIG.1-PULSE DERATING CURVE

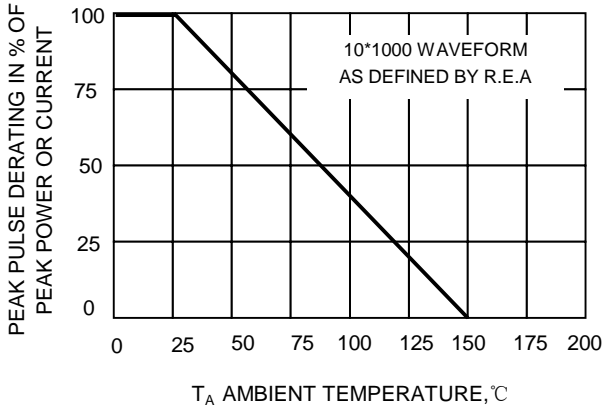


FIG.2-TYPICAL JUNCTION CAPACITANCE

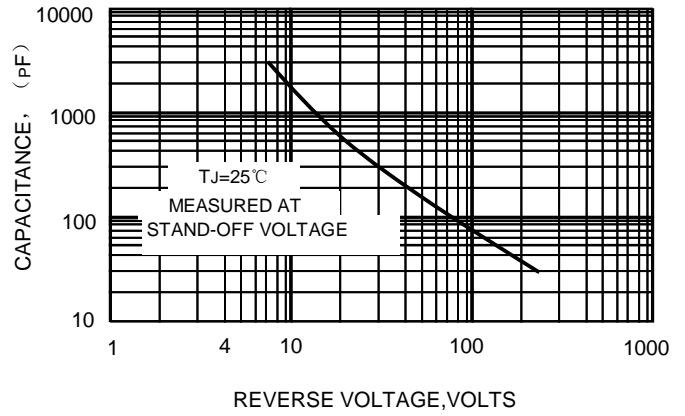


FIG.3-PULSE RATING CURVE

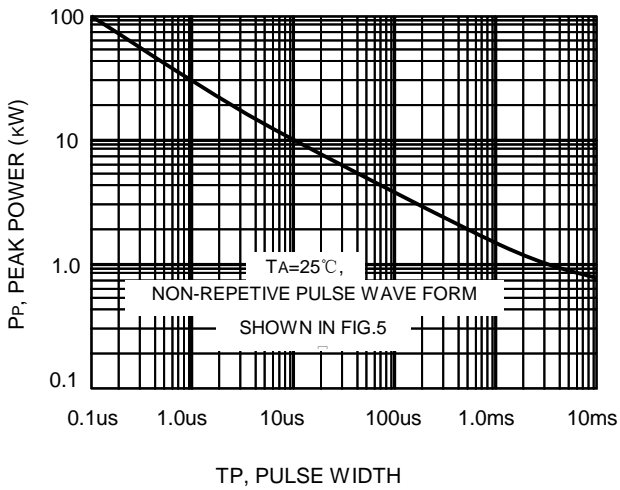


FIG.4-STEADY STATE POWER DERATING CURVE

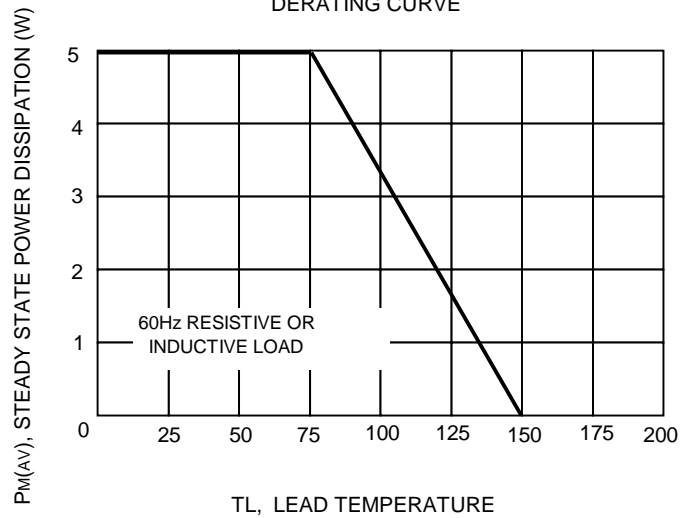
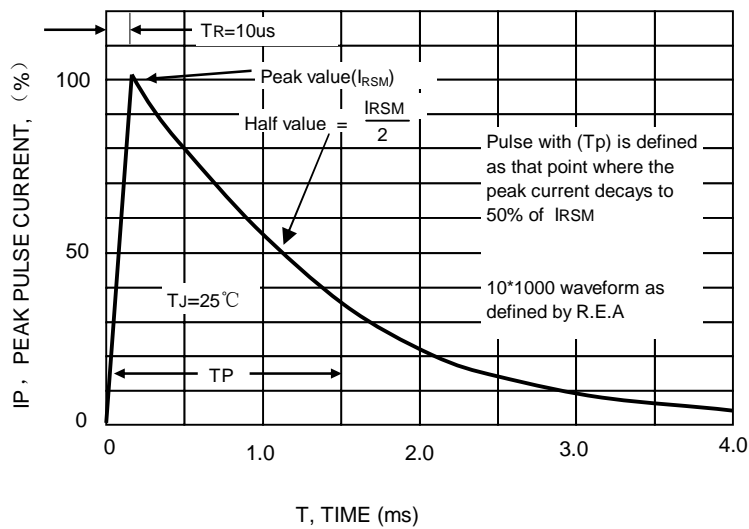


FIG.5 -PULSE WAVEFORM





# 1.5KE SERIES

| Type Number<br>(UNI) | Type Number<br>(BI) | Reverse Standoff Voltage<br>VR(V) | Breakdown Voltage<br>BV Volts@It |        |        | Max. Reverse Leakage<br>IR(uA) | Max. Clamping Voltage<br>Vc(V) | Max. Peak Pulse<br>Ipp(A) | Max. Voltage Temp.<br>%/°C |
|----------------------|---------------------|-----------------------------------|----------------------------------|--------|--------|--------------------------------|--------------------------------|---------------------------|----------------------------|
|                      |                     |                                   | Min(V)                           | Max(V) | It(mA) |                                |                                |                           |                            |
| 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 Lolts@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 .