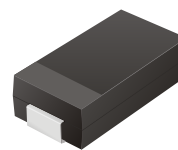


# SMD Transient Voltage Suppressor

## TV15C5V0 Thru TV15C171

Working Peak Reverse Voltage: 5.0 - 170 Volts  
Power Dissipation: 1500 Watts

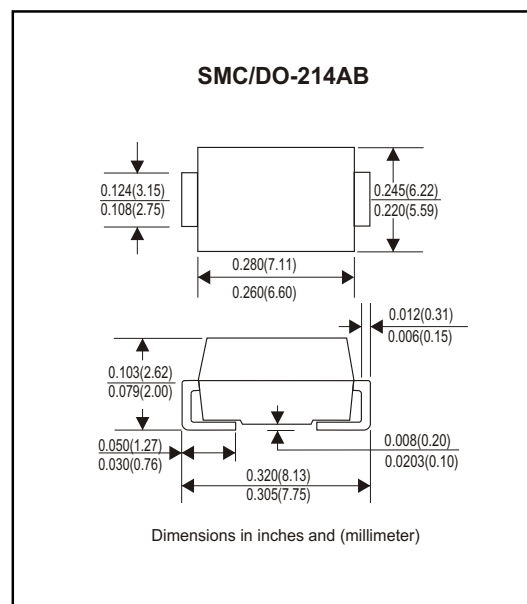


### Features

- Ideal for surface mount applications
- Easy pick and place
- Plastic package has Underwriters Lab. flammability classification 94V-0
- Typical IR less than 1uA above 10V
- Fast reponse time: typically less 1nS for uni-direction, less than 5nS for bi-directiona, from 0 V to BV min.

### Mechanical data

- Case: JEDEC DO-214AB molded plastic
- Terminals: solderable per MIL-STD-750, method 2026
- Polarity: Cathode band denoted
- Mounting position: Any
- Approx. Weight:0.21 gram



### 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       | Units |
|------------------------------------------------------------------------------------------------------------------|--------------------|-------------|-------|
| Peak Power Dissipation on 10/1000uS Waveform (Note 1, Fig. 1)                                                    | P <sub>PPM</sub>   | 1500        | Watts |
| Peak Pulse Current of on 10/1000uS Waveform (Note 1, Fig. 3)                                                     | I <sub>PPM</sub>   | See Table 1 | A     |
| Steady State PowerDissipation at T <sub>L</sub> =75° C (Note2)                                                   | P <sub>M(AV)</sub> | 5.0         | Watts |
| Peak Forard Surge Current, 8.3mS Single Half Sine-Wave Superimposed on Rated Load, Uni-Directional Only (Note 3) | I <sub>FSM</sub>   | 200         | A     |
| Maxinum Instantaneous Forward Voltage at 100A for Uni-Directional only (Note 3 & 4)                              | V <sub>F</sub>     | 3.5/5.0     | Volts |
| Operation Junction Temperature Range                                                                             | T <sub>j</sub>     | -55 to +150 | °C    |
| Storage Temperature Range                                                                                        | T <sub>STG</sub>   | -55 to +150 | °C    |

Note: 1. Non-Repetitive Current Pulse, per Fig. 3 and Derated above TA=25° C, per Fig. 2.  
2. Mounted on 8.0x8.0 mm<sup>2</sup>. Copper Pads to Each Terminal.  
3. Measured on 8.3 mS Single Half Sine-Wave or Equivalent Square Wave, Duty Cycle=4 Pulse per Minute Maximum.  
4. V<sub>F</sub>=3.5V on TV15C5V0 thru TV15C900 Devices and V<sub>F</sub>=5.0V on TV15C101 thru TV15C171.

## Rating and Characteristic Curves (TV15C5V0 Thru TV15C171)

Fig. 1 - Reverse Characteristics

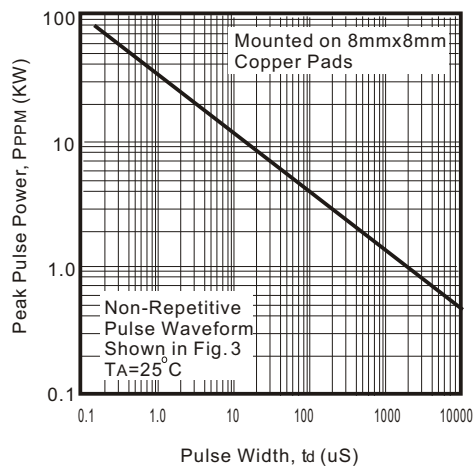


Fig. 2 - Pulse Derating Curve

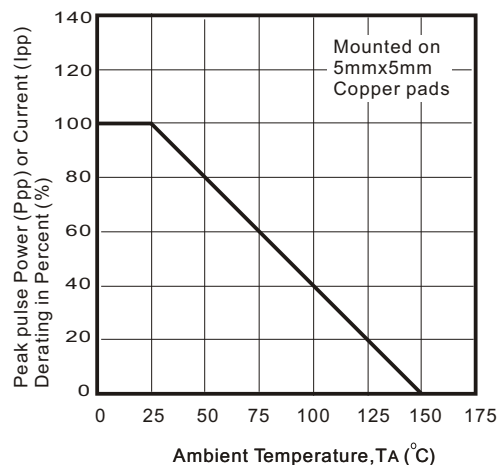


Fig. 3 - Pulse Waveform

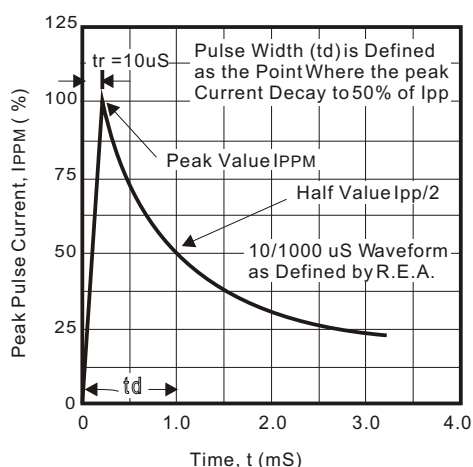


Fig. 4 - Typical Junction Capacitance for Uni-Directional Devices

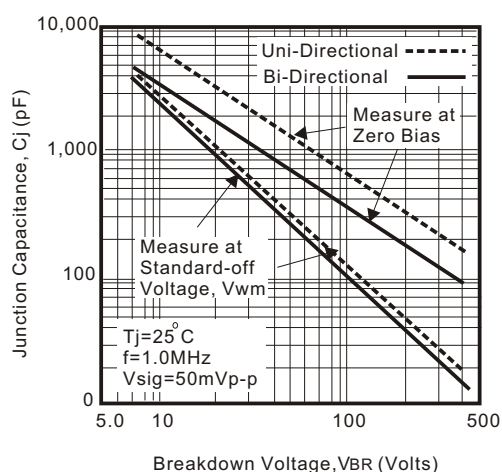


Fig. 5 - Steady State Power Derating Curve

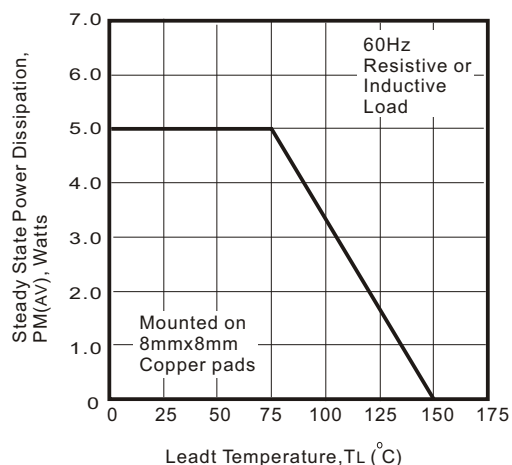
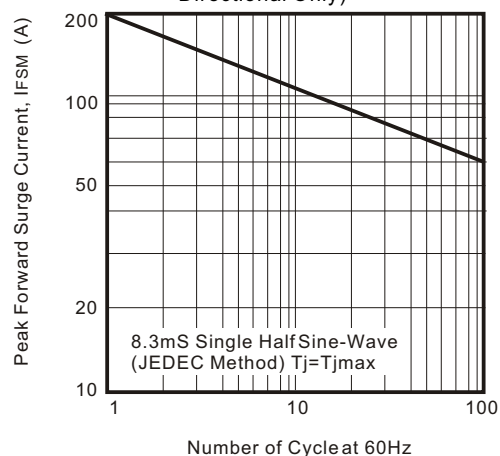


Fig. 6 - Maximum Non-Repetitive Peak Forward Surge Current (Uni-Directional Only)



**Table 1. Specification**

| Part No.     | Absolute Maximum Rating ( Ta=25°C ) |         |         |        |              | Electrical Characteristics ( Ta=25°C ) |        |          |              |     |
|--------------|-------------------------------------|---------|---------|--------|--------------|----------------------------------------|--------|----------|--------------|-----|
|              | VRWM                                | VBR Min | VBR Max | IT     | IFSM         | Max Vc                                 |        | IR @VRWM | Marking Code |     |
|              | ( V )                               | ( V )   | ( V )   | ( mA ) | ( A ) @8.3mS | ( V )                                  | Ipp(A) | ( uA )   | UNI          | BI  |
| TV15C5V0K(B) | 5.00                                | 6.40    | 7.55    | 10     | 100          | 9.6                                    | 156.2  | 800      | GDD          | BDD |
| TV15C5V0J(B) | 5.00                                | 6.40    | 7.25    | 10     | 100          | 9.2                                    | 163.0  | 800      | GDE          | BDE |
| TV15C6V0K(B) | 6.00                                | 6.67    | 8.45    | 10     | 100          | 11.4                                   | 131.6  | 800      | GDF          | BDF |
| TV15C6V0J(B) | 6.00                                | 6.67    | 7.67    | 10     | 100          | 10.3                                   | 145.6  | 800      | GDG          | BDG |
| TV15C6V5K(B) | 6.50                                | 7.22    | 9.14    | 10     | 100          | 12.3                                   | 122.0  | 500      | GDH          | BDH |
| TV15C6V5J(B) | 6.50                                | 7.22    | 8.30    | 10     | 100          | 11.2                                   | 133.9  | 500      | GDK          | BDK |
| TV15C7V0K(B) | 7.00                                | 7.78    | 9.86    | 1      | 100          | 13.3                                   | 112.8  | 200      | GDL          | BDL |
| TV15C7V0J(B) | 7.00                                | 7.78    | 8.95    | 1      | 100          | 12.0                                   | 125.0  | 200      | GDM          | BDM |
| TV15C7V5K(B) | 7.50                                | 8.33    | 10.67   | 1      | 100          | 14.3                                   | 104.9  | 100      | GDN          | BDN |
| TV15C7V5J(B) | 7.50                                | 8.33    | 9.58    | 1      | 100          | 12.9                                   | 116.3  | 100      | GDP          | BDP |
| TV15C8V0K(B) | 8.00                                | 8.89    | 11.30   | 1      | 100          | 15.0                                   | 100.0  | 50       | GDQ          | BDQ |
| TV15C8V0J(B) | 8.00                                | 8.89    | 10.23   | 1      | 100          | 13.6                                   | 110.3  | 50       | GDR          | BDR |
| TV15C8V5K(B) | 8.50                                | 9.44    | 11.9    | 1      | 100          | 15.9                                   | 94.3   | 10       | GDS          | BDS |
| TV15C8V5J(B) | 8.50                                | 9.44    | 10.8    | 1      | 100          | 14.4                                   | 104.2  | 10       | GDT          | BDT |
| TV15C9V0K(B) | 9.00                                | 10.00   | 12.6    | 1      | 100          | 16.9                                   | 88.7   | 5        | GDU          | BDU |
| TV15C9V0J(B) | 9.00                                | 10.00   | 11.5    | 1      | 100          | 15.4                                   | 97.4   | 5        | GDV          | BDV |
| TV15C100K(B) | 10.00                               | 11.10   | 14.1    | 1      | 100          | 18.8                                   | 79.8   | 5        | GDW          | BDW |
| TV15C100J(B) | 10.00                               | 11.10   | 12.8    | 1      | 100          | 17.0                                   | 88.2   | 5        | GDX          | BDX |
| TV15C110K(B) | 11.00                               | 12.20   | 15.4    | 1      | 100          | 20.1                                   | 74.6   | 5        | GDY          | BDY |
| TV15C110J(B) | 11.00                               | 12.20   | 14.0    | 1      | 100          | 18.2                                   | 82.4   | 5        | GDZ          | BDZ |
| TV15C120K(B) | 12.00                               | 13.30   | 16.9    | 1      | 100          | 22.0                                   | 68.2   | 5        | GED          | BED |
| TV15C120J(B) | 12.00                               | 13.30   | 15.3    | 1      | 100          | 19.9                                   | 75.3   | 5        | GEE          | BEE |
| TV15C130K(B) | 13.00                               | 14.40   | 18.2    | 1      | 100          | 23.8                                   | 63.0   | 5        | GEF          | BEF |
| TV15C130J(B) | 13.00                               | 14.40   | 16.5    | 1      | 100          | 21.5                                   | 69.7   | 5        | GEG          | BEG |
| TV15C140K(B) | 14.00                               | 15.60   | 19.8    | 1      | 100          | 25.8                                   | 58.1   | 5        | GEH          | BEH |
| TV15C140J(B) | 14.00                               | 15.60   | 17.9    | 1      | 100          | 23.2                                   | 64.7   | 5        | GEK          | BEK |
| TV15C150K(B) | 15.00                               | 16.70   | 21.1    | 1      | 100          | 26.9                                   | 55.8   | 5        | GEL          | BEL |
| TV15C150J(B) | 15.00                               | 16.70   | 19.2    | 1      | 100          | 24.4                                   | 61.5   | 5        | GEM          | BEM |
| TV15C160K(B) | 16.00                               | 17.80   | 22.6    | 1      | 100          | 28.8                                   | 52.1   | 5        | GEN          | BEN |
| TV15C160J(B) | 16.00                               | 17.80   | 20.5    | 1      | 100          | 26.0                                   | 57.7   | 5        | GEP          | BEP |
| TV15C170K(B) | 17.00                               | 18.90   | 23.9    | 1      | 100          | 30.5                                   | 49.2   | 5        | GEQ          | BEQ |
| TV15C170J(B) | 17.00                               | 18.90   | 21.7    | 1      | 100          | 27.6                                   | 53.3   | 5        | GER          | BER |
| TV15C180K(B) | 18.00                               | 20.00   | 25.3    | 1      | 100          | 32.2                                   | 46.6   | 5        | GES          | BES |
| TV15C180J(B) | 18.00                               | 20.00   | 23.3    | 1      | 100          | 29.2                                   | 51.4   | 5        | GET          | BET |
| TV15C200K(B) | 20.00                               | 22.20   | 28.1    | 1      | 100          | 35.8                                   | 41.9   | 5        | GEU          | BEU |
| TV15C200J(B) | 20.00                               | 22.20   | 25.5    | 1      | 100          | 32.4                                   | 46.3   | 5        | GEV          | BEV |
| TV15C220K(B) | 22.00                               | 24.40   | 30.9    | 1      | 100          | 39.4                                   | 38.1   | 5        | GEW          | BEW |
| TV15C220J(B) | 22.00                               | 24.40   | 28.0    | 1      | 100          | 35.5                                   | 42.2   | 5        | GEX          | BEX |
| TV15C240K(B) | 24.00                               | 26.70   | 33.8    | 1      | 100          | 43.0                                   | 34.9   | 5        | GEY          | BEY |
| TV15C240J(B) | 24.00                               | 26.70   | 30.7    | 1      | 100          | 38.9                                   | 38.6   | 5        | GEZ          | BEZ |
| TV15C260K(B) | 26.00                               | 28.90   | 36.6    | 1      | 100          | 46.6                                   | 32.2   | 5        | GFD          | BFD |
| TV15C260J(B) | 26.00                               | 28.90   | 33.2    | 1      | 100          | 42.1                                   | 35.6   | 5        | GFE          | BFE |
| TV15C280K(B) | 28.00                               | 31.10   | 39.4    | 1      | 100          | 50.0                                   | 30.0   | 5        | GFF          | BFF |
| TV15C280J(B) | 28.00                               | 31.10   | 35.8    | 1      | 100          | 45.4                                   | 33.0   | 5        | GFG          | BFG |
| TV15C300K(B) | 30.00                               | 33.30   | 42.2    | 1      | 100          | 53.5                                   | 28.0   | 5        | GFH          | BFH |
| TV15C300J(B) | 30.00                               | 33.30   | 38.3    | 1      | 100          | 48.4                                   | 31.0   | 5        | GFK          | BFK |
| TV15C330K(B) | 33.00                               | 36.70   | 46.5    | 1      | 100          | 59.0                                   | 25.2   | 5        | GFL          | BFL |
| TV15C330J(B) | 33.00                               | 36.70   | 42.2    | 1      | 100          | 53.3                                   | 28.1   | 5        | GFM          | BFM |
| TV15C360K(B) | 36.00                               | 40.00   | 50.7    | 1      | 100          | 64.3                                   | 23.3   | 5        | GFN          | BFN |
| TV15C360J(B) | 36.00                               | 40.00   | 46.0    | 1      | 100          | 58.1                                   | 25.8   | 5        | GFP          | BFP |
| TV15C400K(B) | 40.00                               | 44.40   | 56.3    | 1      | 100          | 71.4                                   | 21.0   | 5        | GFQ          | BFQ |
| TV15C400J(B) | 40.00                               | 44.40   | 51.1    | 1      | 100          | 64.5                                   | 23.2   | 5        | GFR          | BFR |
| TV15C430K(B) | 43.00                               | 47.80   | 60.5    | 1      | 100          | 76.7                                   | 19.6   | 5        | GFS          | BFS |
| TV15C430J(B) | 43.00                               | 47.80   | 54.9    | 1      | 100          | 69.4                                   | 21.6   | 5        | GFT          | BFT |
| TV15C450K(B) | 45.00                               | 50.00   | 63.3    | 1      | 100          | 80.3                                   | 18.7   | 5        | GFU          | BFU |
| TV15C450J(B) | 45.00                               | 50.00   | 57.5    | 1      | 100          | 72.7                                   | 20.6   | 5        | GFV          | BFV |

| Part No.     | Absolute Maximum Rating ( Ta=25°C ) |         |         |        |               | Electrical Characteristics ( Ta=25°C ) |        |          |              |     |
|--------------|-------------------------------------|---------|---------|--------|---------------|----------------------------------------|--------|----------|--------------|-----|
|              | VRWM                                | VBR Min | VBR Max | IT     | IFSM          | Max Vc                                 |        | IR @VRWM | Marking Code |     |
|              | ( V )                               | ( V )   | ( V )   | ( mA ) | ( A ) @ 8.3ms | ( V )                                  | Ipp(A) | ( uA )   | UNI          | BI  |
| TV15C480K(B) | 48.00                               | 53.30   | 67.5    | 1      | 100           | 85.5                                   | 17.5   | 5        | GFW          | BFW |
| TV15C480J(B) | 48.00                               | 53.30   | 61.3    | 1      | 100           | 77.4                                   | 19.4   | 5        | GFX          | BFX |
| TV15C510K(B) | 51.00                               | 56.70   | 71.8    | 1      | 100           | 91.1                                   | 16.5   | 5        | GFY          | BFY |
| TV15C510J(B) | 51.00                               | 56.70   | 65.2    | 1      | 100           | 82.4                                   | 18.2   | 5        | GFZ          | BFZ |
| TV15C540K(B) | 54.00                               | 60.00   | 76.0    | 1      | 100           | 96.3                                   | 15.6   | 5        | GGD          | BGD |
| TV15C540J(B) | 54.00                               | 60.00   | 69.0    | 1      | 100           | 87.1                                   | 17.2   | 5        | GGE          | BGE |
| TV15C580K(B) | 58.00                               | 64.40   | 81.6    | 1      | 100           | 103.0                                  | 14.6   | 5        | GGF          | BGF |
| TV15C580J(B) | 58.00                               | 64.40   | 74.1    | 1      | 100           | 93.6                                   | 16.0   | 5        | GGG          | BGG |
| TV15C600K(B) | 60.00                               | 66.70   | 84.5    | 1      | 100           | 107.0                                  | 14.0   | 5        | GGH          | BGH |
| TV15C600J(B) | 60.00                               | 66.70   | 76.7    | 1      | 100           | 96.8                                   | 15.5   | 5        | GGK          | BGK |
| TV15C640K(B) | 64.00                               | 71.10   | 90.1    | 1      | 100           | 114.0                                  | 13.2   | 5        | GGL          | BGL |
| TV15C640J(B) | 64.00                               | 71.10   | 81.8    | 1      | 100           | 103.0                                  | 14.6   | 5        | GGM          | BGM |
| TV15C700K(B) | 70.00                               | 77.80   | 98.6    | 1      | 100           | 125.0                                  | 12.0   | 5        | GGN          | BGN |
| TV15C700J(B) | 70.00                               | 77.80   | 89.5    | 1      | 100           | 113.0                                  | 13.3   | 5        | GGP          | BGP |
| TV15C750K(B) | 75.00                               | 83.30   | 105.7   | 1      | 100           | 134.0                                  | 11.2   | 5        | GGQ          | BGQ |
| TV15C750J(B) | 75.00                               | 83.30   | 95.8    | 1      | 100           | 121.0                                  | 12.4   | 5        | GGR          | BGR |
| TV15C780K(B) | 78.00                               | 86.70   | 109.8   | 1      | 100           | 139.0                                  | 10.8   | 5        | GGs          | BGs |
| TV15C780J(B) | 78.00                               | 86.70   | 99.7    | 1      | 100           | 126.0                                  | 11.4   | 5        | GGT          | BGT |
| TV15C850K(B) | 85.00                               | 94.40   | 119.2   | 1      | 100           | 151.0                                  | 9.9    | 5        | GGU          | BGU |
| TV15C850J(B) | 85.00                               | 94.40   | 108.2   | 1      | 100           | 137.0                                  | 10.4   | 5        | GGV          | BGV |
| TV15C900K(B) | 90.00                               | 100.00  | 126.5   | 1      | 100           | 160.0                                  | 9.4    | 5        | GGW          | BGW |
| TV15C900J(B) | 90.00                               | 100.00  | 115.5   | 1      | 100           | 146.0                                  | 10.3   | 5        | GGX          | BGX |
| TV15C101K(B) | 100.00                              | 111.00  | 141.0   | 1      | 100           | 179.0                                  | 8.4    | 5        | GGY          | BGY |
| TV15C101J(B) | 100.00                              | 111.00  | 128.0   | 1      | 100           | 162.0                                  | 9.3    | 5        | GGZ          | BGZ |
| TV15C111K(B) | 110.00                              | 122.00  | 154.5   | 1      | 100           | 196.0                                  | 7.7    | 5        | GHD          | BHD |
| TV15C111J(B) | 110.00                              | 122.00  | 140.5   | 1      | 100           | 177.0                                  | 8.4    | 5        | GHE          | BHE |
| TV15C121K(B) | 120.00                              | 133.00  | 169.0   | 1      | 100           | 214.0                                  | 7.0    | 5        | GHF          | BHF |
| TV15C121J(B) | 120.00                              | 133.00  | 153.0   | 1      | 100           | 193.0                                  | 7.9    | 5        | GHG          | BHG |
| TV15C131K(B) | 130.00                              | 144.00  | 182.5   | 1      | 100           | 231.0                                  | 6.5    | 5        | GHH          | BHH |
| TV15C131J(B) | 130.00                              | 144.00  | 165.5   | 1      | 100           | 209.0                                  | 7.2    | 5        | GHK          | BHK |
| TV15C151K(B) | 150.00                              | 167.00  | 211.5   | 1      | 100           | 268.0                                  | 5.6    | 5        | GHL          | BHL |
| TV15C151J(B) | 150.00                              | 167.00  | 192.5   | 1      | 100           | 243.0                                  | 6.2    | 5        | GHM          | BHM |
| TV15C161K(B) | 160.00                              | 178.00  | 226.0   | 1      | 100           | 287.0                                  | 5.2    | 5        | GHN          | BHN |
| TV15C161J(B) | 160.00                              | 178.00  | 205.0   | 1      | 100           | 259.0                                  | 5.8    | 5        | GHP          | BHP |
| TV15C171K(B) | 170.00                              | 189.00  | 239.5   | 1      | 100           | 304.0                                  | 4.9    | 5        | GHQ          | BHQ |
| TV15C171J(B) | 170.00                              | 189.00  | 217.5   | 1      | 100           | 275.0                                  | 5.5    | 5        | GHR          | BHR |

Note:

- 1) Suffix K denotes 10% tolerance devices, suffix J denotes 5% tolerance devices.
- 2) Suffix B after part number to specify bi-directional devices.
- 3) For bi-directional devices having VR of 10 volts and under, the IR limit is double.