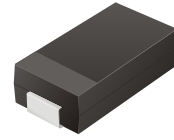


# SMD Transient Voltage Suppressor



## TV04A5V0-G Thru TV04A171-G

Working Peak Reverse Voltage: 5.0 - 170 Volts  
 Power Dissipation: 400 Watts  
 RoHS Device

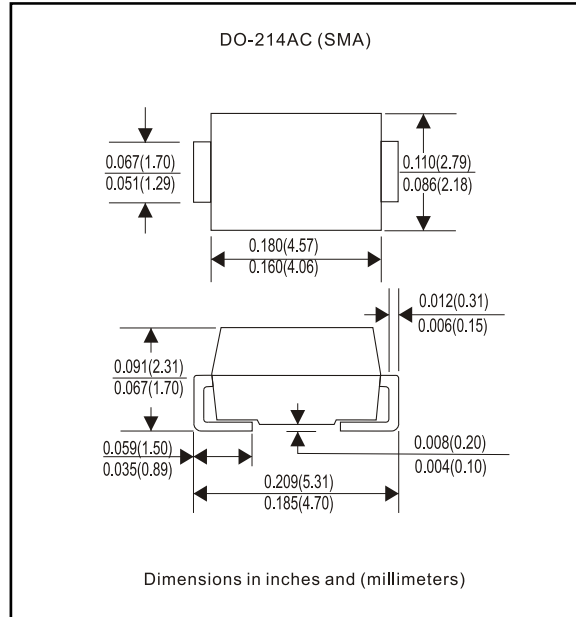


### Features

- 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-214AC molded plastic
- Terminals: solderable per MIL-STD-750, method 2026
- Polarity: Cathode band denoted
- Approx. weight: 0.064 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)   | PPPM               | 400         | Watts |
| Peak Pulse Current of on 10/1000uS Waveform (Note 1, Fig. 3)  | I <sub>PPM</sub>   | See Table 1 | A     |
| Steady State Power Dissipation at T <sub>L</sub> =75°C (Note 2)   | P <sub>M(AV)</sub> | 1.0         | Watts |
| Peak Forfard Surge Current, 8.3mS Single Half Sine-Wave Superimposed on Rated Load, Uni-Directional Only (Note 3) | I <sub>FSM</sub>   | 40          | A     |
| Maximum Instantaneous Forward Voltage at 25.0A for Uni-Directional only (Note 3 & 4)                              | V <sub>F</sub>     | 3.5         | Volts |
| Max. Operation Junction Temperature   | T <sub>J</sub>     | 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 5.0x5.0mm<sup>2</sup> Copper Pads to Each Terminal.  
 3. Lead Temperature at TL=75 C per Fig. 5  
 4. Measured on 8.3 mS Single Half Sine-Wave for Uni-Directional Devices Only.  
 5. Peak Pulse Power Waveform is 10/1000uS.

## Rating and Characteristic Curves (TV04A5V0-G Thru TV04A171-G)

Fig. 1 - Reverse Characteristics

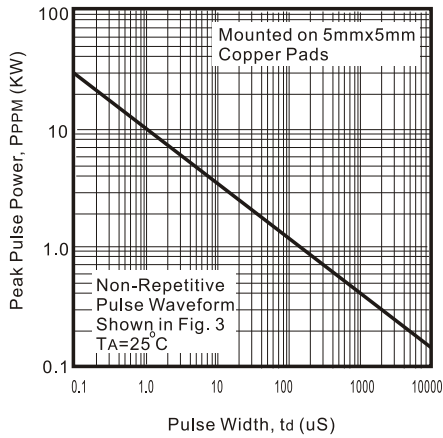


Fig. 2 - Pulse Derating Curve

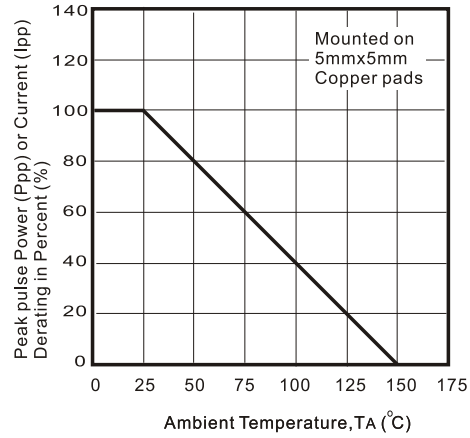


Fig. 3 - Pulse Waveform

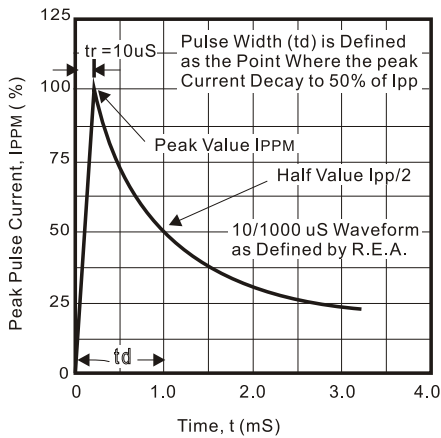


Fig. 4 - Typical Junction Capacitance

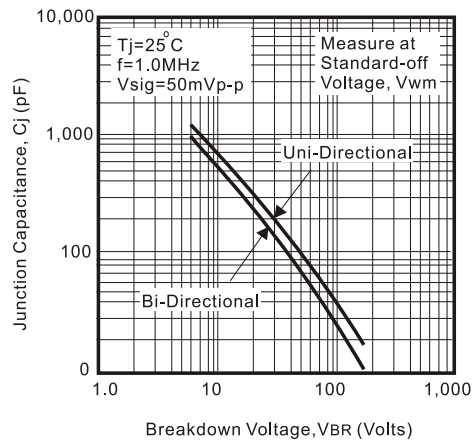


Fig. 5 - Steady State Power Derating Curve

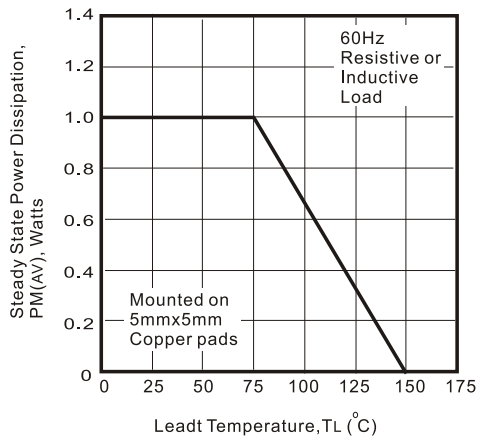
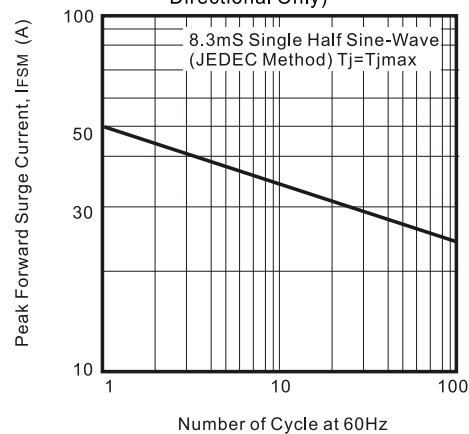


Fig. 6 - Maximum Non-Repetitive Peak Forward Surge Current (Uni-Directional Only)



# SMD Transient Voltage Suppressor



SMD Diodes Specialist

**Table 1. Specification**

| Part No        | Absolute Maximum Rating(Ta=25°C) |                      |                      |                |                  | Electrical Characteristic(Ta=25°C) |                      |               |     |    |
|----------------|----------------------------------|----------------------|----------------------|----------------|------------------|------------------------------------|----------------------|---------------|-----|----|
|                | V <sub>RWM</sub>                 | V <sub>BR</sub> Min. | V <sub>BR</sub> Max. | I <sub>T</sub> | I <sub>FSM</sub> | Max V <sub>C</sub>                 | I <sub>RR@VRWM</sub> | Marking Code. |     |    |
|                | (V)                              | (V)                  | (V)                  | (mA)           | (A)@8.3ms        | (V)                                | I <sub>PP</sub> (A)  | (uA)          | UNI | BI |
| TV04A5V0K(B)-G | 5.00                             | 6.40                 | 7.82                 | 10             | 40               | 9.6                                | 41.6                 | 800           | AD  | WD |
| TV04A5V0J(B)-G | 5.00                             | 6.40                 | 7.07                 | 10             | 40               | 9.2                                | 43.5                 | 800           | AE  | WE |
| TV04A6V0K(B)-G | 6.00                             | 6.67                 | 8.15                 | 10             | 40               | 11.4                               | 35.1                 | 800           | AF  | WF |
| TV04A6V0J(B)-G | 6.00                             | 6.67                 | 7.37                 | 10             | 40               | 10.3                               | 38.0                 | 800           | AG  | WG |
| TV04A6V5K(B)-G | 6.50                             | 7.22                 | 8.82                 | 10             | 40               | 12.3                               | 32.5                 | 500           | AH  | WH |
| TV04A6V5J(B)-G | 6.50                             | 7.22                 | 7.98                 | 10             | 40               | 11.2                               | 35.7                 | 500           | AK  | WK |
| TV04A7V0K(B)-G | 7.00                             | 7.78                 | 9.51                 | 1              | 40               | 13.3                               | 30.1                 | 200           | AL  | WL |
| TV04A7V0J(B)-G | 7.00                             | 7.78                 | 8.60                 | 1              | 40               | 12.0                               | 33.3                 | 200           | AM  | WM |
| TV04A7V5K(B)-G | 7.50                             | 8.33                 | 10.2                 | 1              | 40               | 14.3                               | 28.0                 | 100           | AN  | WN |
| TV04A7V5J(B)-G | 7.50                             | 8.33                 | 9.21                 | 1              | 40               | 12.9                               | 31.0                 | 100           | AP  | WP |
| TV04A8V0K(B)-G | 8.00                             | 8.89                 | 10.9                 | 1              | 40               | 15.0                               | 26.5                 | 50            | AQ  | WQ |
| TV04A8V0J(B)-G | 8.00                             | 8.89                 | 9.83                 | 1              | 40               | 13.6                               | 29.4                 | 50            | AR  | WR |
| TV04A8V5K(B)-G | 8.55                             | 9.44                 | 11.5                 | 1              | 40               | 15.9                               | 25.1                 | 10            | AS  | WS |
| TV04A8V5J(B)-G | 8.55                             | 9.44                 | 10.4                 | 1              | 40               | 14.4                               | 27.7                 | 10            | AT  | WT |
| TV04A9V0K(B)-G | 9.00                             | 10.0                 | 12.2                 | 1              | 40               | 16.9                               | 23.6                 | 5             | AU  | WU |
| TV04A9V0J(B)-G | 9.00                             | 10.0                 | 11.1                 | 1              | 40               | 15.4                               | 26.0                 | 5             | AV  | WV |
| TV04A100K(B)-G | 10.0                             | 11.1                 | 13.6                 | 1              | 40               | 18.8                               | 21.1                 | 5             | AW  | WW |
| TV04A100J(B)-G | 10.0                             | 11.1                 | 12.3                 | 1              | 40               | 17.0                               | 23.5                 | 5             | AX  | WX |
| TV04A110K(B)-G | 11.0                             | 12.2                 | 14.9                 | 1              | 40               | 20.1                               | 20.0                 | 5             | AY  | WY |
| TV04A110J(B)-G | 11.0                             | 12.2                 | 13.5                 | 1              | 40               | 18.2                               | 22.0                 | 5             | AZ  | WZ |
| TV04A120K(B)-G | 12.0                             | 13.3                 | 16.3                 | 1              | 40               | 22.0                               | 18.1                 | 5             | BD  | XD |
| TV04A120J(B)-G | 12.0                             | 13.3                 | 14.7                 | 1              | 40               | 19.9                               | 20.1                 | 5             | BE  | XE |
| TV04A130K(B)-G | 13.0                             | 14.4                 | 17.6                 | 1              | 40               | 23.8                               | 16.8                 | 5             | BF  | XF |
| TV04A130J(B)-G | 13.0                             | 14.4                 | 15.9                 | 1              | 40               | 21.5                               | 18.6                 | 5             | BG  | XG |
| TV04A140K(B)-G | 14.0                             | 15.6                 | 19.1                 | 1              | 40               | 25.8                               | 15.5                 | 5             | BH  | XH |
| TV04A140J(B)-G | 14.0                             | 15.6                 | 17.2                 | 1              | 40               | 23.2                               | 17.2                 | 5             | BK  | XK |
| TV04A150K(B)-G | 15.0                             | 16.7                 | 20.4                 | 1              | 40               | 26.9                               | 14.8                 | 5             | BL  | XL |
| TV04A150J(B)-G | 15.0                             | 16.7                 | 18.5                 | 1              | 40               | 24.4                               | 16.4                 | 5             | BM  | XM |
| TV04A160K(B)-G | 16.0                             | 17.8                 | 21.8                 | 1              | 40               | 28.8                               | 13.8                 | 5             | BN  | XN |
| TV04A160J(B)-G | 16.0                             | 17.8                 | 19.7                 | 1              | 40               | 26.0                               | 15.3                 | 5             | BP  | XP |
| TV04A170K(B)-G | 17.0                             | 18.9                 | 23.1                 | 1              | 40               | 30.5                               | 13.1                 | 5             | BQ  | XQ |
| TV04A170J(B)-G | 17.0                             | 18.9                 | 20.9                 | 1              | 40               | 27.6                               | 14.5                 | 5             | BR  | XR |
| TV04A180K(B)-G | 18.0                             | 20.0                 | 24.4                 | 1              | 40               | 32.2                               | 12.4                 | 5             | BS  | XS |
| TV04A180J(B)-G | 18.0                             | 20.0                 | 22.1                 | 1              | 40               | 29.2                               | 13.7                 | 5             | BT  | XT |
| TV04A200K(B)-G | 20.0                             | 22.2                 | 27.1                 | 1              | 40               | 35.8                               | 11.1                 | 5             | BU  | XU |
| TV04A200J(B)-G | 20.0                             | 22.2                 | 24.5                 | 1              | 40               | 32.4                               | 12.3                 | 5             | BV  | XV |
| TV04A220K(B)-G | 22.0                             | 24.4                 | 29.8                 | 1              | 40               | 39.4                               | 10.0                 | 5             | BW  | XW |
| TV04A220J(B)-G | 22.0                             | 24.4                 | 26.9                 | 1              | 40               | 35.5                               | 11.2                 | 5             | BX  | XX |
| TV04A240K(B)-G | 24.0                             | 26.7                 | 32.6                 | 1              | 40               | 43.0                               | 9.3                  | 5             | BY  | XY |
| TV04A240J(B)-G | 24.0                             | 26.7                 | 29.5                 | 1              | 40               | 38.9                               | 10.3                 | 5             | BZ  | XZ |
| TV04A260K(B)-G | 26.0                             | 28.9                 | 35.3                 | 1              | 40               | 46.6                               | 8.6                  | 5             | CD  | YD |
| TV04A260J(B)-G | 26.0                             | 28.9                 | 31.9                 | 1              | 40               | 42.1                               | 9.5                  | 5             | CE  | YE |
| TV04A280K(B)-G | 28.0                             | 31.1                 | 38.0                 | 1              | 40               | 50.0                               | 8.0                  | 5             | CF  | YF |
| TV04A280J(B)-G | 28.0                             | 31.1                 | 34.4                 | 1              | 40               | 45.4                               | 8.8                  | 5             | CG  | YG |
| TV04A300K(B)-G | 30.0                             | 33.3                 | 40.7                 | 1              | 40               | 53.5                               | 7.5                  | 5             | CH  | YH |
| TV04A300J(B)-G | 30.0                             | 33.3                 | 36.8                 | 1              | 40               | 48.4                               | 8.3                  | 5             | CK  | YK |
| TV04A330K(B)-G | 33.0                             | 36.7                 | 44.9                 | 1              | 40               | 59.0                               | 6.8                  | 5             | CL  | YL |
| TV04A330J(B)-G | 33.0                             | 36.7                 | 40.6                 | 1              | 40               | 53.3                               | 7.5                  | 5             | CM  | YM |
| TV04A360K(B)-G | 36.0                             | 40.0                 | 48.9                 | 1              | 40               | 64.3                               | 6.2                  | 5             | CN  | YN |
| TV04A360J(B)-G | 36.0                             | 40.0                 | 44.2                 | 1              | 40               | 58.1                               | 6.9                  | 5             | CP  | YP |
| TV04A400K(B)-G | 40.0                             | 44.4                 | 54.3                 | 1              | 40               | 71.4                               | 5.6                  | 5             | CQ  | YQ |
| TV04A400J(B)-G | 40.0                             | 44.4                 | 49.1                 | 1              | 40               | 64.5                               | 6.2                  | 5             | CR  | YR |
| TV04A430K(B)-G | 43.0                             | 47.8                 | 58.4                 | 1              | 40               | 76.7                               | 5.2                  | 5             | CS  | YS |
| TV04A430J(B)-G | 43.0                             | 47.8                 | 52.8                 | 1              | 40               | 69.4                               | 5.7                  | 5             | CT  | YT |
| TV04A450K(B)-G | 45.0                             | 50.0                 | 61.1                 | 1              | 40               | 80.3                               | 5.0                  | 5             | CU  | YU |
| TV04A450J(B)-G | 45.0                             | 50.0                 | 55.3                 | 1              | 40               | 72.7                               | 5.5                  | 5             | CV  | YV |

# SMD Transient Voltage Suppressor



**Table 1. Specification**

| Part No        | Absolute Maximum Rating(Ta=25°C) |                      |                      |                |                  | Electrical Characteristic(Ta=25°C) |                      |               |     |    |
|----------------|----------------------------------|----------------------|----------------------|----------------|------------------|------------------------------------|----------------------|---------------|-----|----|
|                | V <sub>RWM</sub>                 | V <sub>BR</sub> Min. | V <sub>BR</sub> Max. | I <sub>T</sub> | I <sub>FSM</sub> | Max V <sub>C</sub>                 | I <sub>RR@VRWM</sub> | Marking Code. |     |    |
|                | (V)                              | (V)                  | (V)                  | (mA)           | (A)@8.3ms        | (V)                                | I <sub>PP</sub> (A)  | (µA)          | UNI | BI |
| TV04A480K(B)-G | 48.0                             | 53.3                 | 65.1                 | 1              | 40               | 85.5                               | 4.7                  | 5             | CW  | YW |
| TV04A480J(B)-G | 48.0                             | 53.3                 | 58.9                 | 1              | 40               | 77.4                               | 5.2                  | 5             | CX  | YX |
| TV04A510K(B)-G | 51.0                             | 56.7                 | 69.3                 | 1              | 40               | 91.1                               | 4.4                  | 5             | CY  | YY |
| TV04A510J(B)-G | 51.0                             | 56.7                 | 62.7                 | 1              | 40               | 82.4                               | 4.9                  | 5             | CZ  | YZ |
| TV04A540K(B)-G | 54.0                             | 60.0                 | 73.3                 | 1              | 40               | 96.3                               | 4.2                  | 5             | RD  | ZD |
| TV04A540J(B)-G | 54.0                             | 60.0                 | 66.3                 | 1              | 40               | 87.1                               | 4.6                  | 5             | RE  | ZE |
| TV04A580K(B)-G | 58.0                             | 64.4                 | 78.7                 | 1              | 40               | 103.0                              | 3.9                  | 5             | RF  | ZF |
| TV04A580J(B)-G | 58.0                             | 64.4                 | 71.2                 | 1              | 40               | 93.6                               | 4.3                  | 5             | RG  | ZG |
| TV04A600K(B)-G | 60.0                             | 66.7                 | 81.5                 | 1              | 40               | 107.0                              | 3.7                  | 5             | RH  | ZH |
| TV04A600J(B)-G | 60.0                             | 66.7                 | 73.7                 | 1              | 40               | 96.8                               | 4.1                  | 5             | RK  | ZK |
| TV04A640K(B)-G | 64.0                             | 71.1                 | 86.9                 | 1              | 40               | 114.0                              | 4.5                  | 5             | RL  | ZL |
| TV04A640J(B)-G | 64.0                             | 71.1                 | 78.6                 | 1              | 40               | 103.0                              | 3.9                  | 5             | RM  | ZM |
| TV04A700K(B)-G | 70.0                             | 77.8                 | 95.1                 | 1              | 40               | 125.0                              | 3.2                  | 5             | RN  | ZN |
| TV04A700J(B)-G | 70.0                             | 77.8                 | 86.0                 | 1              | 40               | 113.0                              | 3.5                  | 5             | RP  | ZP |
| TV04A750K(B)-G | 75.0                             | 83.3                 | 102.0                | 1              | 40               | 134.0                              | 3.0                  | 5             | RQ  | ZQ |
| TV04A750J(B)-G | 75.0                             | 83.3                 | 92.1                 | 1              | 40               | 121.0                              | 3.3                  | 5             | RR  | ZR |
| TV04A780K(B)-G | 78.0                             | 86.7                 | 106.0                | 1              | 40               | 139.0                              | 2.9                  | 5             | RS  | ZS |
| TV04A780J(B)-G | 78.0                             | 86.7                 | 95.8                 | 1              | 40               | 126.0                              | 3.2                  | 5             | RT  | ZT |
| TV04A850K(B)-G | 85.0                             | 94.4                 | 115.0                | 1              | 40               | 151.0                              | 2.6                  | 5             | RU  | ZU |
| TV04A850J(B)-G | 85.0                             | 94.4                 | 104.0                | 1              | 40               | 137.0                              | 2.9                  | 5             | RV  | ZV |
| TV04A900K(B)-G | 90.0                             | 100                  | 122.0                | 1              | 40               | 160.0                              | 2.5                  | 5             | RW  | ZW |
| TV04A900J(B)-G | 90.0                             | 100                  | 111.0                | 1              | 40               | 146.0                              | 2.7                  | 5             | RX  | ZX |
| TV04A101K(B)-G | 100                              | 111                  | 136.0                | 1              | 40               | 179.0                              | 2.2                  | 5             | RY  | ZY |
| TV04A101J(B)-G | 100                              | 111                  | 123.0                | 1              | 40               | 162.0                              | 2.5                  | 5             | RZ  | ZZ |
| TV04A111K(B)-G | 110                              | 122                  | 149.0                | 1              | 40               | 196.0                              | 2.0                  | 5             | SD  | VD |
| TV04A111J(B)-G | 110                              | 122                  | 135.0                | 1              | 40               | 177.0                              | 2.3                  | 5             | SE  | VE |
| TV04A121K(B)-G | 120                              | 133                  | 163.0                | 1              | 40               | 214.0                              | 1.9                  | 5             | SF  | VF |
| TV04A121J(B)-G | 120                              | 133                  | 147.0                | 1              | 40               | 193.0                              | 2.0                  | 5             | SG  | VG |
| TV04A131K(B)-G | 130                              | 144                  | 176.0                | 1              | 40               | 231.0                              | 1.7                  | 5             | SH  | VH |
| TV04A131J(B)-G | 130                              | 144                  | 159.0                | 1              | 40               | 209.0                              | 1.9                  | 5             | SK  | VK |
| TV04A151K(B)-G | 150                              | 167                  | 204.0                | 1              | 40               | 268.0                              | 1.5                  | 5             | SL  | VL |
| TV04A151J(B)-G | 150                              | 167                  | 185.0                | 1              | 40               | 243.0                              | 1.6                  | 5             | SM  | VM |
| TV04A161K(B)-G | 160                              | 178                  | 218.0                | 1              | 40               | 287.0                              | 1.4                  | 5             | SN  | VN |
| TV04A161J(B)-G | 160                              | 178                  | 197.0                | 1              | 40               | 259.0                              | 1.5                  | 5             | SP  | VP |
| TV04A171K(B)-G | 170                              | 189                  | 231.0                | 1              | 40               | 304.0                              | 1.3                  | 5             | SQ  | VQ |
| TV04A171J(B)-G | 170                              | 189                  | 209.0                | 1              | 40               | 275.0                              | 1.4                  | 5             | SR  | VR |

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.