

SMD Transient Voltage Suppressor



TV04A5V0-G Thru. TV04A171-G

Working Peak Reverse Voltage: 5.0 to 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 1 μ A above 10V.
- Fast response time: typically less than 1nS for uni-direction, less than 5nS for bi-direction, from 0V to BV min.

Mechanical data

- Case: JEDEC DO-214AC, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end.
- Approx. weight: 0.064 grams



Maximum Ratings and Electrical Characteristics

Ratings 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 10/1000 μ S waveform (Note 1, Fig. 1) | P _{PPM} | 400 | Watts |
| Peak pulse current on 10/1000 μ S waveform (Note 1, Fig. 3) | I _{PPM} | See Table 1 | A |
| Steady state power dissipation at T _L =75 °C (Note 2) | P _{M(AV)} | 1.0 | Watts |
| Peak forward surge current, 8.3mS single half sine-wave superimposed on rated load, uni-directional only (Note 3) | I _{FSM} | 40 | A |
| Maximum instantaneous forward voltage at 25.0A for uni-directional only (Note 3&4) | V _F | 3.5 | V |
| Maximum operating junction temperature | T _J | 150 | °C |
| Storage temperature range | T _{STG} | -55 to +150 | °C |

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_A=25°C, per Fig. 2.
2. Mounted on 5.0x5.0mm copper pads to each terminal.
3. Lead temperature at T_L=75 °C per Fig.5.
4. Measured on 8.3mS single half sine-wave for uni-directional devices only.
5. Peak pulse power waveform is 10/1000 μ S.

RATING AND CHARACTERISTIC CURVES (TV04A5V0-G thru TV04A171-G)

Fig.1 Reverse Characteristics



Fig.2 Pulse Derating Curve

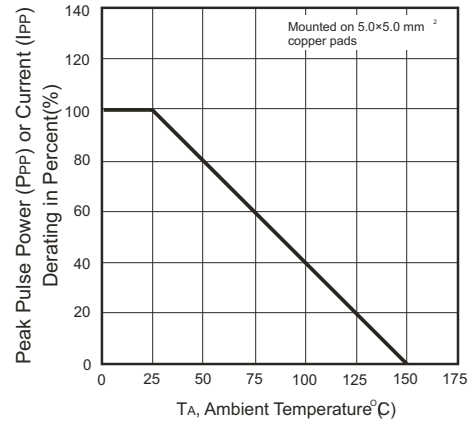


Fig.3 Pulse Waveform

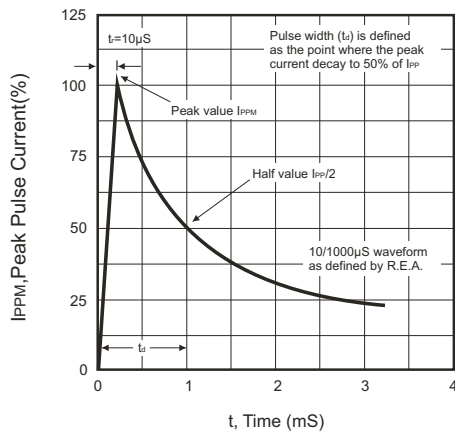


Fig.4 Typical Junction Capacitance

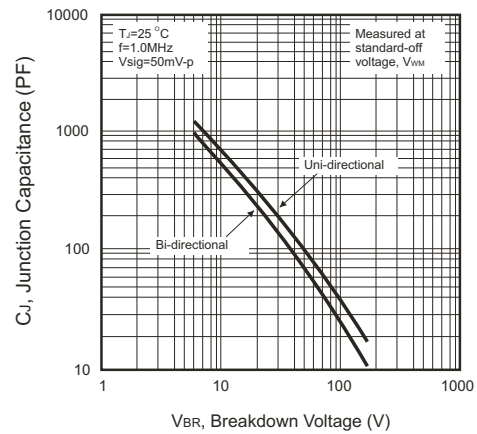


Fig.5 Steady State Power Derating Curve

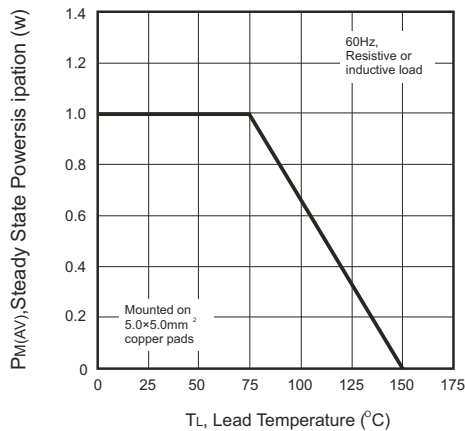
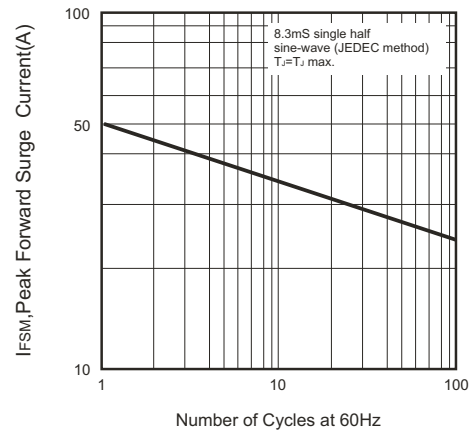


Fig.6 Max. Non-repetitive Forward Surge Current (Uni-directional only)



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SMD Diodes Specialist

Table 1. Specification

| Part No | Absolute Maximum Rating (Ta=25°C) | | | | | Electrical Characteristic (Ta=25°C) | | | | |
|----------------|-----------------------------------|----------------------|----------------------|----------------|------------------|-------------------------------------|---------------------|--------------------------------|--------------|----|
| | V _{RWM} | V _{BR} Min. | V _{BR} Max. | I _T | I _{FSM} | Max. V _C | | I _{R@V_{RWM}} | Marking Code | |
| | (V) | (V) | (V) | (mA) | (A)@8.3mS | (V) | I _{PP} (A) | (μ A) | Uni | Bi |
| TV04A5V0K(B)-G | 5.00 | 6.40 | 7.82 | 10 | 40 | 9.60 | 41.6 | 800 | AD | WD |
| TV04A5V0J(B)-G | 5.00 | 6.46 | 7.07 | 10 | 40 | 9.20 | 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 | ST |
| 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 |

REV:B

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Table 1. Specification

| Part No | Absolute Maximum Rating (Ta=25°C) | | | | | Electrical Characteristic (Ta=25°C) | | | | |
|----------------|-----------------------------------|----------|----------|------|-----------|-------------------------------------|---------|---------|--------------|----|
| | VRWM | VBR Min. | VBR Max. | IT | IFSM | Max. V C | | IR@VRWM | Marking Code | |
| | (V) | (V) | (V) | (mA) | (A)@8.3mS | (V) | IPP (A) | (uA) | Uni | Bi |
| 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 |
| 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 | 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 | 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 | 4.5 | 5 | RL | ZL |
| TV04A640J(B)-G | 64.0 | 71.1 | 78.6 | 1 | 40 | 103 | 3.9 | 5 | RM | ZM |
| TV04A700K(B)-G | 70.0 | 77.8 | 95.1 | 1 | 40 | 125 | 3.2 | 5 | RN | ZN |
| TV04A700J(B)-G | 70.0 | 77.8 | 86.0 | 1 | 40 | 113 | 3.5 | 5 | RP | ZP |
| TV04A750K(B)-G | 75.0 | 83.3 | 102 | 1 | 40 | 134 | 3.0 | 5 | RQ | ZQ |
| TV04A750J(B)-G | 75.0 | 83.3 | 92.1 | 1 | 40 | 121 | 3.3 | 5 | RR | ZR |
| TV04A780K(B)-G | 78.0 | 86.7 | 106 | 1 | 40 | 139 | 2.9 | 5 | RS | ZS |
| TV04A780J(B)-G | 78.0 | 86.7 | 95.8 | 1 | 40 | 126 | 3.2 | 5 | RT | ZT |
| TV04A850K(B)-G | 85.0 | 94.4 | 115 | 1 | 40 | 151 | 2.6 | 5 | RU | ZU |
| TV04A850J(B)-G | 85.0 | 94.4 | 104 | 1 | 40 | 137 | 2.9 | 5 | RV | ZV |
| TV04A900K(B)-G | 90.0 | 100 | 122 | 1 | 40 | 160 | 2.5 | 5 | RW | ZW |
| TV04A900J(B)-G | 90.0 | 100 | 111 | 1 | 40 | 146 | 2.7 | 5 | RX | ZX |
| TV04A101K(B)-G | 100 | 111 | 136 | 1 | 40 | 179 | 2.2 | 5 | RY | ZY |
| TV04A101J(B)-G | 100 | 111 | 123 | 1 | 40 | 162 | 2.5 | 5 | RZ | ZZ |
| TV04A111K(B)-G | 110 | 122 | 149 | 1 | 40 | 196 | 2.0 | 5 | SD | VD |
| TV04A111J(B)-G | 110 | 122 | 135 | 1 | 40 | 177 | 2.3 | 5 | SE | VE |
| TV04A121K(B)-G | 120 | 133 | 163 | 1 | 40 | 214 | 1.9 | 5 | SF | VF |
| TV04A121J(B)-G | 120 | 133 | 147 | 1 | 40 | 193 | 2.0 | 5 | SG | VG |
| TV04A131K(B)-G | 130 | 144 | 176 | 1 | 40 | 231 | 1.7 | 5 | SH | VH |
| TV04A131J(B)-G | 130 | 144 | 159 | 1 | 40 | 209 | 1.9 | 5 | SK | VK |
| TV04A151K(B)-G | 150 | 167 | 204 | 1 | 40 | 268 | 1.5 | 5 | SL | VL |
| TV04A151J(B)-G | 150 | 167 | 185 | 1 | 40 | 243 | 1.6 | 5 | SM | VM |
| TV04A161K(B)-G | 160 | 178 | 218 | 1 | 40 | 287 | 1.4 | 5 | SN | VN |
| TV04A161J(B)-G | 160 | 178 | 197 | 1 | 40 | 259 | 1.5 | 5 | SP | VP |
| TV04A171K(B)-G | 170 | 189 | 231 | 1 | 40 | 304 | 1.3 | 5 | SQ | VQ |
| TV04A171J(B)-G | 170 | 189 | 209 | 1 | 40 | 275 | 1.4 | 5 | SR | VR |

Notes:

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.

REV:B