

SMD Transient Voltage Suppressor



TV06B5V0-G Thru TV06B171-G

Working Peak Reverse Voltage: 5.0 - 170 Volts
 Power Dissipation: 600 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-214AA molded plastic
- Terminals: solderable per MIL-STD-750, method 2026
- Polarity: Cathode band denoted
- Approx. Weight:0.093 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 | 600 | Watts |
| Peak Pulse Current of on 10/1000uS Waveform (Note 1, Fig. 3) | IPPM | See Table 1 | A |
| Steady State Power Dissipation at TL=75°C (Note 2) | PM(AV) | 5.0 | Watts |
| Peak Forfard Surge Current, 8.3mS Single Half Sine-Wave Superimposed on Rated Load, Uni-Directional Only (Note 3) | IFSM | 100 | A |
| Maximum Instantaneous Forward Voltage at 35.0A for Uni-Directional only (Note 3 & 4) | VF | 3.5/5.0 | Volts |
| Max. Operation Junction Temperature | Tj | 150 | °C |
| Storage Temperature Range | TSTG | -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 5.0x5.0mm² 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. VF=3.5V on TV06B5V0 thru TV06B900 Devices and VF=5.0V on TV06B101 thru TV06B171.

Rating and Characteristic Curves (TV06B5V0-G Thru TV06B171-G)

Fig. 1 - Reverse Characteristics



Fig. 2 - Pulse Derating Curve



Fig. 3 - Pulse Waveform



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

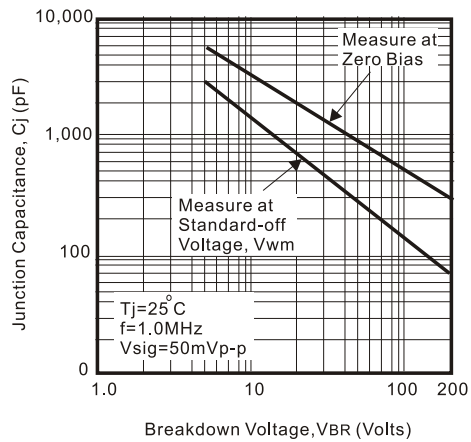


Fig. 5 - Typical Junction Capacitance for Bi-Directional Devices

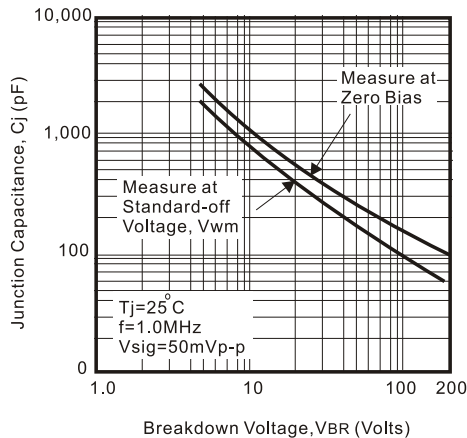
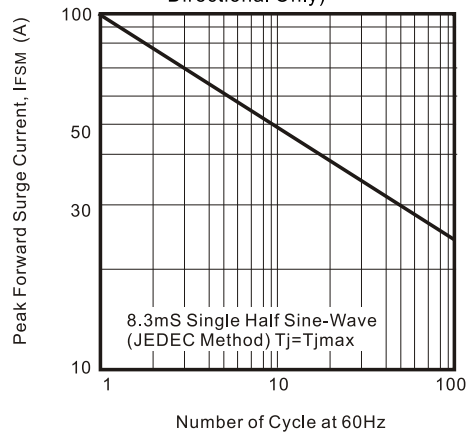


Fig. 6 - Maximum Non-Repetitive Peak Forward Surge Current (Uni-Directional Only)



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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 _{RR@VRWM} | Marking Code. | | |
| | (V) | (V) | (V) | (mA) | (A)@8.3ms | (V) | I _{PP} (A) | (uA) | UNI | BI |
| TV06B5V0K(B)-G | 5.00 | 6.40 | 7.82 | 10 | 100 | 9.6 | 62.5 | 800 | KD | AD |
| TV06B5V0J(B)-G | 5.00 | 6.40 | 7.07 | 10 | 100 | 9.2 | 65.2 | 800 | KE | AE |
| TV06B6V0K(B)-G | 6.00 | 6.67 | 8.15 | 10 | 100 | 11.4 | 52.6 | 800 | KF | AF |
| TV06B6V0J(B)-G | 6.00 | 6.67 | 7.37 | 10 | 100 | 10.3 | 58.3 | 800 | KG | AG |
| TV06B6V5K(B)-G | 6.50 | 7.22 | 8.82 | 10 | 100 | 12.3 | 48.7 | 500 | KH | AH |
| TV06B6V5J(B)-G | 6.50 | 7.22 | 7.98 | 10 | 100 | 11.2 | 53.6 | 500 | KK | AK |
| TV06B7V0K(B)-G | 7.00 | 7.78 | 9.51 | 1 | 100 | 13.3 | 45.1 | 200 | KL | AL |
| TV06B7V0J(B)-G | 7.00 | 7.78 | 8.60 | 1 | 100 | 12.0 | 50.0 | 200 | KM | AM |
| TV06B7V5K(B)-G | 7.50 | 8.33 | 10.2 | 1 | 100 | 14.3 | 42.0 | 100 | KN | AN |
| TV06B7V5J(B)-G | 7.50 | 8.33 | 9.21 | 1 | 100 | 12.9 | 46.5 | 100 | KP | AP |
| TV06B8V0K(B)-G | 8.00 | 8.89 | 10.9 | 1 | 100 | 15.0 | 40.0 | 50 | KQ | AQ |
| TV06B8V0J(B)-G | 8.00 | 8.89 | 9.83 | 1 | 100 | 13.6 | 44.1 | 50 | KR | AR |
| TV06B8V5K(B)-G | 8.55 | 9.44 | 11.5 | 1 | 100 | 15.9 | 37.7 | 10 | KS | AS |
| TV06B8V5J(B)-G | 8.55 | 9.44 | 10.4 | 1 | 100 | 14.4 | 41.7 | 10 | KT | AT |
| TV06B9V0K(B)-G | 9.00 | 10.0 | 12.2 | 1 | 100 | 16.9 | 35.5 | 5 | KU | AU |
| TV06B9V0J(B)-G | 9.00 | 10.0 | 11.1 | 1 | 100 | 15.4 | 39.0 | 5 | KV | AV |
| TV06B100K(B)-G | 10.0 | 11.1 | 13.6 | 1 | 100 | 18.8 | 31.9 | 5 | KW | AW |
| TV06B100J(B)-G | 10.0 | 11.1 | 12.3 | 1 | 100 | 17.0 | 35.3 | 5 | KX | AX |
| TV06B110K(B)-G | 11.0 | 12.2 | 14.9 | 1 | 100 | 20.1 | 29.9 | 5 | KY | AY |
| TV06B110J(B)-G | 11.0 | 12.2 | 13.5 | 1 | 100 | 18.2 | 33.0 | 5 | KZ | AZ |
| TV06B120K(B)-G | 12.0 | 13.3 | 16.3 | 1 | 100 | 22.0 | 27.3 | 5 | LD | BD |
| TV06B120J(B)-G | 12.0 | 13.3 | 14.7 | 1 | 100 | 19.9 | 30.2 | 5 | LE | BE |
| TV06B130K(B)-G | 13.0 | 14.4 | 17.6 | 1 | 100 | 23.8 | 25.2 | 5 | LF | BF |
| TV06B130J(B)-G | 13.0 | 14.4 | 15.9 | 1 | 100 | 21.5 | 27.9 | 5 | LG | BG |
| TV06B1100K(B)-G | 14.0 | 15.6 | 19.1 | 1 | 100 | 25.8 | 23.3 | 5 | LH | BH |
| TV06B1100J(B)-G | 14.0 | 15.6 | 17.2 | 1 | 100 | 23.2 | 25.8 | 5 | LK | BK |
| TV06B150K(B)-G | 15.0 | 16.7 | 20.4 | 1 | 100 | 26.9 | 22.3 | 5 | LL | BL |
| TV06B150J(B)-G | 15.0 | 16.7 | 18.5 | 1 | 100 | 24.4 | 24.0 | 5 | LM | BM |
| TV06B160K(B)-G | 16.0 | 17.8 | 21.8 | 1 | 100 | 28.8 | 20.8 | 5 | LN | BN |
| TV06B160J(B)-G | 16.0 | 17.8 | 19.7 | 1 | 100 | 26.0 | 23.1 | 5 | LP | BP |
| TV06B170K(B)-G | 17.0 | 18.9 | 23.1 | 1 | 100 | 30.5 | 19.7 | 5 | LQ | BQ |
| TV06B170J(B)-G | 17.0 | 18.9 | 20.9 | 1 | 100 | 27.6 | 21.7 | 5 | LR | BR |
| TV06B180K(B)-G | 18.0 | 20.0 | 24.4 | 1 | 100 | 32.2 | 18.6 | 5 | LS | BS |
| TV06B180J(B)-G | 18.0 | 20.0 | 22.1 | 1 | 100 | 29.2 | 20.5 | 5 | LT | BT |
| TV06B200K(B)-G | 20.0 | 22.2 | 27.1 | 1 | 100 | 35.8 | 16.4 | 5 | LU | BU |
| TV06B200J(B)-G | 20.0 | 22.2 | 24.5 | 1 | 100 | 32.4 | 18.5 | 5 | LV | BV |
| TV06B220K(B)-G | 22.0 | 24.4 | 29.8 | 1 | 100 | 39.4 | 15.2 | 5 | LW | BW |
| TV06B220J(B)-G | 22.0 | 24.4 | 26.9 | 1 | 100 | 35.5 | 16.9 | 5 | LX | BX |
| TV06B240K(B)-G | 24.0 | 26.7 | 32.6 | 1 | 100 | 43.0 | 14.0 | 5 | LY | BY |
| TV06B240J(B)-G | 24.0 | 26.7 | 29.5 | 1 | 100 | 38.9 | 15.4 | 5 | LZ | BZ |
| TV06B260K(B)-G | 26.0 | 28.9 | 35.3 | 1 | 100 | 46.6 | 12.4 | 5 | MD | CD |
| TV06B260J(B)-G | 26.0 | 28.9 | 31.9 | 1 | 100 | 42.1 | 14.2 | 5 | ME | CE |
| TV06B280K(B)-G | 28.0 | 31.1 | 38.0 | 1 | 100 | 50.0 | 12.0 | 5 | MF | CF |
| TV06B280J(B)-G | 28.0 | 31.1 | 34.4 | 1 | 100 | 45.4 | 13.2 | 5 | MG | CG |
| TV06B300K(B)-G | 30.0 | 33.3 | 40.7 | 1 | 100 | 53.5 | 11.2 | 5 | MH | CH |
| TV06B300J(B)-G | 30.0 | 33.3 | 36.8 | 1 | 100 | 48.4 | 12.4 | 5 | MK | CK |
| TV06B330K(B)-G | 33.0 | 36.7 | 44.9 | 1 | 100 | 59.0 | 10.2 | 5 | ML | CL |
| TV06B330J(B)-G | 33.0 | 36.7 | 40.6 | 1 | 100 | 53.3 | 11.3 | 5 | MM | CM |
| TV06B360K(B)-G | 36.0 | 40.0 | 48.9 | 1 | 100 | 64.3 | 9.3 | 5 | MN | CN |
| TV06B360J(B)-G | 36.0 | 40.0 | 44.2 | 1 | 100 | 58.1 | 10.3 | 5 | MP | CP |
| TV06B400K(B)-G | 40.0 | 44.4 | 54.3 | 1 | 100 | 71.4 | 8.4 | 5 | MQ | CQ |
| TV06B400J(B)-G | 40.0 | 44.4 | 49.1 | 1 | 100 | 64.5 | 9.3 | 5 | MR | CR |
| TV06B430K(B)-G | 43.0 | 47.8 | 58.4 | 1 | 100 | 76.7 | 7.8 | 5 | MS | CS |
| TV06B430J(B)-G | 43.0 | 47.8 | 52.8 | 1 | 100 | 69.4 | 8.6 | 5 | MT | CT |
| TV06B450K(B)-G | 45.0 | 50.0 | 61.1 | 1 | 100 | 80.3 | 7.5 | 5 | MU | CU |
| TV06B450J(B)-G | 45.0 | 50.0 | 55.3 | 1 | 100 | 72.7 | 8.3 | 5 | MV | CV |

Rev. A

SMD Transient Voltage Suppressor



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) | (uA) | UNI | BI |
| TV06B480K(B)-G | 48.0 | 53.3 | 65.1 | 1 | 100 | 85.5 | 7.0 | 5 | MW | CW |
| TV06B480J(B)-G | 48.0 | 53.3 | 58.9 | 1 | 100 | 77.4 | 7.7 | 5 | MX | CX |
| TV06B510K(B)-G | 51.0 | 56.7 | 69.3 | 1 | 100 | 91.1 | 6.6 | 5 | MY | CY |
| TV06B510J(B)-G | 51.0 | 56.7 | 62.7 | 1 | 100 | 82.4 | 7.3 | 5 | MZ | CZ |
| TV06B540K(B)-G | 54.0 | 60.0 | 73.3 | 1 | 100 | 96.3 | 6.2 | 5 | ND | DD |
| TV06B540J(B)-G | 54.0 | 60.0 | 66.3 | 1 | 100 | 87.1 | 6.9 | 5 | NE | DE |
| TV06B580K(B)-G | 58.0 | 64.4 | 78.7 | 1 | 100 | 103.0 | 5.8 | 5 | NF | DF |
| TV06B580J(B)-G | 58.0 | 64.4 | 71.2 | 1 | 100 | 93.6 | 6.4 | 5 | NG | DG |
| TV06B600K(B)-G | 60.0 | 66.7 | 81.5 | 1 | 100 | 107.0 | 5.6 | 5 | NH | DH |
| TV06B600J(B)-G | 60.0 | 66.7 | 73.7 | 1 | 100 | 96.8 | 6.2 | 5 | NK | DK |
| TV06B640K(B)-G | 64.0 | 71.1 | 86.9 | 1 | 100 | 114.0 | 5.3 | 5 | NL | DL |
| TV06B640J(B)-G | 64.0 | 71.1 | 78.6 | 1 | 100 | 103.0 | 5.8 | 5 | NM | DM |
| TV06B700K(B)-G | 70.0 | 77.8 | 95.1 | 1 | 100 | 125.0 | 4.8 | 5 | NN | DN |
| TV06B700J(B)-G | 70.0 | 77.8 | 86.0 | 1 | 100 | 113.0 | 5.3 | 5 | NP | DP |
| TV06B750K(B)-G | 75.0 | 83.3 | 102.0 | 1 | 100 | 134.0 | 4.5 | 5 | NQ | DQ |
| TV06B750J(B)-G | 75.0 | 83.3 | 92.1 | 1 | 100 | 121.0 | 4.9 | 5 | NR | DR |
| TV06B780K(B)-G | 78.0 | 86.7 | 106.0 | 1 | 100 | 139.0 | 4.3 | 5 | NS | DS |
| TV06B780J(B)-G | 78.0 | 86.7 | 95.8 | 1 | 100 | 126.0 | 4.7 | 5 | NT | DT |
| TV06B850K(B)-G | 85.0 | 94.4 | 115.0 | 1 | 100 | 151.0 | 3.9 | 5 | NU | DU |
| TV06B850J(B)-G | 85.0 | 94.4 | 104.0 | 1 | 100 | 137.0 | 4.4 | 5 | NV | DV |
| TV06B900K(B)-G | 90.0 | 100 | 122.0 | 1 | 100 | 160.0 | 3.8 | 5 | NW | DW |
| TV06B900J(B)-G | 90.0 | 100 | 111.0 | 1 | 100 | 146.0 | 4.1 | 5 | NX | DX |
| TV06B101K(B)-G | 100 | 111 | 136.0 | 1 | 100 | 179.0 | 3.4 | 5 | NY | DY |
| TV06B101J(B)-G | 100 | 111 | 123.0 | 1 | 100 | 162.0 | 3.7 | 5 | NZ | DZ |
| TV06B111K(B)-G | 110 | 122 | 149.0 | 1 | 100 | 196.0 | 3.0 | 5 | PD | ED |
| TV06B111J(B)-G | 110 | 122 | 135.0 | 1 | 100 | 177.0 | 3.4 | 5 | PE | EE |
| TV06B121K(B)-G | 120 | 133 | 163.0 | 1 | 100 | 214.0 | 2.8 | 5 | PF | EF |
| TV06B121J(B)-G | 120 | 133 | 147.0 | 1 | 100 | 193.0 | 3.1 | 5 | PG | EG |
| TV06B131K(B)-G | 130 | 144 | 176.0 | 1 | 100 | 231.0 | 2.6 | 5 | PH | EH |
| TV06B131J(B)-G | 130 | 144 | 159.0 | 1 | 100 | 209.0 | 2.9 | 5 | PK | EK |
| TV06B151K(B)-G | 150 | 167 | 204.0 | 1 | 100 | 268.0 | 2.2 | 5 | PL | EL |
| TV06B151J(B)-G | 150 | 167 | 185.0 | 1 | 100 | 243.0 | 2.5 | 5 | PM | EM |
| TV06B161K(B)-G | 160 | 178 | 218.0 | 1 | 100 | 287.0 | 2.1 | 5 | PN | EN |
| TV06B161J(B)-G | 160 | 178 | 197.0 | 1 | 100 | 259.0 | 2.3 | 5 | PP | EP |
| TV06B171K(B)-G | 170 | 189 | 231.0 | 1 | 100 | 304.0 | 2.0 | 5 | PQ | EQ |
| TV06B171J(B)-G | 170 | 189 | 209.0 | 1 | 100 | 275.0 | 2.2 | 5 | PR | ER |

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 the bidirection TV06B5V0KB, the maximum V_{BR} is 7.25V.
- 3) For bi-directional devices having V_R of 10 volts and under, the I_R limit is double.