

# 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)  | 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> | 5.0         | Watts |
| Peak Forfard Surge Current, 8.3mS Single Half Sine-Wave Superimposed on Rated Load, Uni-Directional Only (Note 3) | I <sub>FSM</sub>   | 100         | A     |
| Maximum Instantaneous Forward Voltage at 35.0A for Uni-Directional only (Note 3 & 4)                              | V <sub>F</sub>     | 3.5/5.0     | 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. 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 TV06B5V0 thru TV06B900 Devices and V<sub>F</sub>=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

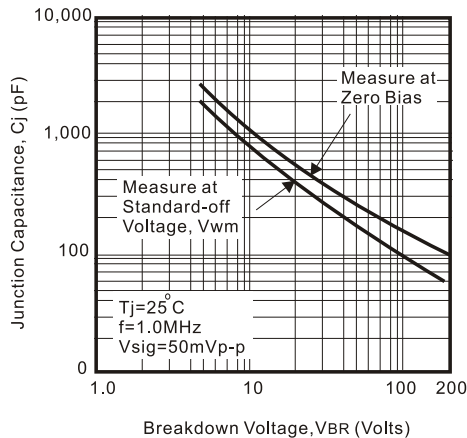


Fig. 6 - Maximum Non-Repetitive Peak Forward Surge Current (Uni-Directional Only)



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**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 |
| 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



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**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>R</sub> @V <sub>RWM</sub> | Marking Code. |     |    |
|                | (V)                              | (V)                  | (V)                  | (mA)           | (A)@8.3ms        | (V)                                | I <sub>PP</sub> (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<sub>BR</sub> is 7.25V.
- 3) For bi-directional devices having V<sub>R</sub> of 10 volts and under, the I<sub>R</sub> limit is double.