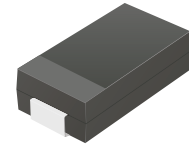


## TV04A5V0-G Thru. TV04A441-G

Working Peak Reverse Voltage: 5.0 to 440 Volts  
Power Dissipation: 400 Watts  
RoHS Device

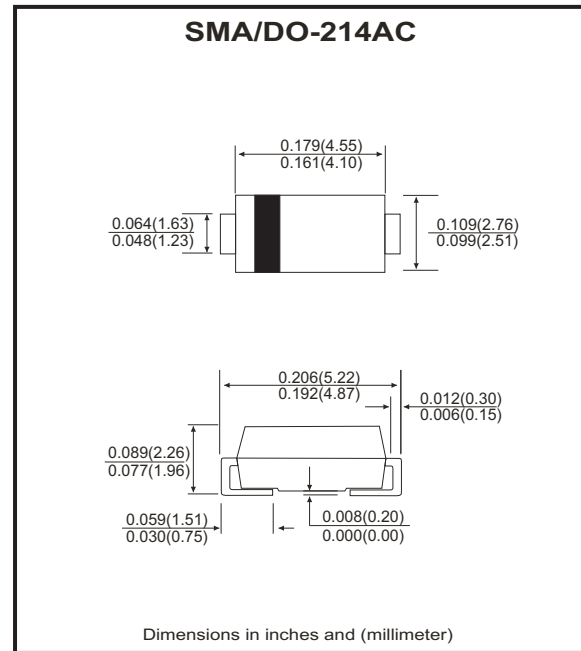


### Features

- Glass passivated chip.
- 400W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01%
- Low leakage.
- Uni and Bidirectional unit.
- Excellent clamping capability.
- Very fast response time.
- UL recognized file # E349157  Range: TV04A5V0J(B) thru. TV04A240J(B)

### Mechanical data

- Epoxy: UL 94V-0 rate flame retardant.
- Case: SMA/DO-214AC, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.
- Polarity: Color band denotes cathode end except bipolar.
- Weight: 0.069 gram (approx.)



### 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 $\mu$ S waveform (Note1)                           | P <sub>PP</sub>                   | 400            | W     |
| Peak pulse current on 10/1000 $\mu$ S waveform (Note 1)                              | I <sub>PP</sub>                   | See Next Table | A     |
| Steady state power dissipation at T <sub>L</sub> =75°C                               | P <sub>D</sub>                    | 1.0            | W     |
| Peak forward surge current, 8.3mS single half sine-wave unidirectional only (Note 2) | I <sub>FSM</sub>                  | 40             | A     |
| Maximum instantaneous forward voltage at 25.0A for unidirectional only (Note 3)      | V <sub>F</sub>                    | 3.5/5.0        | V     |
| Operating junction and storage temperature   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150    | °C    |

Notes: 1. Non-repetitive current pulse, per Fig. 5 and derated above T<sub>A</sub>=25°C, per Fig. 1.  
2. Measured on 8.3mS single half sine-wave or equare wave,duty cycle=4 pulses per minute maximum.  
3. V<sub>F</sub><3.5V for devices of V<sub>BR</sub><200V and V<sub>F</sub><5.0V for devices of V<sub>BR</sub>>201V

## RATING AND CHARACTERISTIC CURVES (TV04A5V0-G thru TV04A441-G)

Fig.1 - Pulse Derating Curve



Fig.2 - Maximum Non-Repetitive Surge Current



Fig.3 - Steady State Power Derating Curve



Fig.4 - Peak Pulse Power Rating Curve



Fig.5 - Pulse Waveform



Fig.6 - Typical Junction Capacitance



# SMD Transient Voltage Suppressor

## Electrical Characteristics (TV04A5V0-G Thru. TV04A441-G)

| Part No.       | Breakdown voltage<br>V <sub>BR</sub> @ I <sub>T</sub> |             |                        | Maximum<br>Reverse<br>Leakage<br>@V <sub>RWM</sub><br>I <sub>R</sub> (uA) | Working<br>Peak<br>Reverse<br>Voltage<br>V <sub>RWM</sub> (V) | Maximum<br>Reverse<br>Surge<br>Current<br>I <sub>PP</sub> (A) | Maximum<br>Clamping<br>Voltage<br>@I <sub>PP</sub><br>V <sub>c</sub> (V) | Device<br>Marking<br>Code |    |
|----------------|---|-------------|------------------------|---|---|---|--|---------------------------|----|
|                | Min.<br>(V)   | Max.<br>(V) | I <sub>T</sub><br>(mA) |   |   |   |  | UNI                       | BI |
| TV04A5V0J(B)-G | 6.40  | 7.00        | 10                     | 800   | 5.0   | 43.48   | 9.2  | AE                        | WE |
| TV04A6V0J(B)-G | 6.67  | 7.37        | 10                     | 800   | 6.0   | 38.83   | 10.3   | AG                        | WG |
| TV04A6V5J(B)-G | 7.22  | 7.98        | 10                     | 500   | 6.5   | 35.71   | 11.2   | AK                        | WK |
| TV04A7V0J(B)-G | 7.78  | 8.60        | 10                     | 200   | 7.0   | 33.33   | 12.0   | AM                        | WM |
| TV04A7V5J(B)-G | 8.33  | 9.21        | 1                      | 100   | 7.5   | 31.01   | 12.9   | AP                        | WP |
| TV04A8V0J(B)-G | 8.89  | 9.83        | 1                      | 50  | 8.0   | 29.41   | 13.6   | AR                        | WR |
| TV04A8V5J(B)-G | 9.44  | 10.40       | 1                      | 10  | 8.5   | 27.78   | 14.4   | AT                        | WT |
| TV04A9V0J(B)-G | 10.00   | 11.10       | 1                      | 5   | 9.0   | 25.97   | 15.4   | AV                        | WV |
| TV04A100J(B)-G | 11.10   | 12.30       | 1                      | 5   | 10.0  | 23.53   | 17.0   | AX                        | WX |
| TV04A110J(B)-G | 12.20   | 13.50       | 1                      | 1   | 11.0  | 21.98   | 18.2   | AZ                        | WZ |
| TV04A120J(B)-G | 13.30   | 14.70       | 1                      | 1   | 12.0  | 20.10   | 19.9   | BE                        | XE |
| TV04A130J(B)-G | 14.40   | 15.90       | 1                      | 1   | 13.0  | 18.60   | 21.5   | BG                        | XG |
| TV04A140J(B)-G | 15.60   | 17.20       | 1                      | 1   | 14.0  | 17.24   | 23.2   | BK                        | XK |
| TV04A150J(B)-G | 16.70   | 18.50       | 1                      | 1   | 15.0  | 16.39   | 24.4   | BM                        | XM |
| TV04A160J(B)-G | 17.80   | 19.70       | 1                      | 1   | 16.0  | 15.38   | 26.0   | BP                        | XP |
| TV04A170J(B)-G | 18.90   | 20.90       | 1                      | 1   | 17.0  | 14.49   | 27.6   | BR                        | XR |
| TV04A180J(B)-G | 20.00   | 22.10       | 1                      | 1   | 18.0  | 13.70   | 29.2   | BT                        | XT |
| TV04A190J(B)-G | 21.10   | 23.30       | 1                      | 1   | 19.0  | 13.00   | 30.8   | BB                        | XB |
| TV04A200J(B)-G | 22.20   | 24.50       | 1                      | 1   | 20.0  | 12.35   | 32.4   | BV                        | XV |
| TV04A220J(B)-G | 24.40   | 26.90       | 1                      | 1   | 22.0  | 11.27   | 35.5   | BX                        | XX |
| TV04A240J(B)-G | 26.70   | 29.50       | 1                      | 1   | 24.0  | 10.28   | 38.9   | BZ                        | XZ |
| TV04A260J(B)-G | 28.90   | 31.90       | 1                      | 1   | 26.0  | 9.50  | 42.1   | CE                        | YE |
| TV04A280J(B)-G | 31.10   | 34.40       | 1                      | 1   | 28.0  | 8.81  | 45.4   | CG                        | YG |
| TV04A300J(B)-G | 33.30   | 36.80       | 1                      | 1   | 30.0  | 8.26  | 48.4   | CK                        | YK |
| TV04A330J(B)-G | 36.70   | 40.60       | 1                      | 1   | 33.0  | 7.50  | 53.3   | CM                        | YM |
| TV04A360J(B)-G | 40.00   | 44.20       | 1                      | 1   | 36.0  | 6.88  | 58.1   | CP                        | YP |
| TV04A400J(B)-G | 44.40   | 49.10       | 1                      | 1   | 40.0  | 6.20  | 64.5   | CR                        | YR |
| TV04A430J(B)-G | 47.80   | 52.80       | 1                      | 1   | 43.0  | 5.76  | 69.4   | CT                        | YT |
| TV04A450J(B)-G | 50.00   | 55.30       | 1                      | 1   | 45.0  | 5.50  | 72.7   | CV                        | YV |
| TV04A480J(B)-G | 53.30   | 58.90       | 1                      | 1   | 48.0  | 5.17  | 77.4   | CX                        | YX |
| TV04A510J(B)-G | 56.70   | 62.70       | 1                      | 1   | 51.0  | 4.85  | 82.4   | CZ                        | YZ |
| TV04A540J(B)-G | 60.00   | 66.30       | 1                      | 1   | 54.0  | 4.59  | 87.1   | RE                        | ZE |
| TV04A580J(B)-G | 64.40   | 71.20       | 1                      | 1   | 58.0  | 4.27  | 93.6   | RG                        | ZG |
| TV04A600J(B)-G | 66.70   | 73.70       | 1                      | 1   | 60.0  | 4.13  | 96.8   | RK                        | ZK |
| TV04A640J(B)-G | 71.10   | 78.60       | 1                      | 1   | 64.0  | 3.88  | 103.0  | RM                        | ZM |
| TV04A700J(B)-G | 77.80   | 86.00       | 1                      | 1   | 70.0  | 3.54  | 113.0  | RP                        | ZP |
| TV04A750J(B)-G | 83.30   | 92.10       | 1                      | 1   | 75.0  | 3.31  | 121.0  | RR                        | ZR |
| TV04A780J(B)-G | 86.70   | 95.80       | 1                      | 1   | 78.0  | 3.17  | 126.0  | RT                        | ZT |
| TV04A800J(B)-G | 88.80   | 97.60       | 1                      | 1   | 80.0  | 3.09  | 129.6  | RB                        | ZB |
| TV04A850J(B)-G | 94.40   | 104.00      | 1                      | 1   | 85.0  | 2.92  | 137.0  | RV                        | ZV |

Company reserves the right to improve product design , functions and reliability without notice.

REV:G

## Electrical Characteristics (TV04A5V0-G Thru. TV04A441-G)

| Part No.       | Breakdown voltage<br>V <sub>BR</sub> @ I <sub>T</sub> |             |                        | Maximum<br>Reverse<br>Leakage<br>@V <sub>RWM</sub><br>I <sub>R</sub> (uA) | Working<br>Peak<br>Reverse<br>Voltage<br>V <sub>RWM</sub> (V) | Maximum<br>Reverse<br>Surge<br>Current<br>I <sub>PP</sub> (A) | Maximum<br>Clamping<br>Voltage<br>@I <sub>PP</sub><br>V <sub>C</sub> (V) | Device<br>Marking<br>Code |    |
|----------------|---|-------------|------------------------|---|---|---|--|---------------------------|----|
|                | Min.<br>(V)   | Max.<br>(V) | I <sub>T</sub><br>(mA) |   |   |   |  | UNI                       | BI |
| TV04A900J(B)-G | 100.0   | 111.0       | 1                      | 1   | 90.0  | 2.74  | 146.0  | RX                        | ZX |
| TV04A101J(B)-G | 111.0   | 123.0       | 1                      | 1   | 100.0   | 2.47  | 162.0  | RZ                        | ZZ |
| TV04A111J(B)-G | 122.0   | 135.0       | 1                      | 1   | 110.0   | 2.26  | 177.0  | SE                        | VE |
| TV04A121J(B)-G | 133.0   | 147.0       | 1                      | 1   | 120.0   | 2.07  | 193.0  | SG                        | VG |
| TV04A131J(B)-G | 144.0   | 159.0       | 1                      | 1   | 130.0   | 1.91  | 209.0  | SK                        | VK |
| TV04A141J(B)-G | 155.0   | 171.0       | 1                      | 1   | 140.0   | 1.76  | 226.8  | SB                        | VB |
| TV04A151J(B)-G | 167.0   | 185.0       | 1                      | 1   | 150.0   | 1.65  | 243.0  | SM                        | VM |
| TV04A161J(B)-G | 178.0   | 197.0       | 1                      | 1   | 160.0   | 1.54  | 259.0  | SP                        | VP |
| TV04A171J(B)-G | 189.0   | 209.0       | 1                      | 1   | 170.0   | 1.45  | 275.0  | SR                        | VR |
| TV04A181J(B)-G | 200.0   | 220.0       | 1                      | 1   | 180.0   | 1.37  | 291.6  | ST                        | VT |
| TV04A191J(B)-G | 211.0   | 232.0       | 1                      | 1   | 190.0   | 1.30  | 307.8  | SV                        | VV |
| TV04A201J(B)-G | 224.0   | 247.0       | 1                      | 1   | 200.0   | 1.23  | 324.0  | SW                        | VW |
| TV04A221J(B)-G | 246.0   | 272.0       | 1                      | 1   | 220.0   | 1.12  | 356.0  | SX                        | VX |
| TV04A251J(B)-G | 279.0   | 309.0       | 1                      | 1   | 250.0   | 0.99  | 405.0  | SZ                        | VZ |
| TV04A301J(B)-G | 335.0   | 371.0       | 1                      | 1   | 300.0   | 0.82  | 486.0  | DE                        | HE |
| TV04A351J(B)-G | 391.0   | 432.0       | 1                      | 1   | 350.0   | 0.71  | 567.0  | DG                        | HG |
| TV04A401J(B)-G | 447.0   | 494.0       | 1                      | 1   | 400.0   | 0.62  | 648.0  | DK                        | HK |
| TV04A441J(B)-G | 492.0   | 543.0       | 1                      | 1   | 440.0   | 0.56  | 713.0  | DM                        | HM |

Note:

- 1) Suffix J denotes 5% tolerance devices.
- 2) Suffix B after part number to specify Bi-directional devices.
- 3) For Bi-Directional devices having V<sub>R</sub> of 10 volts and under, the I<sub>R</sub> limit is double.

## Reel Taping Specification



| SMA/DO-214AC | SYMBOL | A             | B             | C           | d             | D        | D1         | D2            |
|--------------|--------|---------------|---------------|-------------|---------------|----------|------------|---------------|
|              | (mm)   | 2.79 ± 0.10   | 5.33 ± 0.10   | 4.50 (max)  | 1.75 ± 0.10   | 330MAX   | 50.0 MIN.  | 13.0 ± 0.2    |
|              | (inch) | 0.110 ± 0.004 | 0.210 ± 0.004 | 0.177 (max) | 0.069 ± 0.004 | 13.00MAX | 1.969 MIN. | 0.512 ± 0.008 |

| SMA/DO-214AC | SYMBOL | E             | F             | P             | P0            | P1            | W             | W1         |
|--------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|------------|
|              | (mm)   | 1.75 ± 0.10   | 5.50 ± 0.05   | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 12.0 ± 0.30   | 18.4 MAX.  |
|              | (inch) | 0.069 ± 0.004 | 0.216 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.472 ± 0.012 | 0.724 MAX. |

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