

## TVP06B6V8-HF Thru. TVP06B601-HF

**Breakdown Voltage: 6.8 to 600Volts**


**Power Dissipation: 600 Watts**

**RoHS Device**

**Halogen Free**

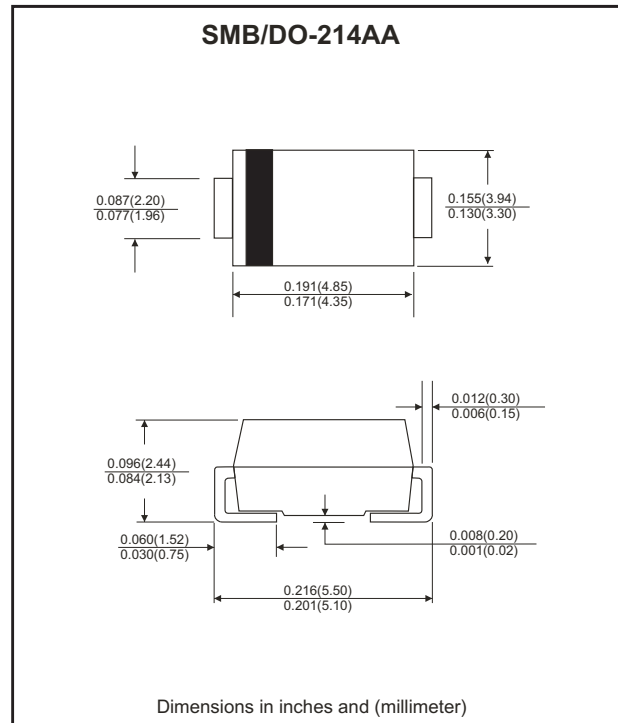


### Features

- Glass passivated chip.
- 600W 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: TVP06B6V8(C)A thru. TVP06B510(C)A

### Mechanical Data

- Case: Molded plastic, JEDEC SMB/DO-214AA
- Epoxy: UL 94V-0 rate flame retardant.
- Lead: solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar.
- Weight: 0.108 gram (approx.)



### 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%.

| Parameter                                                                             | Symbol           | Value          | Units |
|---------------------------------------------------------------------------------------|------------------|----------------|-------|
| Peak power dissipation with a 10/1000 $\mu$ s waveform (Note 1)                       | P <sub>PP</sub>  | 600            | W     |
| Peak pulse current with a 10/1000 $\mu$ s waveform (Note 1)                           | I <sub>PP</sub>  | See Next Table | A     |
| Power dissipation on infinite heatsink at T <sub>L</sub> =75°C                        | P <sub>D</sub>   | 5.0            | W     |
| Peak forward surge current, 8.3ms single half sine-wave uni-directional only (Note 2) | I <sub>FSM</sub> | 100            | A     |
| Maximum instantaneous forward voltage at 25.0A for uni-directional only (Note 3)      | V <sub>F</sub>   | 3.5/5.0        | V     |
| Operation junction temperature                                                        | T <sub>J</sub>   | -55 to +150    | °C    |
| Storage temperature range                                                             | T <sub>STG</sub> | -55 to +150    | °C    |

Note:

1. Non-repetitive current pulse, per Fig.5 and derated above TA=25°C per Fig.1
2. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulse 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.

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## Rating and Characteristics Curves (TVP06B6V8-HF Thru. TVP06B601-HF)

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 (TVP06B6V8-HF Thru. TVP06B601-HF)

| Part No.         | Breakdown voltage<br>V <sub>BR</sub> @ I <sub>T</sub> |          |                     | Maximum Reverse Leakage<br>@V <sub>RRWM</sub><br>I <sub>R</sub> (uA) | Working Peak Reverse Voltage<br>V <sub>RRWM</sub> (V) | Maximum Reverse Surge Current<br>I <sub>PP</sub> (A) | Maximum Clamping Voltage<br>@I <sub>PP</sub><br>V <sub>C</sub> (V) | Device Marking Code |      |
|------------------|-------------------------------------------------------|----------|---------------------|----------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------|--------------------------------------------------------------------|---------------------|------|
|                  | Min. (V)                                              | Max. (V) | I <sub>T</sub> (mA) |                                                                      |                                                       |                                                      |                                                                    | UNI                 | BI   |
| TVP06B6V8(C)A-HF | 6.46                                                  | 7.14     | 10                  | 1000                                                                 | 5.8                                                   | 57.14                                                | 10.5                                                               | 6V8A                | 6V8C |
| TVP06B7V5(C)A-HF | 7.13                                                  | 7.88     | 10                  | 500                                                                  | 6.4                                                   | 53.10                                                | 11.3                                                               | 7V5A                | 7V5C |
| TVP06B8V2(C)A-HF | 7.79                                                  | 8.61     | 10                  | 200                                                                  | 7.0                                                   | 49.59                                                | 12.1                                                               | 8V2A                | 8V2C |
| TVP06B9V1(C)A-HF | 8.65                                                  | 9.56     | 1                   | 50                                                                   | 7.8                                                   | 44.78                                                | 13.4                                                               | 9V1A                | 9V1C |
| TVP06B100(C)A-HF | 9.50                                                  | 10.50    | 1                   | 10                                                                   | 8.6                                                   | 41.38                                                | 14.5                                                               | 10A                 | 10C  |
| TVP06B110(C)A-HF | 10.45                                                 | 11.55    | 1                   | 5                                                                    | 9.4                                                   | 38.46                                                | 15.6                                                               | 11A                 | 11C  |
| TVP06B120(C)A-HF | 11.40                                                 | 12.60    | 1                   | 5                                                                    | 10.2                                                  | 35.93                                                | 16.7                                                               | 12A                 | 12C  |
| TVP06B130(C)A-HF | 12.35                                                 | 13.65    | 1                   | 1                                                                    | 11.1                                                  | 32.97                                                | 18.2                                                               | 13A                 | 13C  |
| TVP06B150(C)A-HF | 14.25                                                 | 15.75    | 1                   | 1                                                                    | 12.8                                                  | 28.30                                                | 21.2                                                               | 15A                 | 15C  |
| TVP06B160(C)A-HF | 15.20                                                 | 16.80    | 1                   | 1                                                                    | 13.6                                                  | 26.67                                                | 22.5                                                               | 16A                 | 16C  |
| TVP06B180(C)A-HF | 17.10                                                 | 18.90    | 1                   | 1                                                                    | 15.3                                                  | 23.81                                                | 25.2                                                               | 18A                 | 18C  |
| TVP06B200(C)A-HF | 19.00                                                 | 21.00    | 1                   | 1                                                                    | 17.1                                                  | 21.66                                                | 27.7                                                               | 20A                 | 20C  |
| TVP06B220(C)A-HF | 20.90                                                 | 23.10    | 1                   | 1                                                                    | 18.8                                                  | 19.61                                                | 30.6                                                               | 22A                 | 22C  |
| TVP06B240(C)A-HF | 22.80                                                 | 25.20    | 1                   | 1                                                                    | 20.5                                                  | 18.07                                                | 33.2                                                               | 24A                 | 24C  |
| TVP06B270(C)A-HF | 25.65                                                 | 28.35    | 1                   | 1                                                                    | 23.1                                                  | 16.00                                                | 37.5                                                               | 27A                 | 27C  |
| TVP06B300(C)A-HF | 28.50                                                 | 31.50    | 1                   | 1                                                                    | 25.6                                                  | 14.49                                                | 41.4                                                               | 30A                 | 30C  |
| TVP06B330(C)A-HF | 31.35                                                 | 34.65    | 1                   | 1                                                                    | 28.2                                                  | 13.13                                                | 45.7                                                               | 33A                 | 33C  |
| TVP06B360(C)A-HF | 34.20                                                 | 37.80    | 1                   | 1                                                                    | 30.8                                                  | 12.02                                                | 49.9                                                               | 36A                 | 36C  |
| TVP06B390(C)A-HF | 37.05                                                 | 40.95    | 1                   | 1                                                                    | 33.3                                                  | 11.13                                                | 53.9                                                               | 39A                 | 39C  |
| TVP06B430(C)A-HF | 40.85                                                 | 45.15    | 1                   | 1                                                                    | 36.8                                                  | 10.12                                                | 59.3                                                               | 43A                 | 43C  |
| TVP06B470(C)A-HF | 44.65                                                 | 49.35    | 1                   | 1                                                                    | 40.2                                                  | 9.26                                                 | 64.8                                                               | 47A                 | 47C  |
| TVP06B510(C)A-HF | 48.45                                                 | 53.55    | 1                   | 1                                                                    | 43.6                                                  | 8.56                                                 | 70.1                                                               | 51A                 | 51C  |
| TVP06B560(C)A-HF | 53.20                                                 | 58.80    | 1                   | 1                                                                    | 47.8                                                  | 7.79                                                 | 77.0                                                               | 56A                 | 56C  |
| TVP06B620(C)A-HF | 58.90                                                 | 65.10    | 1                   | 1                                                                    | 53.0                                                  | 7.06                                                 | 85.0                                                               | 62A                 | 62C  |
| TVP06B680(C)A-HF | 64.60                                                 | 71.40    | 1                   | 1                                                                    | 58.1                                                  | 6.52                                                 | 92.0                                                               | 68A                 | 68C  |
| TVP06B750(C)A-HF | 71.25                                                 | 78.75    | 1                   | 1                                                                    | 64.1                                                  | 5.83                                                 | 103.0                                                              | 75A                 | 75C  |
| TVP06B820(C)A-HF | 77.90                                                 | 86.10    | 1                   | 1                                                                    | 70.1                                                  | 5.31                                                 | 113.0                                                              | 82A                 | 82C  |
| TVP06B910(C)A-HF | 86.45                                                 | 95.55    | 1                   | 1                                                                    | 77.8                                                  | 4.80                                                 | 125.0                                                              | 91A                 | 91C  |
| TVP06B101(C)A-HF | 95.00                                                 | 105.00   | 1                   | 1                                                                    | 85.5                                                  | 4.38                                                 | 137.0                                                              | 100A                | 100C |
| TVP06B111(C)A-HF | 104.50                                                | 115.50   | 1                   | 1                                                                    | 94.0                                                  | 3.95                                                 | 152.0                                                              | 110A                | 110C |
| TVP06B121(C)A-HF | 114.00                                                | 126.00   | 1                   | 1                                                                    | 102.0                                                 | 3.64                                                 | 165.0                                                              | 120A                | 120C |
| TVP06B131(C)A-HF | 123.50                                                | 136.50   | 1                   | 1                                                                    | 111.0                                                 | 3.35                                                 | 179.0                                                              | 130A                | 130C |
| TVP06B151(C)A-HF | 142.50                                                | 157.50   | 1                   | 1                                                                    | 128.0                                                 | 2.90                                                 | 207.0                                                              | 150A                | 150C |
| TVP06B161(C)A-HF | 152.00                                                | 168.00   | 1                   | 1                                                                    | 136.0                                                 | 2.74                                                 | 219.0                                                              | 160A                | 160C |
| TVP06B171(C)A-HF | 161.50                                                | 178.50   | 1                   | 1                                                                    | 145.0                                                 | 2.56                                                 | 234.0                                                              | 170A                | 170C |
| TVP06B181(C)A-HF | 171.00                                                | 189.00   | 1                   | 1                                                                    | 154.0                                                 | 2.44                                                 | 246.0                                                              | 180A                | 180C |
| TVP06B201(C)A-HF | 190.00                                                | 210.00   | 1                   | 1                                                                    | 171.0                                                 | 2.19                                                 | 274.0                                                              | 200A                | 200C |
| TVP06B221(C)A-HF | 209.00                                                | 231.00   | 1                   | 1                                                                    | 185.0                                                 | 1.83                                                 | 328.0                                                              | 220A                | 220C |
| TVP06B251(C)A-HF | 237.50                                                | 262.50   | 1                   | 1                                                                    | 214.0                                                 | 1.74                                                 | 344.0                                                              | 250A                | 250C |
| TVP06B301(C)A-HF | 285.00                                                | 315.00   | 1                   | 1                                                                    | 256.0                                                 | 1.45                                                 | 414.0                                                              | 300A                | 300C |
| TVP06B351(C)A-HF | 332.50                                                | 367.50   | 1                   | 1                                                                    | 299.3                                                 | 1.24                                                 | 482.0                                                              | 350A                | 350C |
| TVP06B381(C)A-HF | 361.00                                                | 399.00   | 1                   | 1                                                                    | 324.9                                                 | 1.14                                                 | 524.4                                                              | 380A                | 380C |
| TVP06B401(C)A-HF | 380.00                                                | 420.00   | 1                   | 1                                                                    | 342.0                                                 | 1.09                                                 | 548.0                                                              | 400A                | 400C |
| TVP06B441(C)A-HF | 418.00                                                | 462.00   | 1                   | 1                                                                    | 376.2                                                 | 0.99                                                 | 607.2                                                              | 440A                | 440C |
| TVP06B501(C)A-HF | 475.00                                                | 525.00   | 1                   | 1                                                                    | 427.5                                                 | 0.87                                                 | 690.0                                                              | 500A                | 500C |
| TVP06B521(C)A-HF | 494.00                                                | 546.00   | 1                   | 1                                                                    | 444.6                                                 | 0.84                                                 | 717.6                                                              | 520A                | 520C |
| TVP06B551(C)A-HF | 522.50                                                | 577.50   | 1                   | 1                                                                    | 470.3                                                 | 0.79                                                 | 759.0                                                              | 550A                | 550C |
| TVP06B601(C)A-HF | 570.00                                                | 630.00   | 1                   | 1                                                                    | 513.0                                                 | 0.72                                                 | 828.0                                                              | 600A                | 600C |

- Note: 1) Suffix A denotes 5% tolerance devices.  
 2) Add suffix "C" or "CA" 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.

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## Reel Taping Specification



| DO-214AA<br>(SMB) | SYMBOL | A             | B             | C           | d             | D      | D1          | D2            |
|-------------------|--------|---------------|---------------|-------------|---------------|--------|-------------|---------------|
|                   | (mm)   | 3.67 ± 0.10   | 5.69 ± 0.10   | 4.50 (max)  | 1.55 ± 0.10   | 330.00 | 50.00 (min) | 13.00 ± 0.20  |
|                   | (inch) | 0.144 ± 0.004 | 0.224 ± 0.004 | 0.177 (max) | 0.061 ± 0.004 | 13.000 | 1.969 (min) | 0.512 ± 0.008 |

| DO-214AA<br>(SMB) | SYMBOL | E             | F             | P             | P0            | P1            | W             | W1          |
|-------------------|--------|---------------|---------------|---------------|---------------|---------------|---------------|-------------|
|                   | (mm)   | 1.75 ± 0.10   | 5.50 ± 0.05   | 8.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.05   | 12.00 ± 0.30  | 18.40 (max) |
|                   | (inch) | 0.069 ± 0.004 | 0.217 ± 0.002 | 0.315 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.472 ± 0.012 | 0.724 (max) |

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## Marking Code

1. **C**: COMCHIP

2. ○: Package

|   |     |
|---|-----|
| ○ | PKG |
| A | SMA |
| B | SMB |
| C | SMC |

3. XXX/XXXX: Marking code (see Page. 3)

4. : Cathod Band



## Suggested PAD Layout

| SIZE | DO-214AA(SMB) |           |
|------|---------------|-----------|
|      | (mm)          | (inch)    |
| A    | 5.60          | 0.220     |
| B    | 2.16 MAX      | 0.085 MAX |
| C    | 1.52 MIN      | 0.060 MIN |
| D    | 2.18 MIN      | 0.086 MIN |



## Standard Packaging

| Case Type      | REEL PACK    |                  |
|----------------|--------------|------------------|
|                | REEL ( pcs ) | Reel Size (inch) |
| DO-214AA (SMB) | 3,000        | 13               |

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- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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