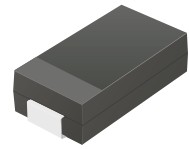


## TVP06B6V8-G Thru. TVP06B601-G

**Breakdown Voltage: 6.8 to 600 Volts**

**Power Dissipation: 600 Watts**

**RoHS Device**

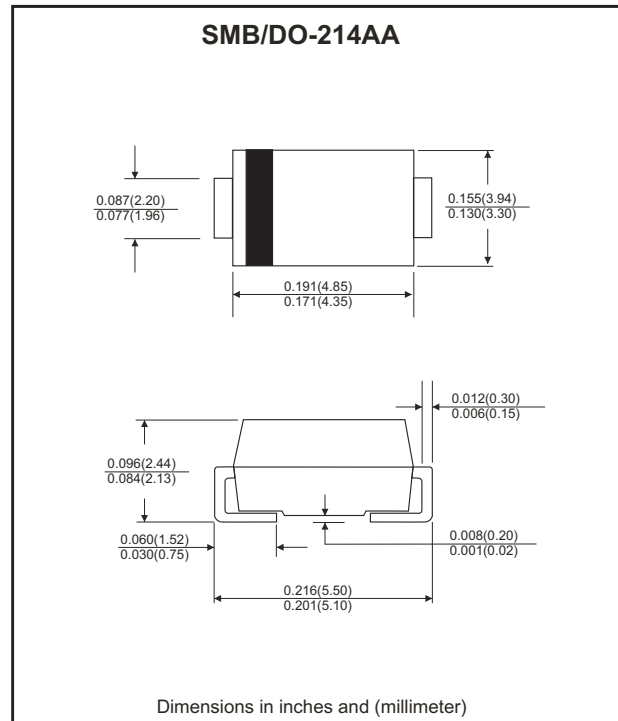


### Features

- 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.

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

REV:C

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

Fig.1 - Pulse Derating Curve

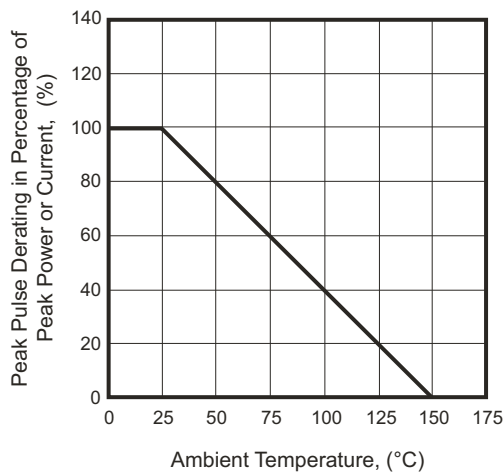


Fig.2 - Maximum Non-Repetitive Surge Current

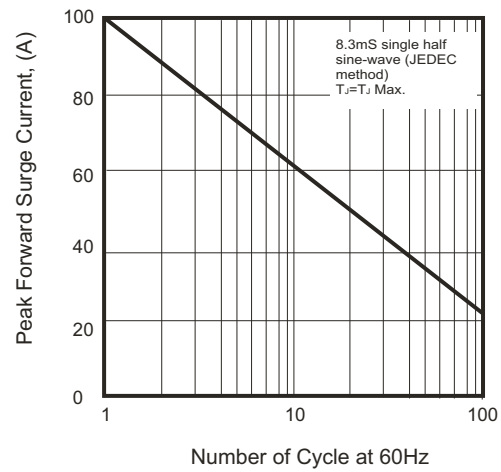


Fig.3 - Steady State Power Derating Curve

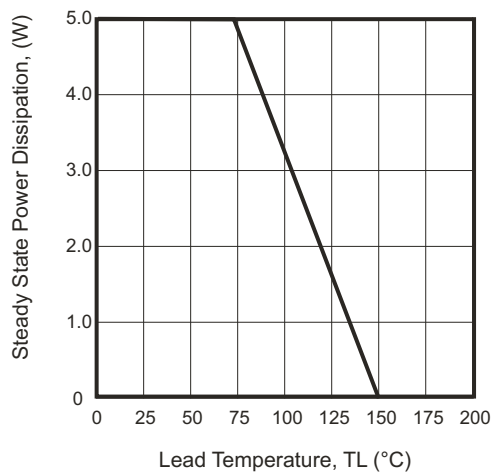


Fig.4 - Peak Pulse Power Rating Curve

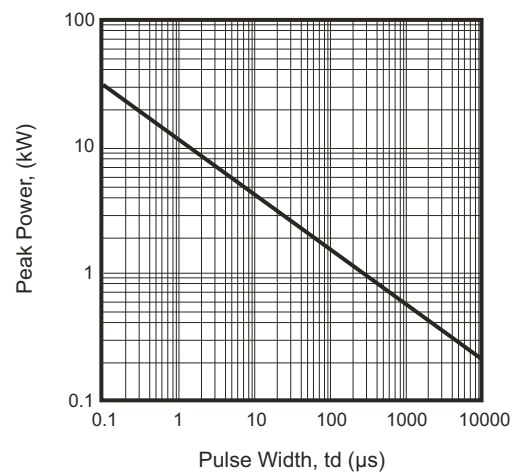


Fig.5 - Pulse Waveform

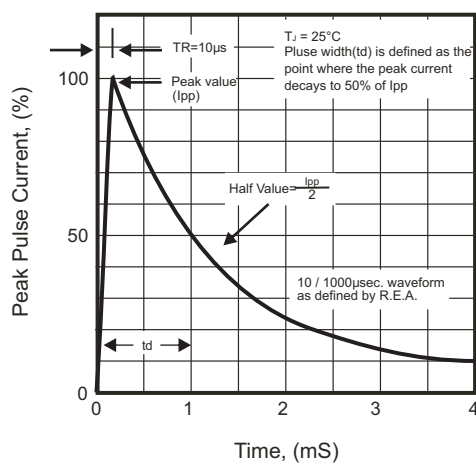
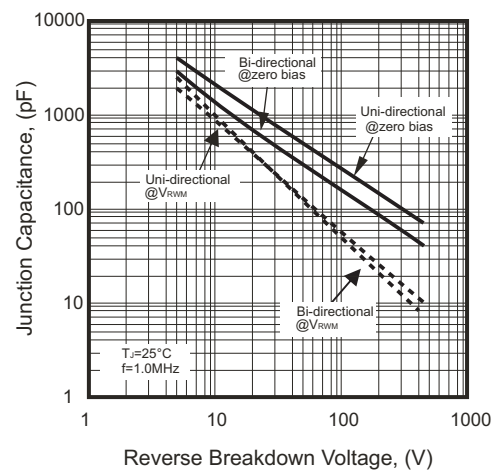


Fig.6 - Typical Junction Capacitance



# SMD Transient Voltage Suppressor

## Electrical Characteristics (TVP06B6V8-G Thru. TVP06B601-G)

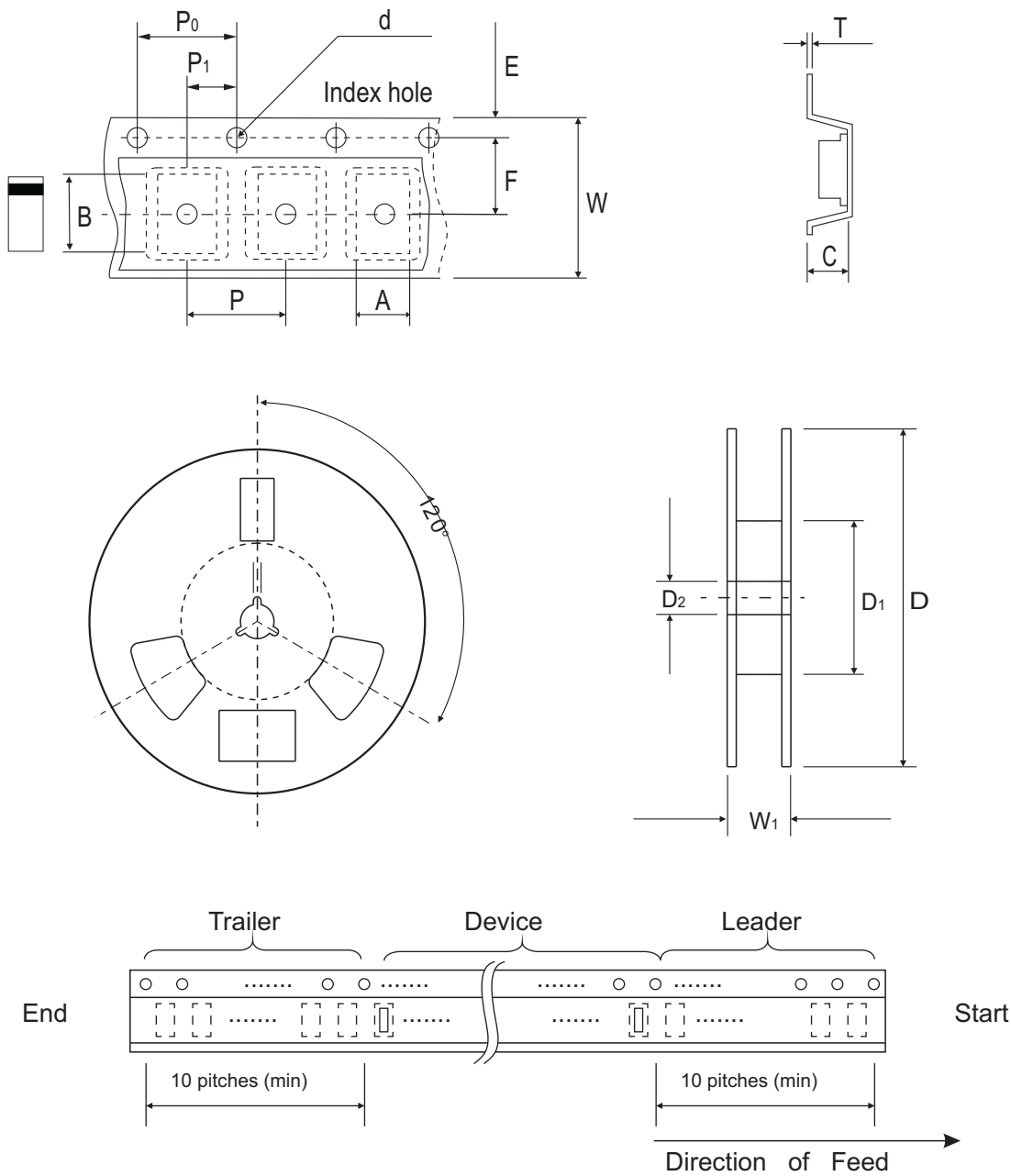
| Part No.        | Breakdown voltage<br>V <sub>BR</sub> @ I <sub>T</sub> |             |                        | Maximum<br>Reverse<br>Leakage<br>@V <sub>RRM</sub><br>I <sub>R</sub> (uA) | Working<br>Peak<br>Reverse<br>Voltage<br>V <sub>RRM</sub> (V) | Maximum<br>Reverse<br>Surge<br>Current<br>I <sub>PP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

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

REV:C

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) |

## Marking Code

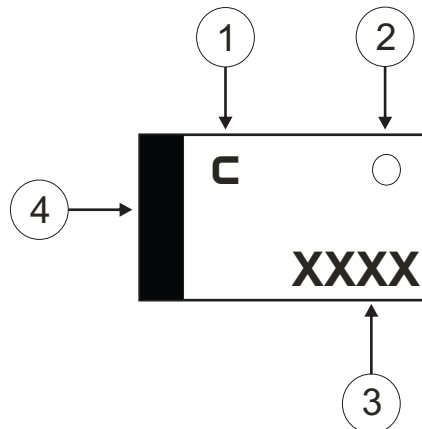
1. **C**: COMCHIP

2. ○: Package

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

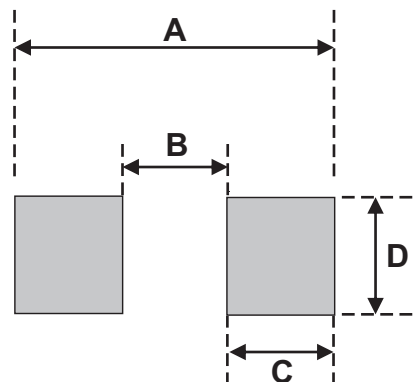
3. XXX/XXXX: Marking code (see Page. 3)

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<br>( pcs ) | Reel Size<br>(inch) |
| DO-214AA<br>(SMB) | 3,000           | 13                  |