



## Features

- 20 kA, 8/20  $\mu$ s surge capability
- Low clamping voltage under surge
- Bidirectional TVS
- RoHS compliant\*

## Applications

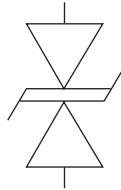
- High power DC bus protection

# PTVS20-015C-TH High Current TVS Diode

## General Information

The Model PTVS20-015C-TH high current bidirectional TVS diode is designed for use in high power DC bus clamping applications.

The device is RoHS\* compliant and assists in meeting IEC 61000-4-5 8/20  $\mu$ s current surge requirements.



## Agency Approval

| Description |                                      |
|-------------|--------------------------------------|
| UL          | File Number: <a href="#">E313168</a> |

## Additional Information

Click these links for more information:



## Absolute Maximum Ratings (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

| Rating                                             | Symbol    | Value       | Unit             |
|----------------------------------------------------|-----------|-------------|------------------|
| Repetitive Standoff Voltage                        | $V_{WM}$  | 15          | V                |
| Peak Current Rating per 8/20 $\mu$ s IEC 61000-4-5 | $I_{PPM}$ | 20          | kA               |
| Operating Temperature Range                        | $T_{OP}$  | -55 to +125 | $^\circ\text{C}$ |
| Storage Temperature Range                          | $T_S$     | -55 to +150 | $^\circ\text{C}$ |

## Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter                                                                    | Test Conditions                                | Min. | Typ. | Max. | Unit                |
|------------------------------------------------------------------------------|------------------------------------------------|------|------|------|---------------------|
| $I_D$ Standby Current                                                        | $V_D = V_{WM}$                                 |      |      | 10   | $\mu\text{A}$       |
| $V_{(BR)}$ Breakdown Voltage                                                 | $I_{BR} = 10\text{ mA}$                        | 16   |      | 19   | V                   |
| $V_C$ Clamping Voltage (1) per IEC 61000-4-5 (8/20 $\mu$ s current waveform) | $I_{PP} = 20\text{ kA}$                        |      | 44   |      | V                   |
| $V_{(BR)}$ Temperature Coefficient                                           |                                                |      | 0.1  |      | $\%/^\circ\text{C}$ |
| C Capacitance                                                                | $F = 10\text{ kHz}$ ,<br>$V_d = 1\text{ Vrms}$ |      | 38.7 |      | nF                  |

(1)  $V_C$  measured at the time which is coincident with the peak surge current.

## Environmental Specifications

| Test                                        | Standard                              |
|---------------------------------------------|---------------------------------------|
| HTRB                                        | MIL-STD-750, 1038                     |
| Temperature Cycling                         | JESD22-A104                           |
| High Temperature High Humidity Reverse Bias | JESD22-A101                           |
| UHASt                                       | JESD22-A118                           |
| ESD (HBM)                                   | ANSI-ESDA-JEDEC-JS-001-2017, Class 3B |

## How to Order

|                                     |                           |
|-------------------------------------|---------------------------|
| Series                              | PTVS 20 - 015 C - TH      |
| PTVS = Power TVS High Current Diode |                           |
| Peak Current Rating                 | 20 = 20 kA                |
| Repetitive Standoff Voltage         | 015 = 15 $V_{WM}$ (Volts) |
| Suffix                              | C = Bidirectional Device  |
| Package                             | TH = Through-hole         |



**WARNING Cancer and Reproductive Harm**  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

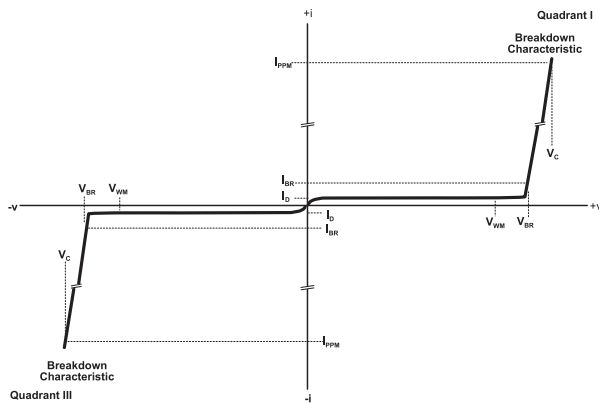
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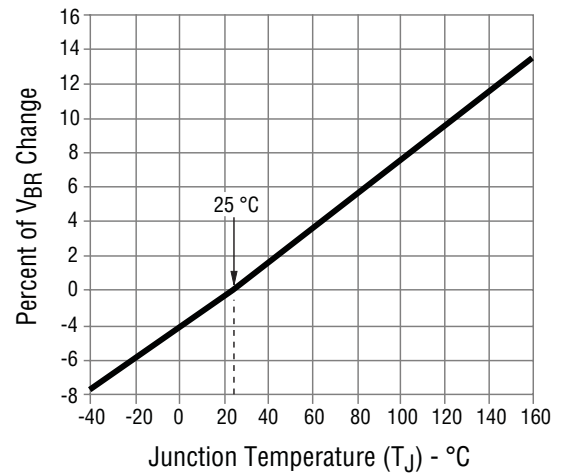
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## Performance Graphs

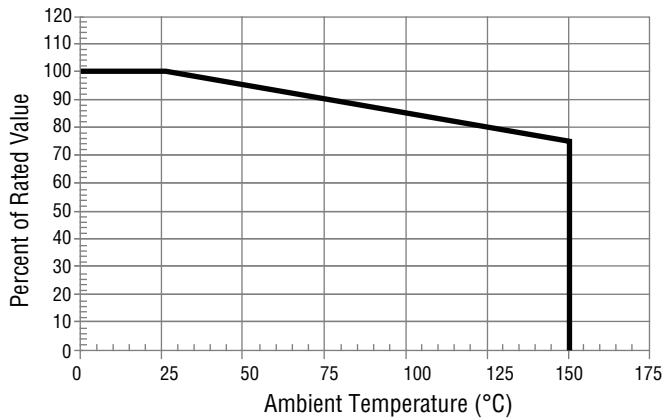
### V-I Characteristic



### Typical $V_{BR}$ vs. Junction Temperature

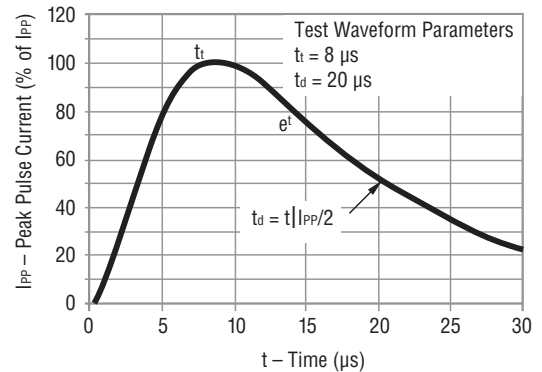


### Typical 8/20 $\mu$ s Surge Current Derating



This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20  $\mu$ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

### Current 8/20 $\mu$ s Waveform per IEC 61000-4-5



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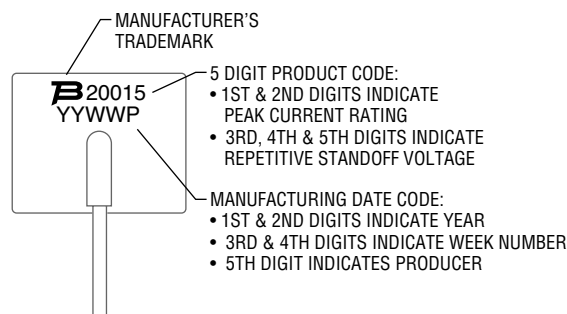
Users should verify actual device performance in their specific applications.

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# PTVS20-015C-TH High Current TVS Diode

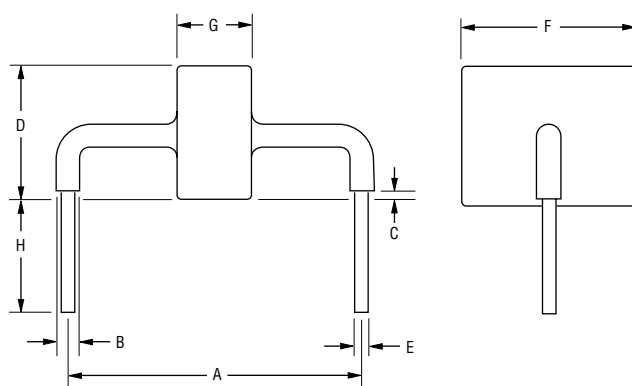
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## Typical Part Marking



## Product Dimensions

This is an RoHS compliant product, with epoxy encapsulations meeting UL Class 94V-0. Ag plated leads meet solderability requirements of JESD22-B102. Package dimensions are shown below.



DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

| Dim. | PTVS20-015C-TH                         |
|------|----------------------------------------|
| A    | $24.5 \pm 3.00$<br>(0.965 $\pm$ 0.118) |
| B    | $2.00 \pm 0.50$<br>(0.079 $\pm$ 0.020) |
| C    | $2.70 \pm 1.25$<br>(0.106 $\pm$ 0.049) |
| D    | $17.50$<br>(0.689) Max.                |
| E    | $1.25 \pm 0.05$<br>(0.049 $\pm$ 0.002) |
| F    | $16.00$<br>(0.630) Max.                |
| G    | $4.00$<br>(0.157) Max.                 |
| H    | $6.00 \pm 1.00$<br>(0.236 $\pm$ 0.039) |

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