



## Features

- 10 kA, 8/20  $\mu$ s surge capability
- 1 kA, 10/350  $\mu$ s surge capability
- Low clamping voltage under surge
- Bidirectional TVS
- Surface mount package

## Applications

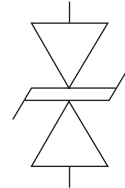
- High power DC bus protection

# PTVS10-086C-M High Current TVS Diode

## General Information

The Bourns® Model PTVS10-086C-M high current bidirectional TVS diode is designed for use in high power DC bus clamping applications.

The device is RoHS\* compliant and is designed to meet IEC 61000-4-5 8/20  $\mu$ s current surge requirements.



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

Rating	Symbol	Value	Unit
Repetitive Standoff Voltage	$V_{WM}$	86	V
Peak Current Rating per 8/20 $\mu$ s IEC 61000-4-5	$I_{PPM}$	10	kA
Peak Current Rating per 10/350 $\mu$ s	$I_{PPM}$	1	kA
Operating Junction Temperature Range	$T_J$	-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	$I_{BR} = 10\text{ mA}$	96	101	107	V
$V_C$ Clamping Voltage <sup>1</sup>	$I_{PP} = 10\text{ kA}$ (8/20 $\mu$ s waveshape)			157	V
$V_{(BR)}$ Temperature Coefficient			0.1		$\%/^\circ\text{C}$
C Capacitance	$F = 10\text{ kHz}$ , $V_d = 1\text{ Vrms}$		5		nF

Note:

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

# BOURNS®

**Asia-Pacific:** Tel: +886-2 2562-4117 • Email: asiacus@bourns.com

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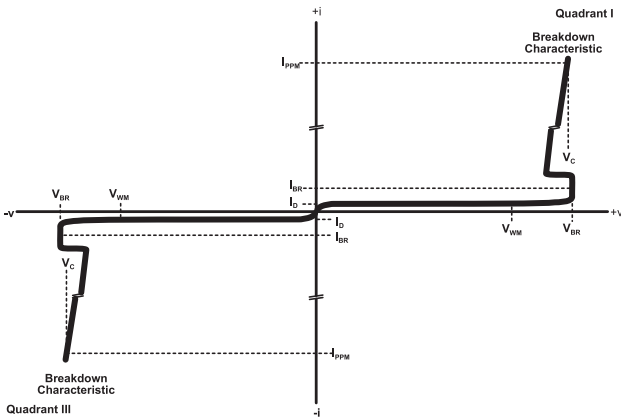
\*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011. Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

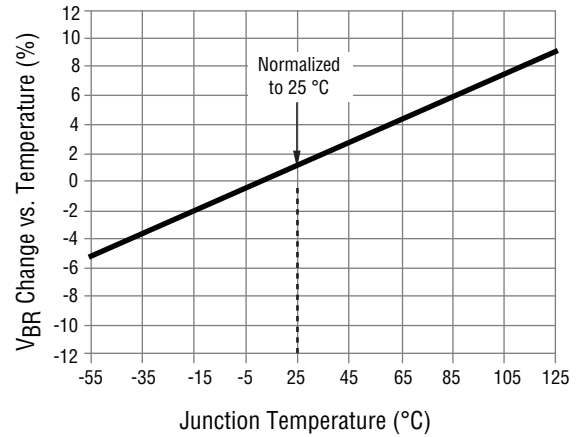
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## Performance Graphs

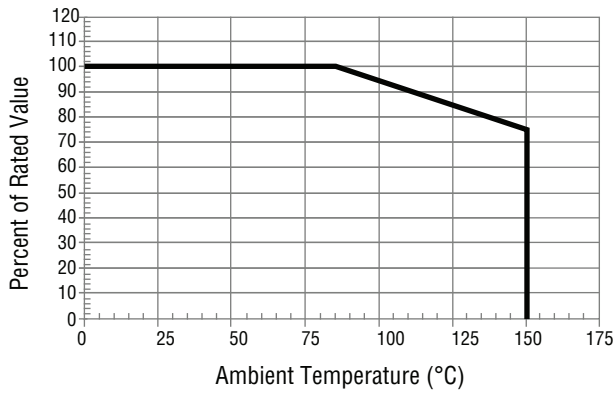
### V-I Characteristic



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

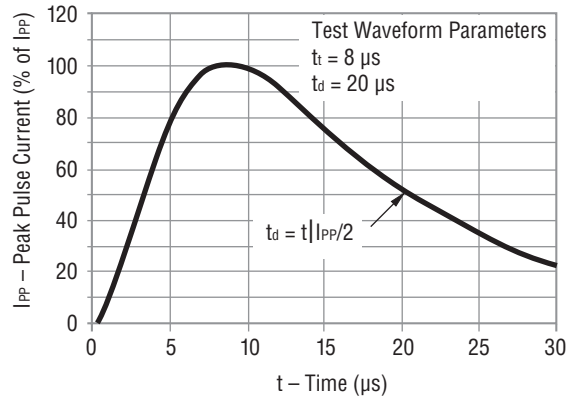


### Typical Surge Current Derating



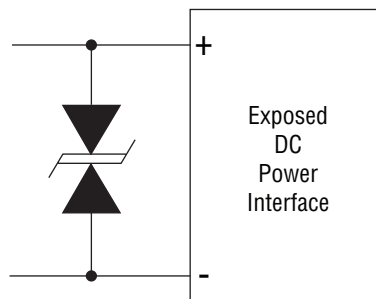
This graph shows the typical device surge current derating versus ambient temperature when subjected to the 8/20  $\mu$ s current waveform per the IEC 61000-4-5 specification. This device is not intended for continuous operation at temperatures above 125 °C.

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



## Application

A typical application for Power TVS products includes DC power line protection.



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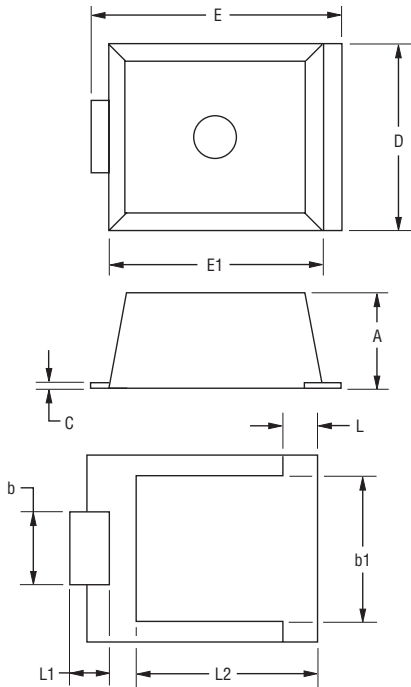
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# PTVS10-086C-M High Current TVS Diodes



## Product Dimensions

This is an RoHS compliant\*, molded package with 100 % Sn on the terminations, and a flammability rating of UL 94-V-0.

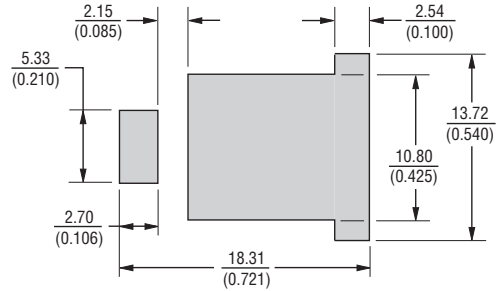


Dim.	Min.	Max.
A	6.94 (0.273)	7.24 (0.285)
b	5.15 (0.203)	5.65 (0.222)
b1	10.55 (0.415)	11.05 (0.435)
C	0.37 (0.015)	0.45 (0.018)
D	13.45 (0.530)	14.60 (0.575)
E	17.85 (0.703)	18.72 (0.737)
E1	15.50 (0.610)	16.05 (0.632)
L	2.30 (0.091)	2.80 (0.110)
L1	2.50 (0.098)	2.90 (0.114)
L2	13.16 (0.518)	13.76 (0.518)

Mold flash or protrusion shall not exceed 0.25 mm.

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

## Recommended Pad Layout



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

## Typical Part Marking

PTVS10-086C-M ..... 10086

## How to Order

**PTVS 10 - 086 C-M**

Series \_\_\_\_\_  
 PTVS = Power TVS High Current Diode

Peak Current Rating \_\_\_\_\_  
 10 = 10 kA

Repetitive Standoff Voltage \_\_\_\_\_  
 086 = 86 V

Suffix \_\_\_\_\_  
 C = Bidirectional Device  
 M = Surface Mount

## Environmental Specifications

Moisture Sensitivity Level ..... 1  
 ESD Classification (HBM) ..... 3B

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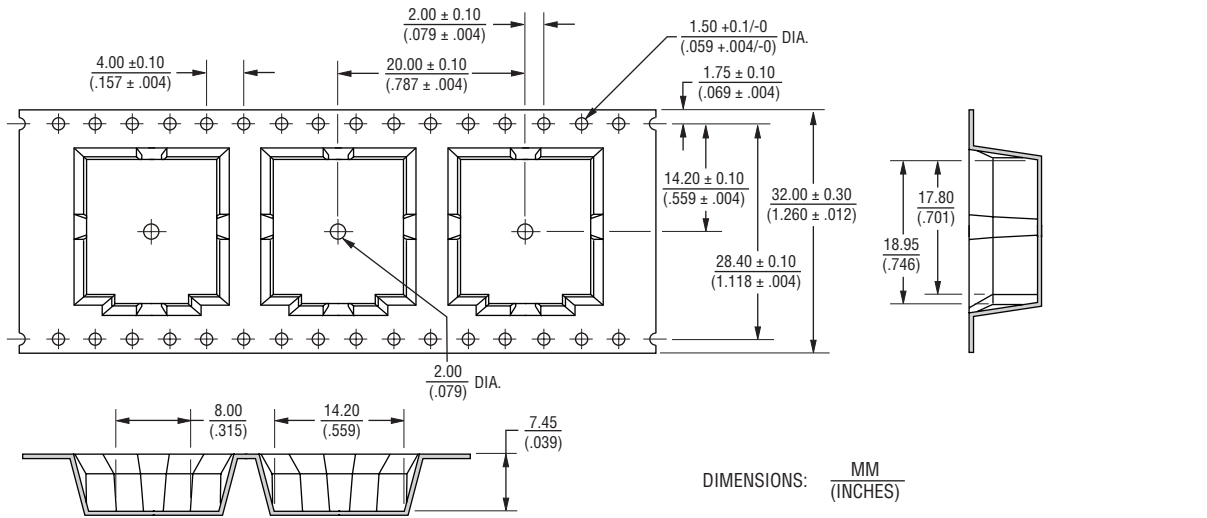
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# PTVS10-086C-M High Current TVS Diodes

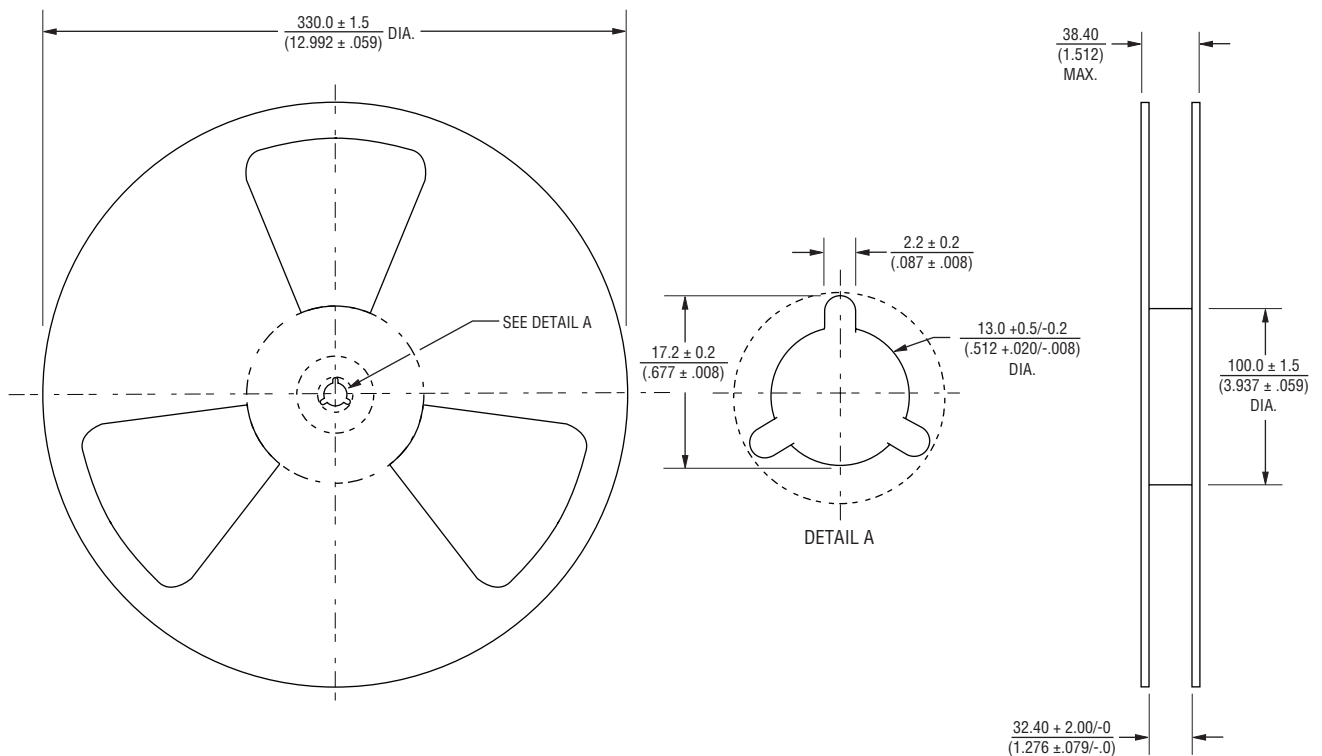
**BOURNS®**

## Packaging Information

The product will be dispensed in tape and reel format (see diagram below).



**USER DIRECTION OF FEED** →  
400 PCS. PER REEL



12/18

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Users should verify actual device performance in their specific applications.

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