NEW PRODUCT BRIEF

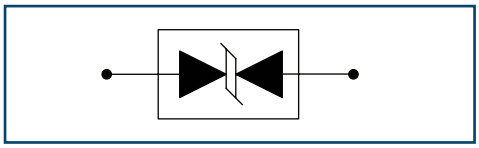
Bourns® Bidirectional Power TVS Diode – PTVS1-xxxC-H Series

High Current PTVS Diodes in an Industry-First Surface Mount DFN Package

INTRODUCTION

Bourns is pleased to announce the new Model PTVS1-xxxC-H series bidirectional Power Transient Voltage Suppressor (PTVS) diodes, capable of handling 1 kA (8/20 µs) surge current as per IEC 61000-4-5. As the world's first PTVS devices in a compact surface mount DFN package, eight RoHS-compliant* models are available with a maximum repetitive standoff voltage (V_{WM}) between 22 V and 86 V.

DEVICE SYMBOL



MARKET TRENDS

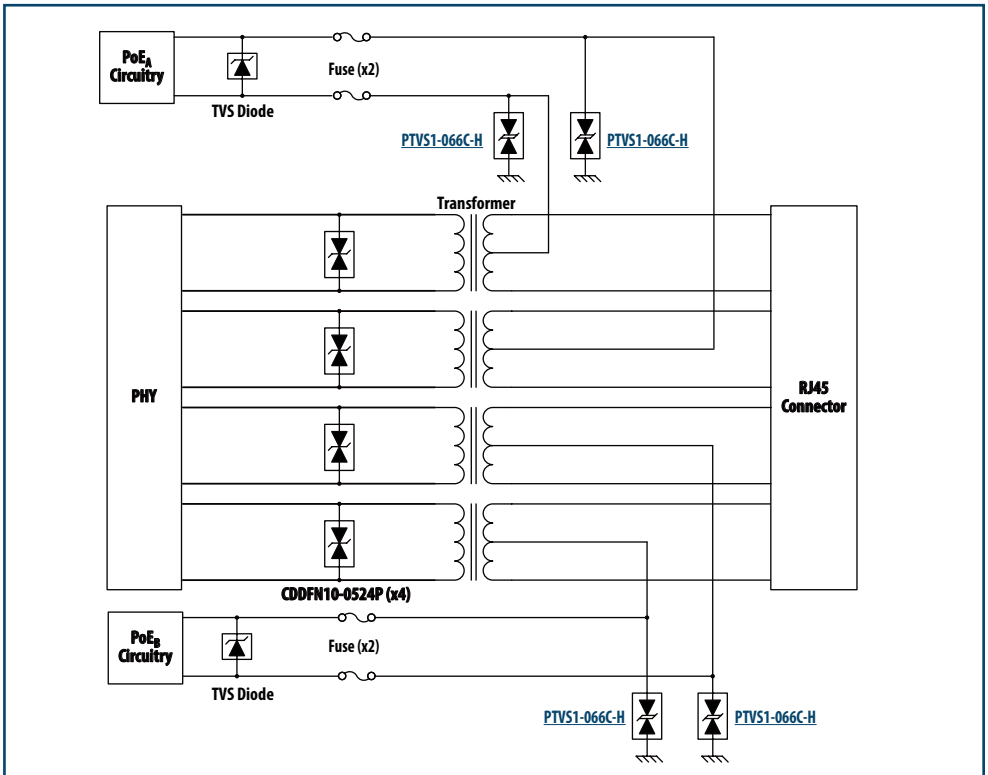
Reliable protection is increasingly required against high energy surge events on PoE ports, Remote Radio Units (RRUs), BaseBand Units (BBUs) and high-power DC bus applications. Bourns has designed its entire PTVS1-xxxC-H portfolio to meet or exceed IEC 61000-4-5 Level 4 (2 kV, 1 kA) requirements. This new PTVS series, in a DFN package, is engineered to satisfy customer needs for a cost-efficient and compact 1 kA option.

FEATURES

- 1 kA, 8/20 µs surge-handling capability
- Surface mount DFN package
- Excellent performance over temperature

BENEFITS

- Low clamping voltage under surge
- Compact, space-saving protection solution
- Enhanced protection



Block diagram illustration of Bourns® Model PTVS1-066-C-H in a Power-over-Ethernet (PoE) application

APPLICATIONS

Bourns® PTVS diodes are built using semiconductor technology, offering enhanced surge protection and low clamping voltage surge ratings for extended operational life. The block diagram shown above is an example of where a Bourns® bidirectional Model PTVS1-xxxC-H series device can be used in a PoE application.

In the circuit above, Bourns® Model PTVS1-066C-H is able to withstand a 1 kA surge under 8/20 µs conditions and has a maximum working voltage of 66 V. The compact 8 mm x 6 mm x 2.5 mm DFN package provides a space-saving option for today's dense board designs, and is capable of replacing larger legacy through-hole PTVS devices where space-saving and/or automated pick-and-place assembly is desired.

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

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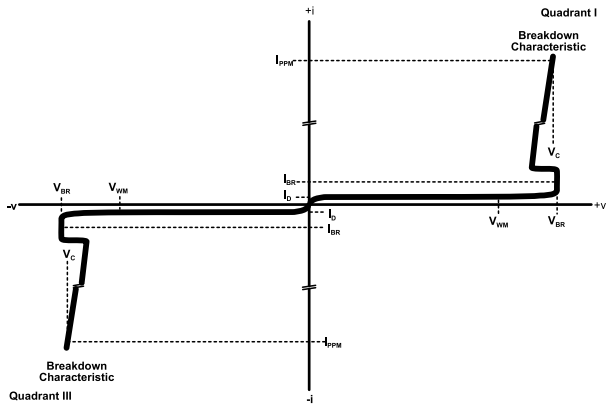
ELECTRICAL CHARACTERISTICS (@ T_A = 25 °C Unless Otherwise Noted)

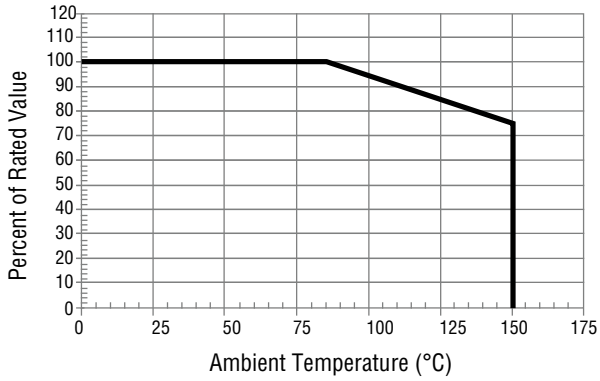
Bidirectional Device	Breakdown Voltage V_{BR} (V)			Standby Current $V_D = V_{WM}$	Typical Clamping Voltage(1)(2) @ I_{PPM}	V_{BR} Temperature Coefficient	Typical Capacitance (f=10 kHz V_d = 1 V_{rms})
Model Number	Min.	Max.	@ I_{BR} (mA)	I_D (µA)	V_C (V)	% / °C	C (nF)
PTVS1-022C-H	24	27	10	10	28	0.1	2.0
PTVS1-026C-H	28	32	10	10	30	0.1	1.5
PTVS1-029C-H	32	35	10	10	34	0.1	1.5
PTVS1-043C-H	48	53	10	10	56	0.1	1.0
PTVS1-058C-H	64	70	10	10	67	0.1	0.8
PTVS1-066C-H	72	80	10	10	86	0.1	0.7
PTVS1-076C-H	85	95	10	10	91	0.1	0.6
PTVS1-086C-H	96	105	10	10	99	0.1	0.5

Notes: (1) 8/20 µs per IEC 61000-4-5.
(2) V_C measured at the time which is coincident with the peak surge current.

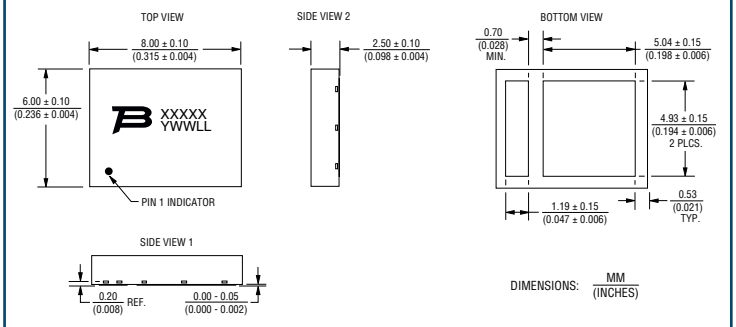
TYPICAL VI CURVE



TYPICAL SURGE DERATING CURVE



PRODUCT DIMENSIONS



HOW TO ORDER

PTVS 1 - xxx C - H

Series
PTVS = Power TVS High Current Diode

Peak Current Rating
1 = 1 kA

Repetitive Standoff Voltage
022 - 086 = 22 - 86 V_{WM} (Volts)

Suffix
C = Bidirectional Device

Package
H = DFN Package

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