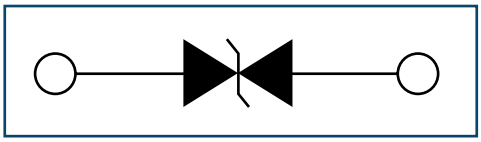
NEW PRODUCT BRIEF

Bourns® Model PTVS20-015C-TH
Bidirectional Power Transient Voltage Suppressor (PTVS) Diode

INTRODUCTION

The Bourns® Model PTVS20-015C-TH is a bidirectional Power Transient Voltage Suppressor (PTVS) Diode capable of handling 20 kA of surge current (8/20 µs). With a repetitive standoff voltage (V_{WM}) of 15 V, this device is suitable for low voltage applications. Model PTVS20-015C-TH is built in a through-hole package, is RoHS* compliant and UL recognized. It also meets IEC 61000-4-5 8/20 µs current surge requirements.

DEVICE SYMBOL

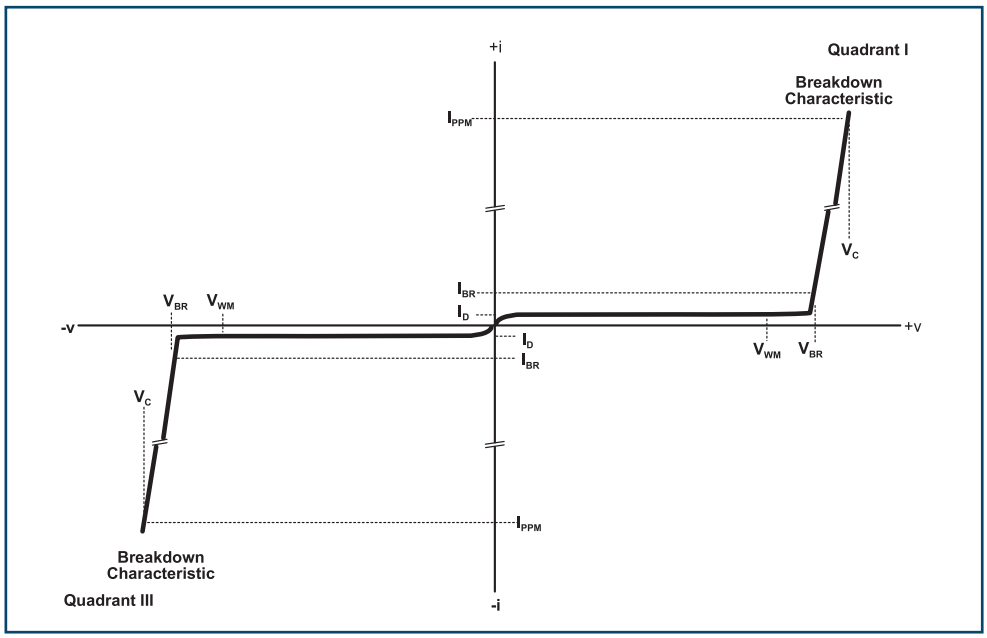


APPLICATIONS

Bourns' PTVS technology offers enhanced voltage protection and delivers extended long life for rated surges. Bourns® PTVS components can be connected in series and / or parallel to create a very high surge current protection.

The Bourns® Model PTVS20-015C-TH is capable of handling 20 kA of surge current (8/20 µs). In certain applications, these surges can be as high as 100 kA, 2/10 µs. In order to meet this requirement designers presently require four PTVS15 devices that can handle 15 kA, 8/20 µs surge (equivalent to a 60 kA, 8/20 µs surge). This combination can also handle 100 kA, 2/10 µs surge events as the shorter surge duration is easier to absorb. With Bourns® Model PTVS20-015C-TH, designers are able to reduce their bill of materials (BOM) to three PTVS20 devices that can handle the same 15 kA 8/20 µs surge (equivalent to a 60 kA 8/20 µs surge). Equal current sharing between the three or four PTVS devices is achieved by adding resistance in series with each PTVS device.

TYPICAL VI CURVE



FEATURES AND BENEFITS

- 20 kA, 8/20 µs capability under surge for high surge current protection
- Bidirectional TVS diode absorbs large pulses in both the positive and negative direction
- Low clamping voltage for enhanced protection

HOW TO ORDER

PTVS 20 - 015 C - TH

Series
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

MARKET TRENDS

Protection is required for high energy surge events on power lines. To meet this requirement, designers will place a power line surge counter that continuously monitors surge arrestors on the sensor port. Applications that embed a surge counter frequently operate in remote locations. As maintenance calls can be costly in these locations, many designers would like a viable solution for replacing the MOV devices in their surge counters in existing applications. Designers will appreciate the high reliability that PTVS technology provides, and hence, understand the benefits of having Bourns® Model PTVS20-015C-TH in their design. The Model PTVS20-015C-TH will help reduce the cost of ownership by reducing the number of visits to the remote location for maintenance.

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

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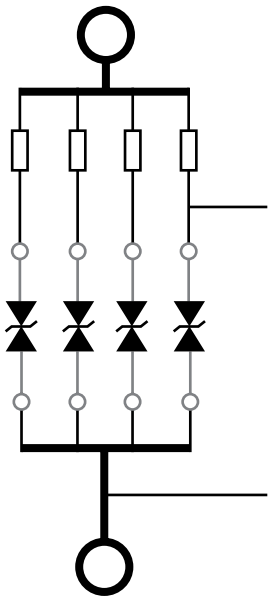
ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Test Conditions	Value	Units
Standby Current	I_D	@ 15 V	10 (max.)	μA
Breakdown Voltage	V_{BR}	@ 10 mA	16 to 19	V
Clamping Voltage*	V_C	@ 20 kA	50 (max.)	V
Temp. Coefficient	V_{BR}	—	0.1 (typ.)	%/°C
Capacitance	C	F=10 kHz, V_d = 1 V_{rms}	38.7 (typ.)	nF

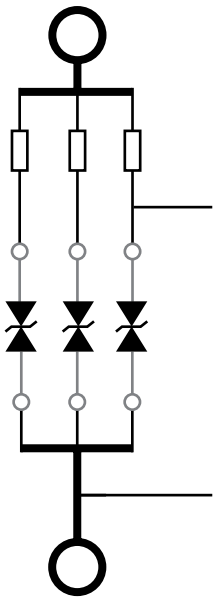
*8/20 μs current waveform per IEC 61000-4-5 measured at the peak surge current.

CIRCUIT DIAGRAM

Without PTVS20-015C-TH:
Four PTVS15 devices for 60 kA 8/20 μs surge rating



With PTVS20-015C-TH:
Three PTVS20 devices for 60 kA 8/20 μs surge rating



Fewer components on each PCB and easier production, i.e., reflow soldering - creates value for designers

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