



## Features

- Maximum peak pulse power (10/1000  $\mu$ s): 15 kW
- Maximum peak pulse current (8/20  $\mu$ s): 1 kA
- Standoff Voltage: 16 to 66 volts
- RoHS compliant\*
- AEC-Q101 compliant\*\*

## Applications

- High peak power applications
- High temperature applications
- Clamping diode
- Automotive
- Load switching and lighting

# 15KPA-SD-Q Transient Voltage Suppressor Diode Series

## General Information

Bourns offers Transient Voltage Suppressor Diodes for surge and ESD protection applications, in compact chip package DO-218 size format. The Transient Voltage Suppressor series offers a choice of Working Peak Reverse Voltage from 16 V up to 66 V.

## Additional Information

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

Parameter	Symbol	Value	Unit
Maximum Peak Pulse Power (10/1000 $\mu$ s) (Note 1)	$P_{PPM}$	15000	W
Maximum Peak Pulse Current (8/20 $\mu$ s) (Note 1)	$I_{PPM}$	1000	A
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 2)	$I_{FSM}$	300	A
Steady State Power Dissipation @ $T_C = 25^\circ\text{C}$	$P_{M(AV)}$	8	W
Maximum Instantaneous Forward Voltage @ $I_{PP} = 100$ A (Unidirectional Units Only)	$V_F$	5	V
Operating Temperature Range	$T_J$	-55 to +175	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +175	$^\circ\text{C}$

(Note 1) Non-repetitive current pulse, per Pulse Waveform graph and derated above  $T_A = 25^\circ\text{C}$  per Pulse Derating Curve.

(Note 2) 8.3 ms Single Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).

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

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

\*\*"Q" part number suffix for automotive and other applications requiring appropriate AEC-Q101 compliance.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

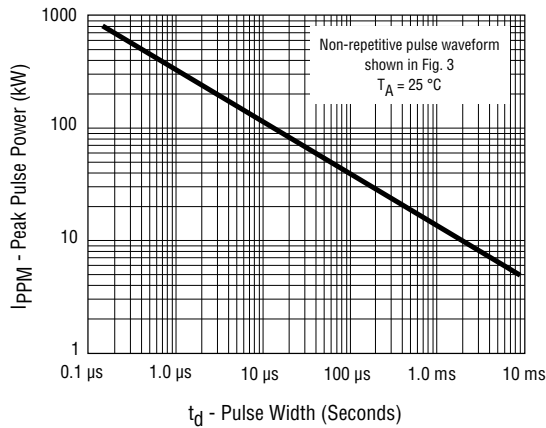
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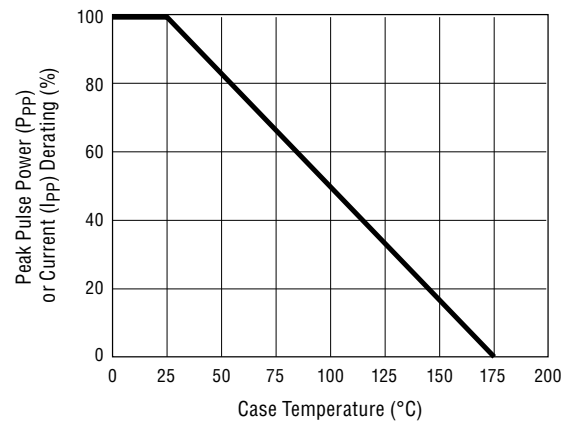
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## Performance Graphs

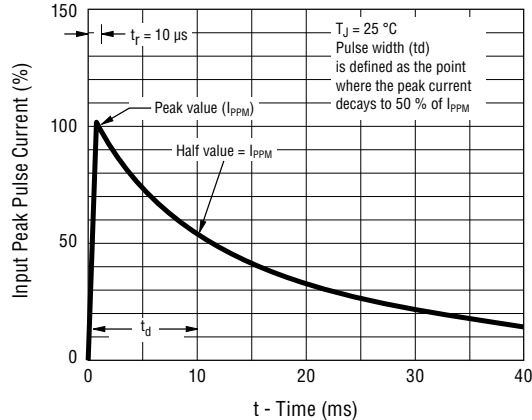
### Pulse Derating Curve



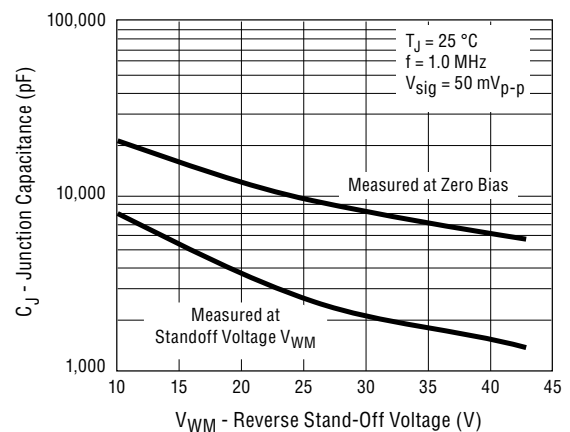
### Peak Power Dissipation



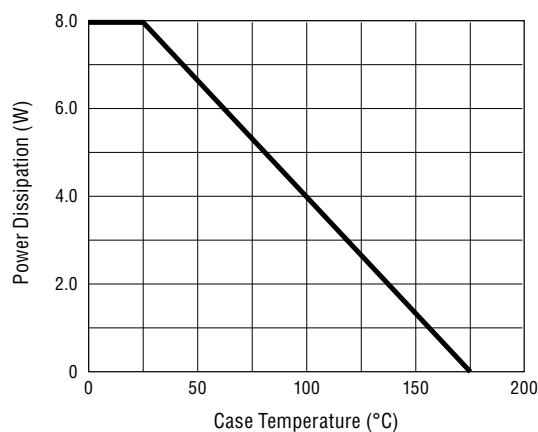
### Pulse Waveform



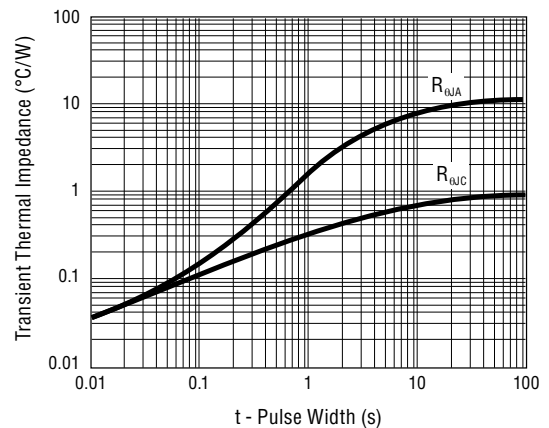
### Typical Junction Capacitance



### Steady State Power Dissipation



### Typical Thermal Impedance



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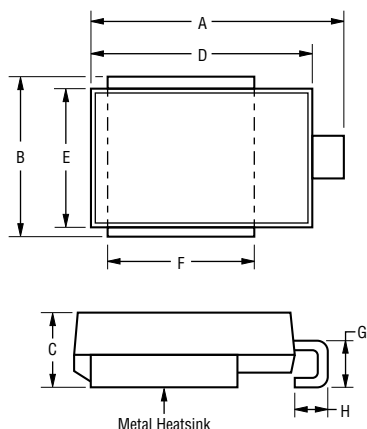
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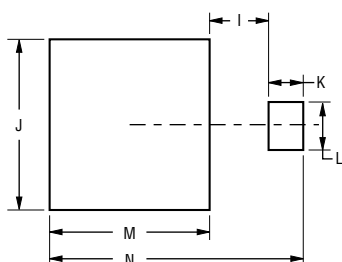
## Product Dimensions



Dimension	Value
A	$15.5 \pm 0.5$ ( $0.610 \pm 0.02$ )
B	$10.0 \pm 0.5$ ( $0.394 \pm 0.02$ )
C	$4.85 \pm 0.15$ ( $0.191 \pm 0.006$ )
D	$13.5 \pm 0.2$ ( $0.531 \pm 0.008$ )
E	$8.5 \pm 0.2$ ( $0.335 \pm 0.008$ )
F	$9.0 \pm 0.3$ ( $0.354 \pm 0.012$ )
G	$3.0 \pm 0.5$ ( $0.118 \pm 0.02$ )
H	$2.0 \pm 0.5$ ( $0.079 \pm 0.02$ )

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

## Recommended Footprint



Dimension	Value
I	$3.5 \pm 0.3$ ( $0.138 \pm 0.012$ )
J	$10.0 \pm 0.5$ ( $0.394 \pm 0.02$ )
K	$2.0 \pm 0.3$ ( $0.079 \pm 0.012$ )
L	$2.7 \pm 0.3$ ( $0.106 \pm 0.012$ )
M	$9.0 \pm 0.3$ ( $0.354 \pm 0.012$ )
N	$14.5 \pm 0.4$ ( $0.571 \pm 0.016$ )

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

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## 15KPA-SD-Q Transient Voltage Suppressor Diode Series

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### Physical Specifications

Case ..... Molded plastic per UL Class 94V-0  
Polarity..... Cathode band indicates unidirectional device  
No cathode band indicates bidirectional device

### How to Order

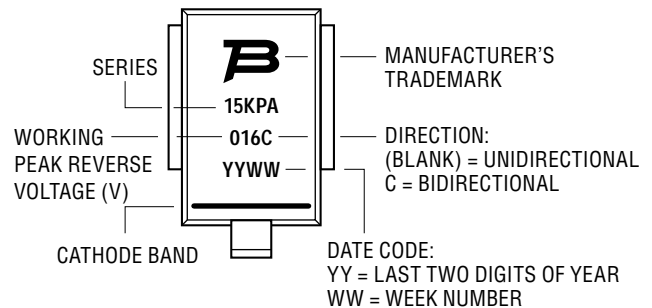
**15KPA 016 C - SD - Q**

Series / Peak Current Rating .....  
15KPA = Power TVS Diode, 15 kW (10/1000  $\mu$ s)  
Working Peak Reverse Voltage .....  
016 = 16 V<sub>RWM</sub> (Volts)  
Direction .....  
(Blank) = Unidirectional Device  
C = Bidirectional Device  
Package Type .....  
SD = Surface Mount Device  
AEC-Q101 Suffix .....  
Q = AEC-Q101 Compliant

### Environmental Specifications

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

### Typical Part Marking



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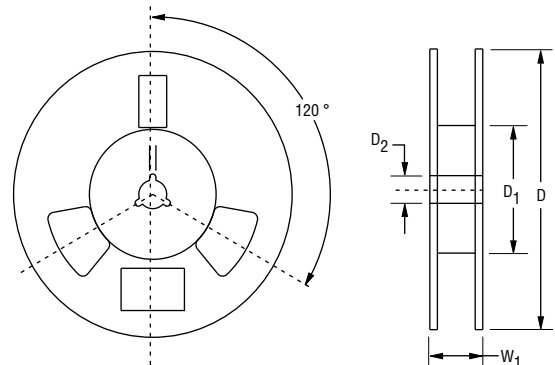
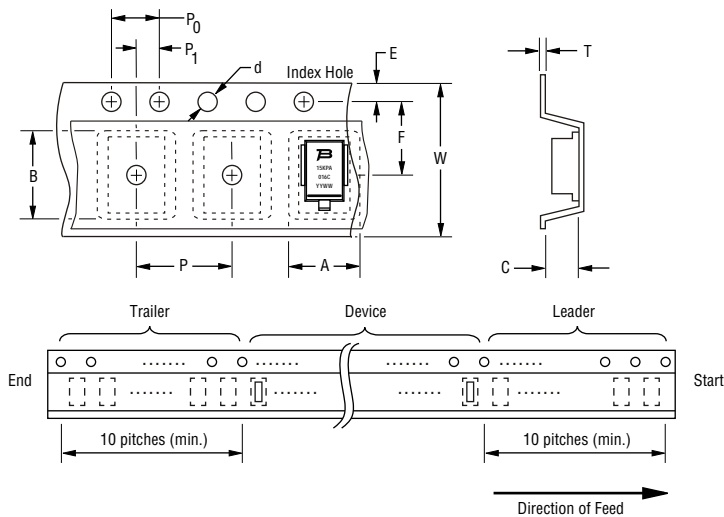
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# 15KPA-SD-Q Transient Voltage Suppressor Diode Series

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## Packaging Information

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



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

Devices are packed in accordance with EIA 481 standard specifications shown here.

Item	Symbol	DO-218 Package
Carrier Width	A	$\frac{10.77 \pm 0.20}{(0.424 \pm 0.008)}$
Carrier Length	B	$\frac{16.33 \pm 0.20}{(0.643 \pm 0.008)}$
Carrier Depth	C	$\frac{6.02 \pm 0.20}{(0.237 \pm 0.008)}$
Sprocket Hole	d	$\frac{1.50 + 0.10 / - 0.00}{(0.059 + 0.004 / - 0.00)}$
Reel Outside Diameter	D	$\frac{330 \pm 2.0}{(12.992 \pm 0.079)}$
Reel Inner Diameter	D <sub>1</sub>	$\frac{60.0}{(2.362)} \text{ MIN.}$
Feed Hole Diameter	D <sub>2</sub>	$\frac{13.0 + 0.50 / - 0.20}{(0.512 + 0.020 / - 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{11.5 \pm 0.10}{(0.453 \pm 0.004)}$
Punch Hole Pitch	P	$\frac{16.0 \pm 0.10}{(0.63 \pm 0.004)}$
Sprocket Hole Pitch	P <sub>0</sub>	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P <sub>1</sub>	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$
Overall Tape Thickness	T	$\frac{0.6}{(0.002)} \text{ MAX.}$
Tape Width	W	$\frac{24.0 \pm 0.30}{(0.945 \pm 0.012)}$
Reel Width	W <sub>1</sub>	$\frac{30.4}{(1.197)} \text{ MAX.}$
Quantity per Reel	--	750

REV. 04/20

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