

BOURNS®

Features

- Maximum peak pulse power (10/1000 µs): 15 kW
- Maximum peak pulse current (8/20 µs): 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.

Absolute Maximum Ratings (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Maximum Peak Pulse Power (10/1000 µs) (Note 1)	P_{PPM}	15000	W
Maximum Peak Pulse Current (8/20 µs) (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°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	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

(Note 1) Non-repetitive current pulse, per Pulse Waveform graph and derated above T_A = 25 °C per Pulse Derating Curve.
(Note 2) 8.3 ms Single Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

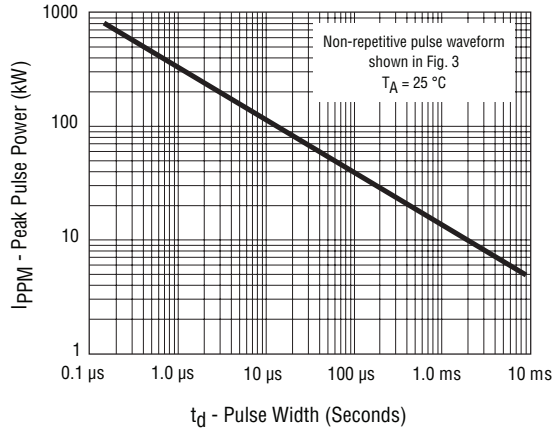
Unidirectional Device	Bidirectional Device	Breakdown Voltage V_{BR} (Volts)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Clamping Voltage @ I_{PP}	Maximum Peak Pulse Power (10/1000 µs)
Part No.	Part No.	Min.	Max.	@ I_T (mA)	V_{RWM} (V)	I_R (µA)	V_C (V)	I_{PP} (A)
15KPA016	15KPA016C	16.35	19.70	5	16.0	10	23.9	599.0
15KPA017	15KPA017C	17.35	20.90	5	17.0	10	27.0	556.6
15KPA018	15KPA018C	18.34	22.10	5	18.0	10	28.4	527.8
15KPA020	15KPA020C	20.34	24.50	5	20.0	10	31.6	475.5
15KPA022	15KPA022C	22.33	26.90	5	22.0	10	34.1	439.6
15KPA024	15KPA024C	24.49	29.50	5	24.0	10	37.4	400.7
15KPA026	15KPA026C	26.48	31.90	5	26.0	10	40.5	370.6
15KPA028	15KPA028C	28.55	34.40	5	28.0	10	43.7	343.3
15KPA030	15KPA030C	30.54	36.80	5	30.0	10	46.6	321.7
15KPA033	15KPA033C	33.70	40.60	5	33.0	10	50.3	298.1
15KPA036	15KPA036C	36.69	44.20	5	36.0	10	55.0	272.7
15KPA040	15KPA040C	40.75	49.10	5	40.0	10	60.5	247.8
15KPA043	15KPA043C	43.82	52.80	5	43.0	10	64.2	233.6
	15KPA045C	45.90	55.30	5	45.0	10	67.3	206.3
	15KPA048C	48.89	58.90	5	48.0	10	71.5	194.3
	15KPA051C	52.04	62.70	5	51.0	10	76.3	182.1
	15KPA054C	55.03	66.30	5	54.0	10	80.7	172.2
	15KPA058C	59.10	71.20	5	58.0	10	86.3	161.0
	15KPA066C	66.40	80.00	5	66.0	10	96.9	143.3

WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

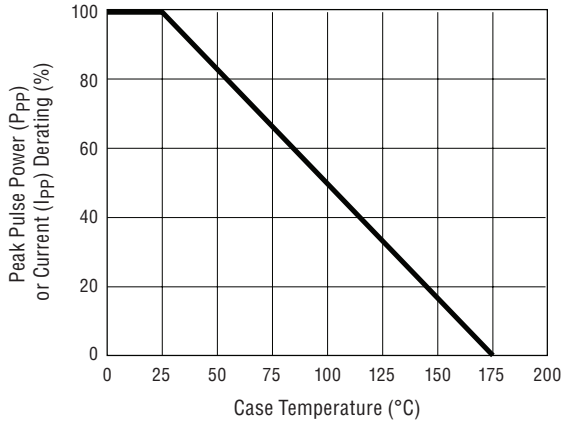
* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
**"Q" part number suffix for automotive and other applications requiring appropriate AEC-Q101 compliance.
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Users should verify actual device performance in their specific applications.
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Performance Graphs

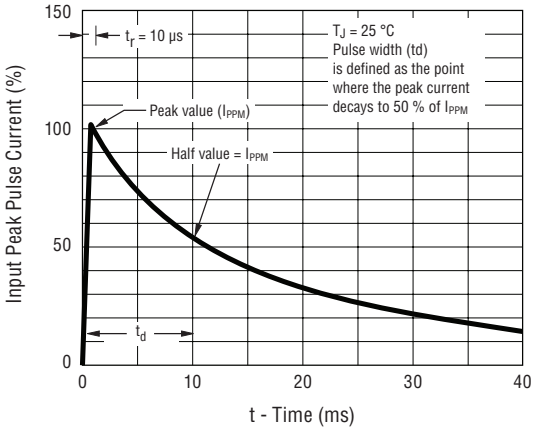
Pulse Derating Curve



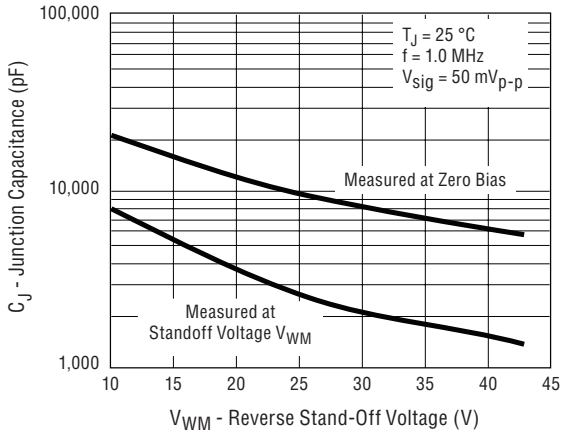
Peak Power Dissipation



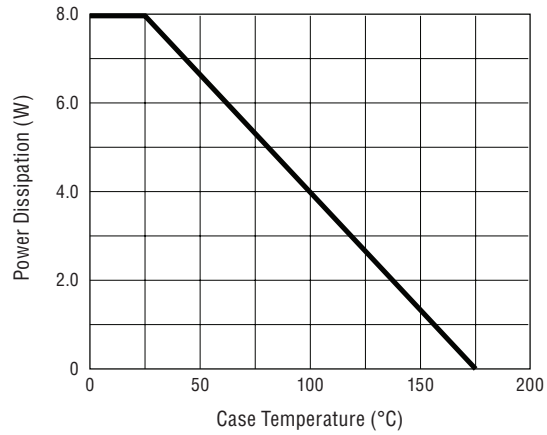
Pulse Waveform



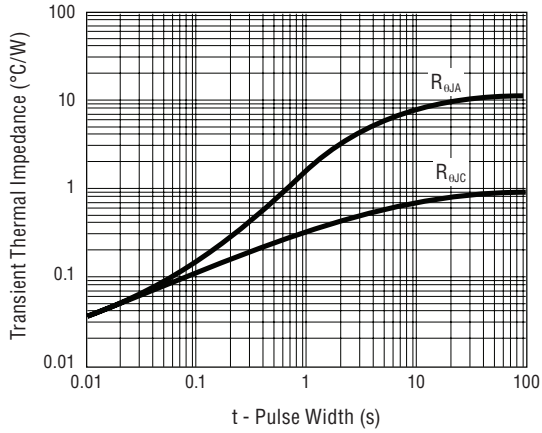
Typical Junction Capacitance



Steady State Power Dissipation

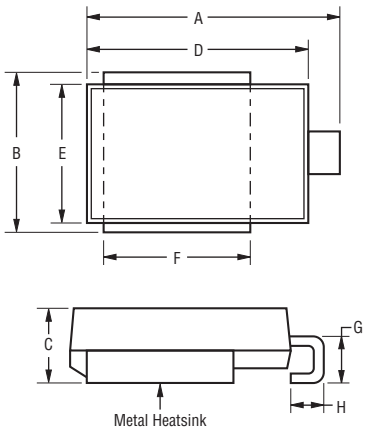


Typical Thermal Impedance



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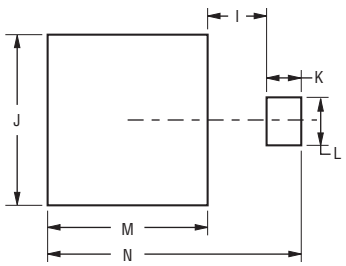
Product Dimensions



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

DIMENSIONS: MM (INCHES)

Recommended Footprint



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

DIMENSIONS: MM (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 μs)

Working Peak Reverse Voltage
016 = 16 V_{RWM} (Volts)

Direction
(Blank) = Unidirectional Device
C = Bidirectional Device

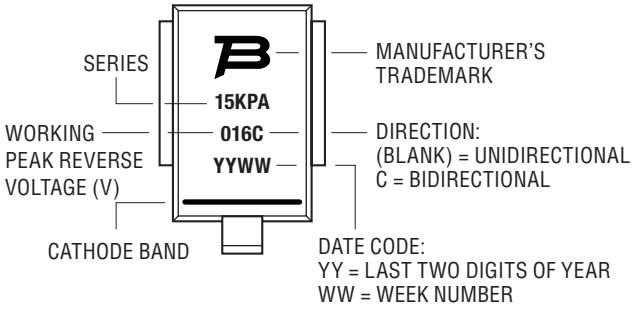
Package Type
SD = Surface Mount Device

AEC-Q101 Suffix
Q = AEC-Q101 Compliant

Environmental Specifications

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

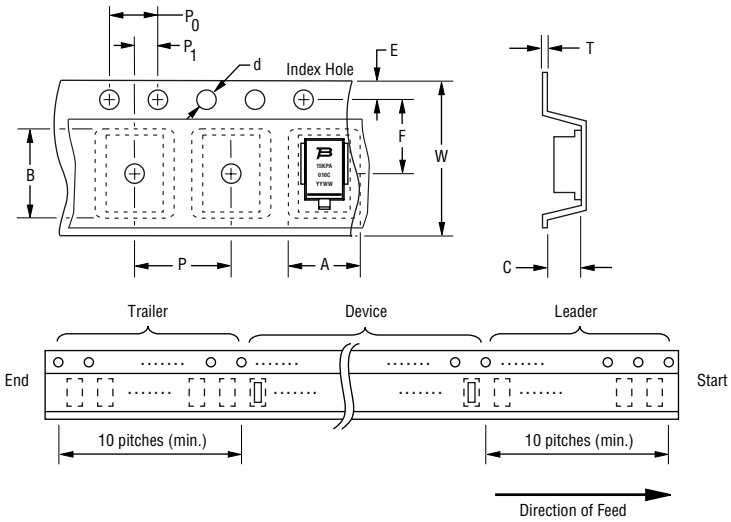
Typical Part Marking

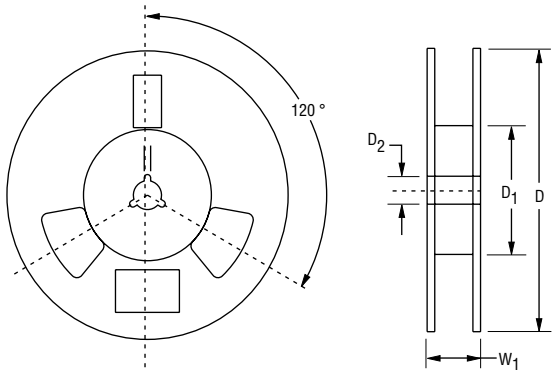


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Packaging Information

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





DIMENSIONS: MM / (INCHES)

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

Item	Symbol	DO-218 Package
Carrier Width	A	10.77 ± 0.20 / (0.424 ± 0.008)
Carrier Length	B	16.33 ± 0.20 / (0.643 ± 0.008)
Carrier Depth	C	6.02 ± 0.20 / (0.237 ± 0.008)
Sprocket Hole	d	1.50 + 0.10 / - 0.00 / (0.059 + 0.004 / - 0.00)
Reel Outside Diameter	D	330 ± 2.0 / (12.992 ± 0.079)
Reel Inner Diameter	D_1	60.0 / (2.362) MIN.
Feed Hole Diameter	D_2	13.0 + 0.50 / - 0.20 / (0.512 + 0.020 / - 0.008)
Sprocket Hole Position	E	1.75 ± 0.10 / (0.069 ± 0.004)
Punch Hole Position	F	11.5 ± 0.10 / (0.453 ± 0.004)
Punch Hole Pitch	P	16.0 ± 0.10 / (0.63 ± 0.004)
Sprocket Hole Pitch	P_0	4.00 ± 0.10 / (0.157 ± 0.004)
Embossment Center	P_1	2.00 ± 0.10 / (0.079 ± 0.004)
Overall Tape Thickness	T	0.6 / (0.002) MAX.
Tape Width	W	24.0 ± 0.30 / (0.945 ± 0.012)
Reel Width	W_1	30.4 / (1.197) MAX.
Quantity per Reel	--	750

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3310Y-001-103L BN-LG20Y2R0MYB CAY10-270J4LF CR0805-JW-221ELF EM14A1D-C24-L032S
1140-222K-RC CR0805-JW-561ELF SF-3812FG2000T-2 BN-LG20Y6R0MYB 3223W-1-201E
3386W-1-503LF CR0805-JW-102ELF MH1005-471Y SRR4818A-4R7Y SF-1206SP050-2 CAT10-102J4LF
CAY10-390J4LF CAY10-510J4LF HCTSM110103HAL-E SF-1206HV30M-2 CR0805-JW-470ELF
CRT0805-FZ-1002ELF SDR1806-330ML SF-1206F400-2 CM453232-100KL 2200LL-102-H-RC
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