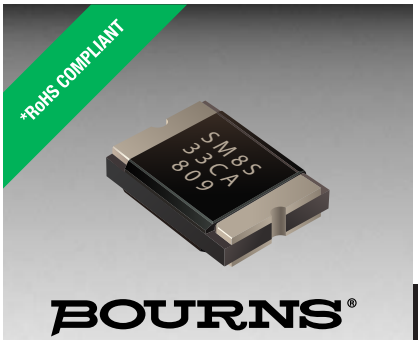

BOURNS®

Features

- Maximum Peak Power Dissipation: 7000 watts
- Meets ISO7637-2 / ISO16750-2 Surge specification (varies by test condition)
- RoHS compliant*
- AEC-Q101 compliant**

Applications

- High peak power applications (up to rated limits)
- High temperature applications (up to rated limits)
- Clamping diode
- Load switching and lighting

SM8SF-Q Transient Voltage Suppressor Diode Series

General Information

The Model SM8SF-Q Series TVS diodes are designed to provide overvoltage protection for sensitive electronics, meeting ISO7637-2 and ISO16750-2 requirements (varies by test condition).

The Model SM8SF-Q Series offers a choice of Working Peak Reverse Voltages from 24 V to 36 V and Breakdown Voltage up to 40 V. The SM8SF-Q is available in a compact DFN package of 8.1 mm x 10.5 mm, with a low profile of just 1.3 mm, facilitating layout in today's compact PCB designs.

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

Parameter	Symbol	Value	Unit
Maximum Peak Pulse Power Dissipation (10/1000 μs)	P_{PK}	7000	W
Power Dissipation with Infinite Heatsink (T_C = 25 °C)	P_D	5	W
Operating Temperature Range	T_J	-55 to +175	°C
Storage Temperature Range	T_{STG}	-55 to +175	°C

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 Reverse Voltage @ I_{RSM}	Maximum Reverse Surge Current
Part No.	Marking	Part No.	Marking	Min.	Max.	@ I_T (mA)	V_{RWM} (V)	I_R (μA)	V_{RSM} (V)	I_{RSM} (A)
SM8SF24A-Q	24A	SM8SF24CA-Q	24CA	26.7	29.5	5	24	10	38.9	180
SM8SF28A-Q	28A	SM8SF28CA-Q	28CA	31.1	34.4	5	28	10	45.4	154
SM8SF30A-Q	30A	SM8SF30CA-Q	30CA	33.3	36.8	5	30	10	48.4	145
SM8SF33A-Q	33A	SM8SF33CA-Q	33CA	36.7	40.6	5	33	10	53.3	131
SM8SF36A-Q	36A	SM8SF36CA-Q	36CA	40.0	44.2	5	36	10	58.1	120

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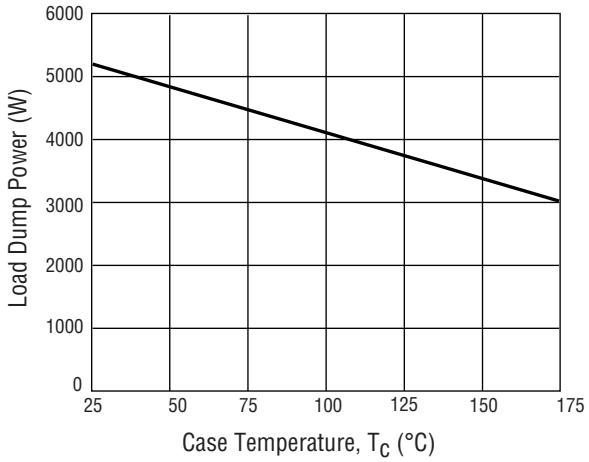
www.bourns.com

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

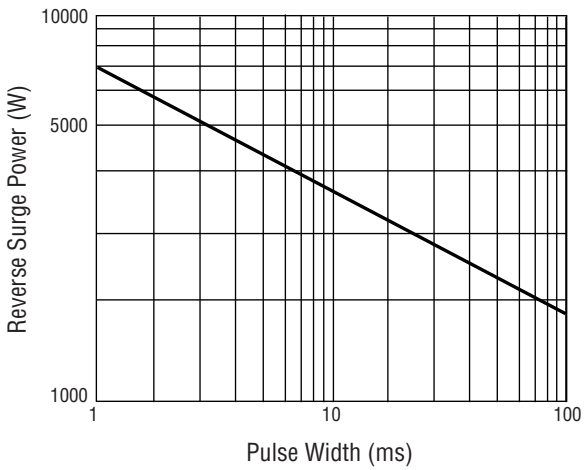
* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
**"Q" part number suffix for automotive and other applications requiring appropriate AEC-Q101 compliance.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.

Performance Graphs

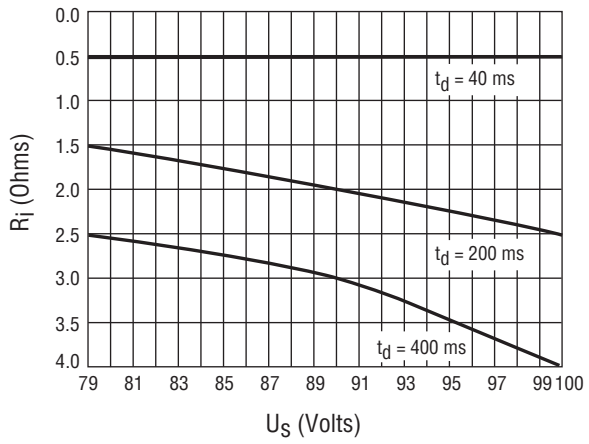
Load Dump Power Characteristics



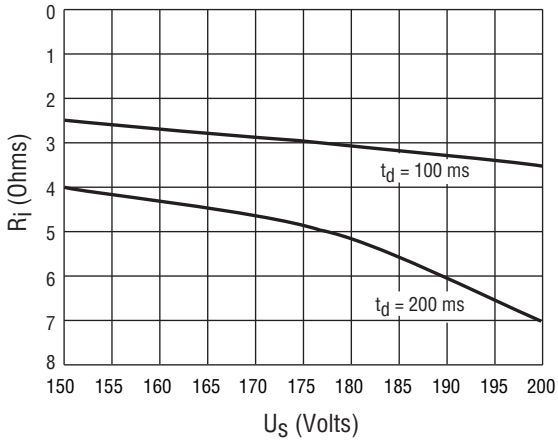
Peak Pulse Power Derating Curve



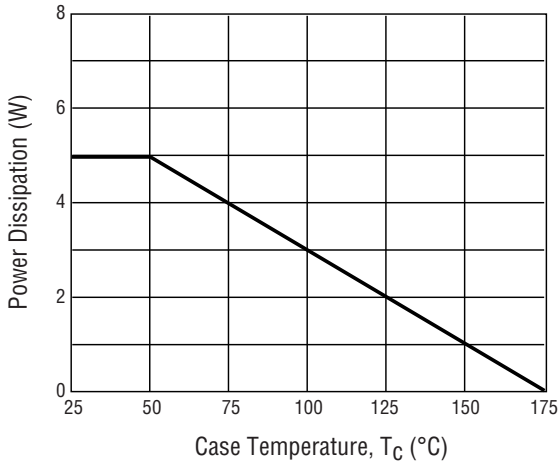
ISO 7637-2: Pulse 5a, Single Pulse: SM8SF-24A-Q



ISO 7637-2: Pulse 5a, Single Pulse: SM8SF-33A-Q

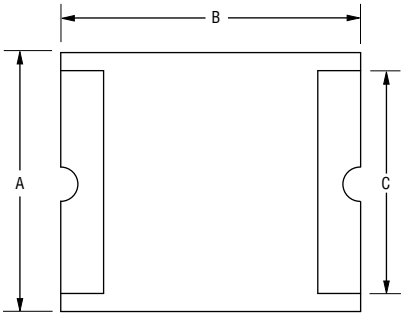


Power Dissipation

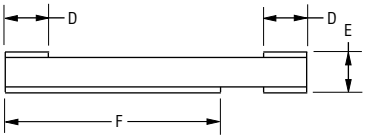


Product Dimensions

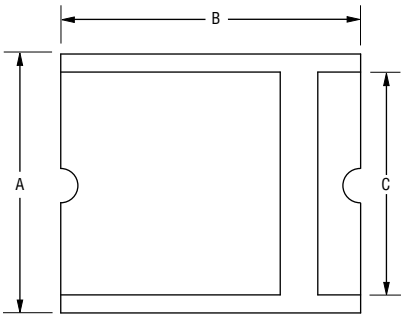
SM8SFxxA-Q
TOP VIEW



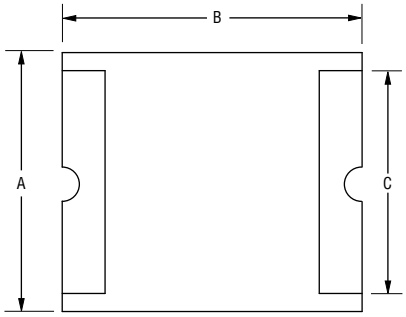
SIDE VIEW



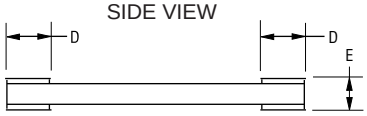
BOTTOM VIEW



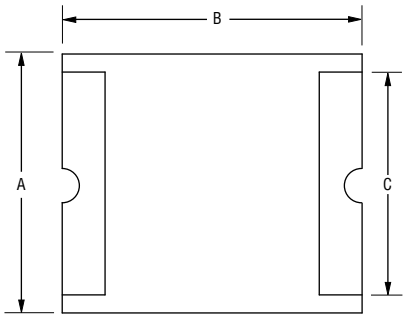
SM8SFxxCA-Q
TOP VIEW



SIDE VIEW



BOTTOM VIEW

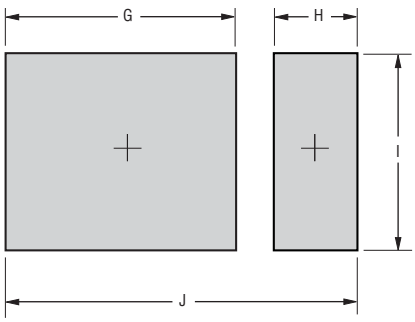


Dimension	Value
A	8.1 ± 0.15 (0.319 ± 0.006)
B	10.5 ± 0.20 (0.413 ± 0.008)
C	7.0 ± 0.15 (0.276 ± 0.006)
D	1.5 ± 0.15 (0.059 ± 0.006)
E	1.3 ± 0.20 (0.051 ± 0.008)
F	7.5 ± 0.15 (0.295 ± 0.006)

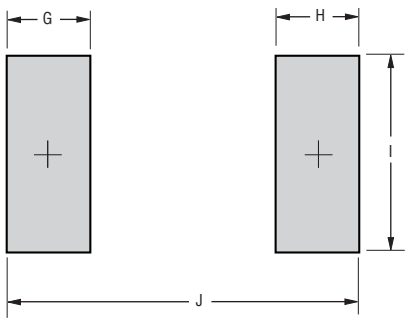
DIMENSIONS: MM (INCHES)

Recommended Footprint

SM8SFxxA-Q



SM8SFxxCA-Q



Dim.	SM8SFxxA-Q	SM8SFxxCA-Q
G (Min.)	9.5 (0.374)	3.5 (0.138)
H (Min.)	3.5 (0.138)	3.5 (0.138)
I (Min.)	8.0 (0.315)	8.0 (0.315)
J (Ref.)	14.5 (0.571)	14.5 (0.571)

DIMENSIONS: MM (INCHES)

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

SM8SF 33 CA - Q

Package
SM8SF = 0.41 inch x 0.32 inch size

Working Peak Reverse Voltage
33 = 33 V_{RWM} (Volts)

Suffix
A = 5 % Tolerance Unidirectional Device
CA = 5 % Tolerance Bidirectional Device

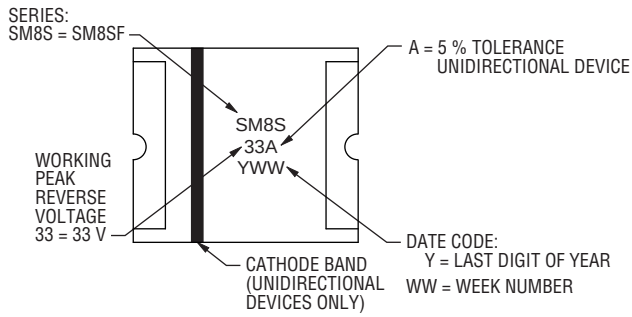
AEC-Q101 Suffix
Q = AEC-Q101 Compliant

Environmental Specifications

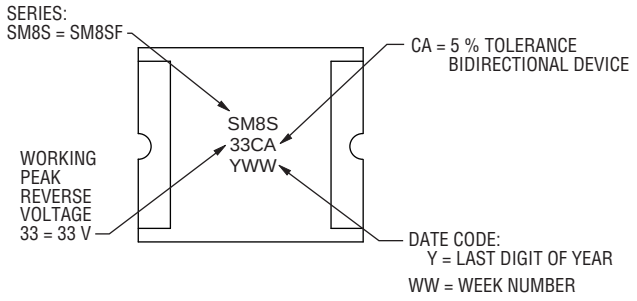
Moisture Sensitivity Level.....1
ESD Classification (HBM)..... 3B

Typical Part Marking

SM8SFxxA-Q

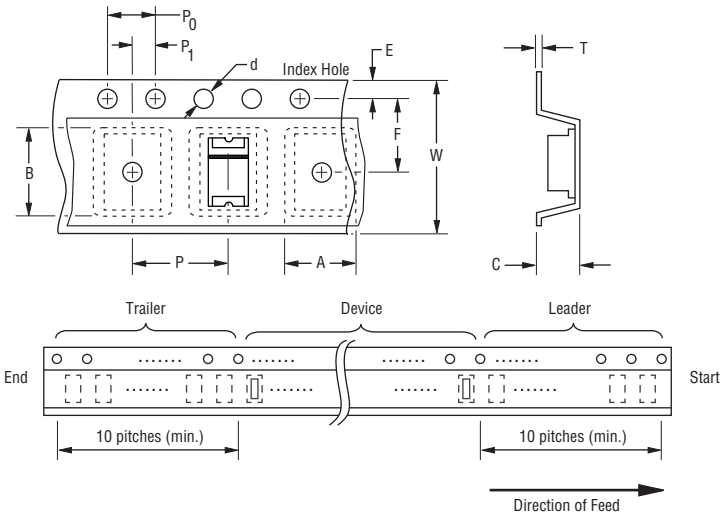


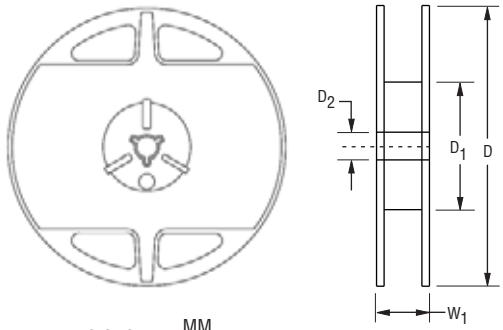
SM8SFxxCA-Q



Packaging Information

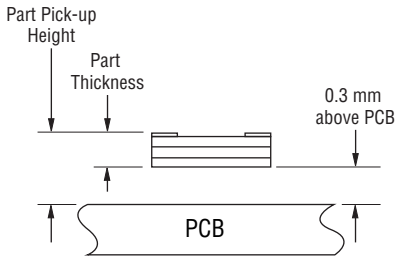
The product will be dispensed in tape and reel format (see diagram below).





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

Item	Symbol	SM8SF Series
Carrier Width	A	8.35 ± 0.10 (0.329 ± 0.004)
Carrier Length	B	10.75 ± 0.10 (0.423 ± 0.004)
Carrier Depth	C	1.65 ± 0.10 (0.065 ± 0.004)
Sprocket Hole	d	1.55 ± 0.05 (0.061 ± 0.002)
Reel Outside Diameter	D	178 ± 1.0 (7.008 ± 0.039)
Reel Inner Diameter	D_1	60 ± 1.0 (2.362 ± 0.039)
Feed Hole Diameter	D_2	13.5 ± 0.50 (0.531 ± 0.02)
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)
Punch Hole Position	F	5.50 ± 0.10 (0.217 ± 0.004)
Punch Hole Pitch	P	12.00 ± 0.10 (0.472 ± 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	0.40 (0.016) MAX.
Tape Width	W	16.00 ± 0.30 (0.630 ± 0.012)
Reel Width	W_1	18.1 ± 1.2 (0.713 ± 0.047)
Quantity per Reel	--	750



Recommended pick-up height: The bottom of the device should be 0.3 mm above the PCB.

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