



Features

- Working peak voltage 7 V or 12 V
- ESD protection 30 kV max.
- Surge protection
- RoHS compliant*
- AEC-Q101 compliant**

Applications

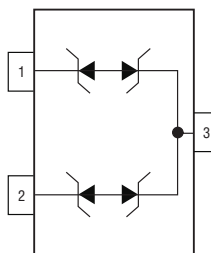
- Wireless systems
- Network protection
- Portable electronics
- RS-485 port protection

CDSOT23-SM712-Q - Surface Mount TVS Diode

General Information

The CDSOT23-SM712-Q device provides ESD, EFT and Surge protection for data ports meeting IEC 61000-4-2 (ESD), IEC 61000-4-4 (EFT) and IEC 61000-4-5 (Surge) requirements. The Transient Voltage Suppressor Array offers two TVS diodes with a Working Peak Voltage of 7 V or 12 V and Minimum Breakdown Voltage of 7.5 V or 13.3 V respectively.

The SOT23 packaged device will mount directly onto the industry standard SOT23 footprint. Bourns® Chip Diodes conform to JEDEC standards, are easy to handle with standard pick and place equipment and the flat configuration minimizes roll away.



Additional Information

Click these links for more information:



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

Parameter	Symbol	Value	Unit
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Temperature	T_{OPR}	-55 to +150	$^\circ\text{C}$
Peak Pulse Power ($t_p = 8/20 \mu\text{s}$)	P_{PK}	400	W
Peak Pulse Current (8/20 μs)	I_{PP}	17	A

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Minimum Breakdown Voltage @ 1 mA Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3	V_{BR}	7.5 13.3	V
Maximum Working Peak Voltage Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3	V_{WM}	7.0 12.0	V
Maximum Leakage Current @ V_{WM} Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3	I_D	20.0 1.0	μA
Maximum Clamping Voltage @ $I_P = 1 \text{ A}$ Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3	V_C	11 19	V
Maximum Clamping Voltage @ $I_P = 5 \text{ A}$ Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3	V_C	12 20	V
Maximum Clamping Voltage @ $I_{PP} = 17 \text{ A}$ Pin 3-1 and Pin 3-2 Pin 1-3 and Pin 2-3	V_C	14 26	V
Typical Junction Capacitance @ 0 V, 1 MHz (Pin 3-1 and Pin 3-2) & (Pin 1-3 and Pin 2-3)	C_D	90	pF
ESD Protection (per IEC 61000-4-2) Contact and Air.	ESD	± 30	kV

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

***Q" part number suffix indicates AEC-Q101 compliance.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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WARNING Cancer and Reproductive Harm

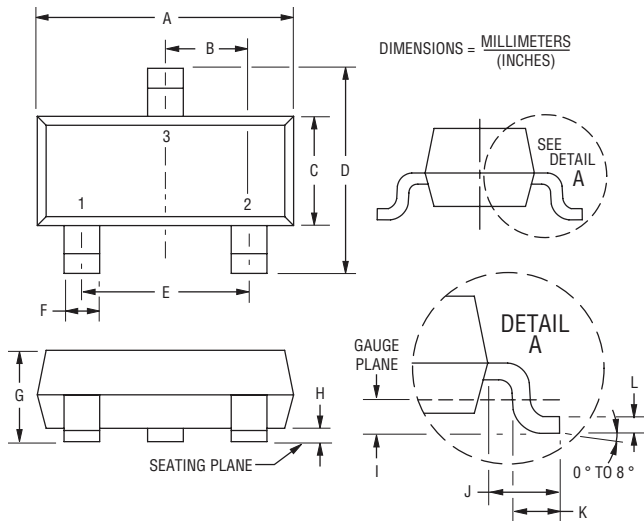
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CDSOT23-SM712-Q - Surface Mount TVS Diode

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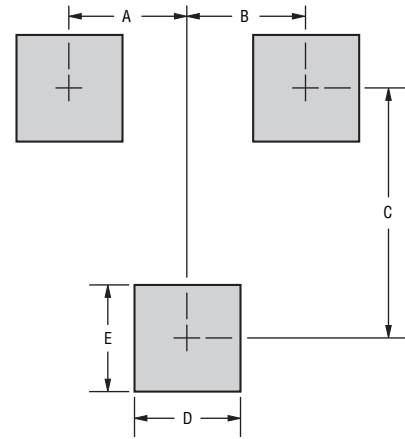
Product Dimensions

This is a molded JEDEC SOT23 package with 100 % Matte Sn plating on the lead frame. It weighs approximately 10 mg and has a flammability rating of UL 94V-0.



Dimensions	
A	$\frac{2.80 - 3.00}{(0.110 - 0.118)}$
B	$\frac{0.95}{(0.037)}$ BSC
C	$\frac{1.20 - 1.40}{(0.047 - 0.055)}$
D	$\frac{2.10 - 2.49}{(0.083 - 0.098)}$
E	$\frac{1.90}{(0.075)}$ BSC
F	$\frac{0.30 - 0.50}{(0.012 - 0.019)}$
G	$\frac{0.89 - 1.17}{(0.035 - 0.046)}$
H	$\frac{0.05 - 0.015}{(0.002 - 0.006)}$
I	$\frac{0.25}{(0.010)}$ BSC
J	$\frac{0.46 - 0.64}{(0.018 - 0.025)}$
K	$\frac{0.40 - 0.58}{(0.016 - 0.023)}$
L	$\frac{0.08 - 0.20}{(0.003 - 0.008)}$

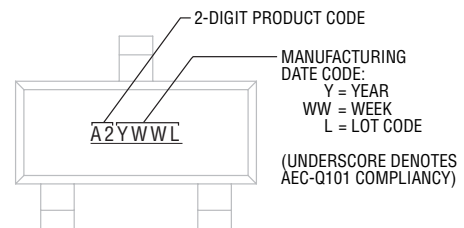
Recommended Footprint



DIMENSIONS = MILLIMETERS (INCHES)

Dimensions	
A	$\frac{0.95}{(0.037)}$
B	$\frac{0.95}{(0.037)}$
C	$\frac{2.00}{(0.079)}$
D	$\frac{0.85}{(0.033)}$
E	$\frac{0.85}{(0.033)}$

Typical Part Marking



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Environmental Specifications

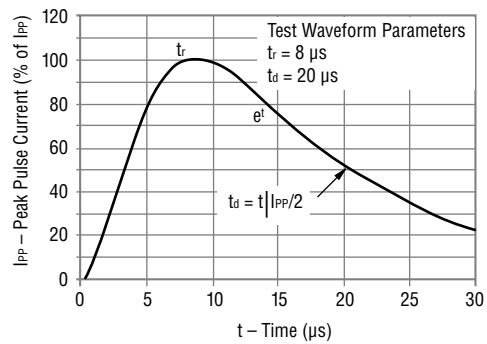
Moisture Sensitivity Level 1
ESD Classification (HBM).....3B

How to Order

CD SOT23 - SM 712 - Q

Common Code _____
Chip Diode _____
Package _____
SOT23 = SOT23 Package
Model _____
SM = Special Model
Working Peak Voltage _____
712 = 7 V_{WM} & 12 V_{WM} (Volts)
AEC-Q101 Suffix _____
Q = AEC-Q101 Compliant

Pulse Waveform



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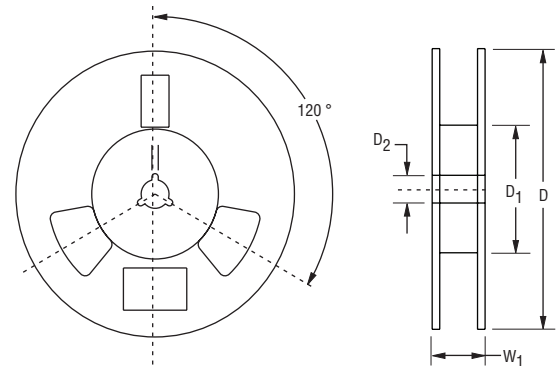
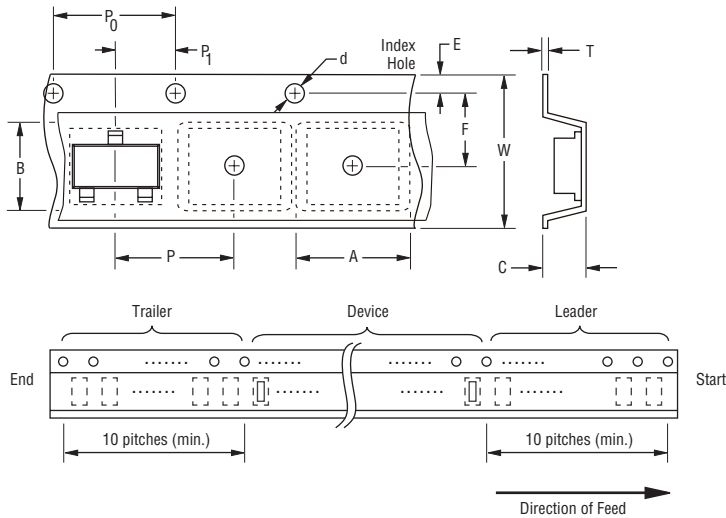
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Packaging Information

The surface mount product is packaged in an 8 mm x 4 mm tape and reel format per EIA-481 standard.



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

Devices are packed in accordance with EIA standard RS-481-A.

Item	Symbol	SOT23
Carrier Width	A	$\frac{2.25 \pm 0.10}{(0.088 \pm 0.004)}$
Carrier Length	B	$\frac{2.34 \pm 0.10}{(0.092 \pm 0.004)}$
Carrier Depth	C	$\frac{1.22 \pm 0.10}{(0.048 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$
Reel Outside Diameter	D	$\frac{178}{(7.008)}$
Reel Inner Diameter	D ₁	$\frac{50.0}{(1.969)} \text{ MIN.}$
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
Overall Tape Thickness	T	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$
Tape Width	W	$\frac{8.00 \pm 0.20}{(0.315 \pm 0.008)}$
Reel Width	W ₁	$\frac{14.4}{(0.567)} \text{ MAX.}$
Quantity per Reel	--	3,000

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