



D24V0F2U3WQ

### Product Summary

IPP (MAX)	Ст (түр)
2.5A	0.8pF

### Description

This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal for use in Automotive Infotainment applications.

# Applications

- **USB** Modules
- **HDMI** Inputs
- Infotainment Consoles

#### 2 CHANNEL LOW CAPACITANCE TVS DIODE ARRAY

#### Features

- Provides ESD Protection per IEC 61000-4-2 Standard: • Air ±15kV. Contact ±10kV
- 2 Channels of ESD Protection (Note 5)
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- The D24V0F2U3WQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.

https://www.diodes.com/guality/product-definitions/

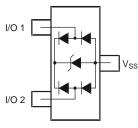
### **Mechanical Data**

- Case: SOT323 ٠
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Lead Frame. Solderable per MIL-STD-202, Method 208@3)
- Weight: 0.009 grams (Approximate)



SOT323

Top View



**Device Schematic** 

### Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D24V0F2U3WQ-7	Automotive	BE2	7	8	3,000/Tape & Reel

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.

2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

5. For information on the impact of Diodes Incorporated's USB 2.0 compatible ESD protectors on signal integrity including eye diagram plots, please refer to AN77 at the following URL: https://www.diodes.com/assets/App-Note-Files/AN77.pdf.

# **Marking Information**

Date Code Key		Ĺ	Top View BE2	W,	YM = Da Y = Yea	ate Code N r (ex: H = 2	0					
Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	Н		J	K	L	Μ	Ν	0	Р	R	S	Т
Month	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D
D24V0F2U3WC Document number: DS		1 - 2				of 5 odes.com						nuary 2020 s Incorporated

Notes:



#### **Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Condition
Peak Pulse Current	IPP	2.5	А	8/20µs (Note 6)
ESD Protection – Contact Discharge	Vesd_contact	±10	kV	Standard IEC61000-4-2
ESD Protection – Air Discharge	Vesd_air	±15	kV	Standard IEC61000-4-2

# Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	PD	250	mW
Thermal Resistance, Junction to Ambient $T_A = +25^{\circ}C$	Reja	500	°C/W
Operating and Storage Temperature Range	TJ, TSTG	-55 to +150	°C

### Electrical Characteristics (@TA = +25°C, unless otherwise specified.)

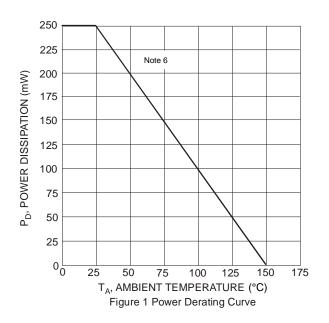
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Standoff Voltage	Vrwm	_	—	24	V	—
Channel Leakage Current (Note 7)	IR	—	—	100	nA	$V_R = 24V$ , Any I/O to GND
Reverse Breakdown Voltage	V <sub>BR</sub>	27	—	_	V	I <sub>R</sub> = 1mA
Forward Clamping Voltage	VF	0.6		0.9	V	I <sub>R</sub> = 1mA
Clamping Voltage, Positive Transients		—	_	45	V	IPP = 1.0A, tP = 8/20µs
(Note 8)	Vc			50	v	$IPP = 2.5A, t_P = 8/20\mu s$
Channel Input Capacitance (Note 9)	CT	—	0.8	1.5	pF	$V_R = 0V$ , f = 1MHz, Any I/O to GND
Dynamic Resistance	Rdyn	_	0.9	_	Ω	IPP = 1A, tP = 8/20µs

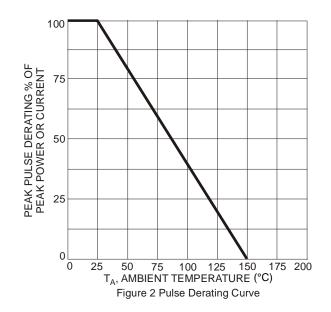
Notes: 6. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.

7. Short duration pulse test used to minimize self-heating effect.

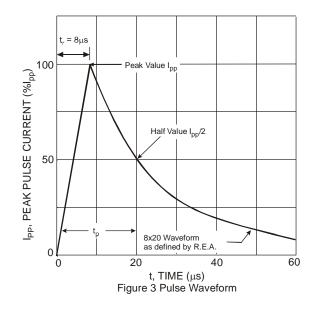
8. Clamping voltage value is based on an 8  $\times$  20  $\mu s$  peak pulse current (I\_PP) waveform.

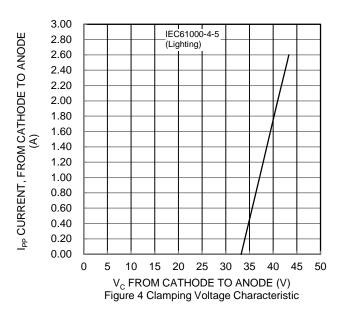
9. Measured from any I/O to GND.









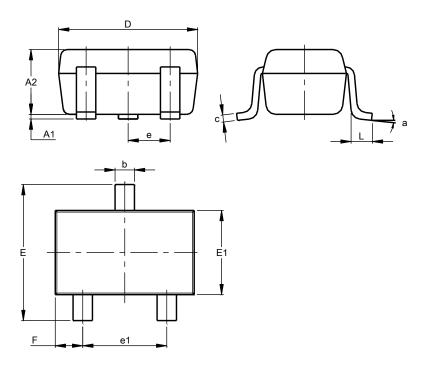




# **Package Outline Dimensions**

Please see http://www.diodes.com/package-outlines.html for the latest version.

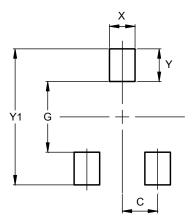
SOT323



SOT323							
Dim	Min	Max	Тур				
A1	0.00	0.10	0.05				
A2	0.90	1.00	0.95				
b	0.25	0.40	0.30				
С	0.10	0.18	0.11				
D	1.80	2.20	2.15				
E	2.00	2.20	2.10				
E1	1.15	1.35	1.30				
е	C	).650 B	SC				
e1	1.20	1.40	1.30				
F	0.375	0.475	0.425				
L	0.25	0.40	0.30				
а	0°	8°					
All	All Dimensions in mm						

### **Suggested Pad Layout**

Please see http://www.diodes.com/package-outlines.html for the latest version.



SOT323
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Dimensions	Value (in mm)
С	0.650
G	1.300
Х	0.470
Y	0.600
Y1	2.500



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