

Product Summary

V _{BR} (MIN)	I _{PP} (MAX)	C _T (TYP)
27V	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



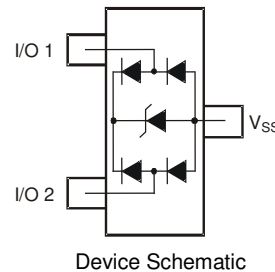
Features

- 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/quality/product-definitions/>

Mechanical Data

- Case: SOT323
- 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)

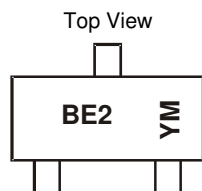


Ordering Information (Note 4)

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

- Notes:
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



BE2 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: H = 2020)
 M = Month (ex: 9 = September)

Date Code Key

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	H	I	J	K	L	M	N	O	P	R	S	T

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Condition
Peak Pulse Current	I _{PP}	2.5	A	8/20μs (Note 6)
ESD Protection – Contact Discharge	V _{ESD_CONTACT}	±10	kV	Standard IEC61000-4-2
ESD Protection – Air Discharge	V _{ESD_AIR}	±15	kV	Standard IEC61000-4-2

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	250	mW
Thermal Resistance, Junction to Ambient T _A = +25°C	R _{θJA}	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Standoff Voltage	V _{RWM}	—	—	24	V	—
Channel Leakage Current (Note 7)	I _R	—	—	100	nA	V _R = 24V, Any I/O to GND
Reverse Breakdown Voltage	V _{BR}	27	—	—	V	I _R = 1mA
Forward Clamping Voltage	V _F	0.6	—	0.9	V	I _R = 1mA
Clamping Voltage, Positive Transients (Note 8)	V _C	—	—	45	V	I _{PP} = 1.0A, t _P = 8/20μs
				50		I _{PP} = 2.5A, t _P = 8/20μs
Channel Input Capacitance (Note 9)	C _T	—	0.8	1.5	pF	V _R = 0V, f = 1MHz, Any I/O to GND
Dynamic Resistance	R _{DYN}	—	0.9	—	Ω	I _{PP} = 1A, t _P = 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 × 20μs peak pulse current (I_{PP}) waveform.
 - 9. Measured from any I/O to GND.

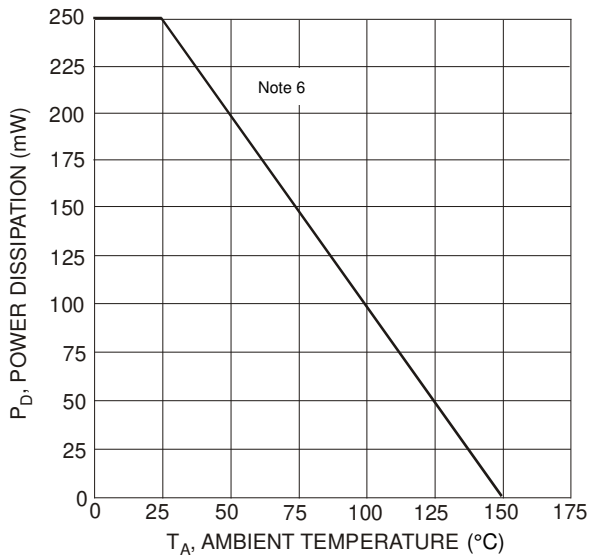


Figure 1 Power Derating Curve

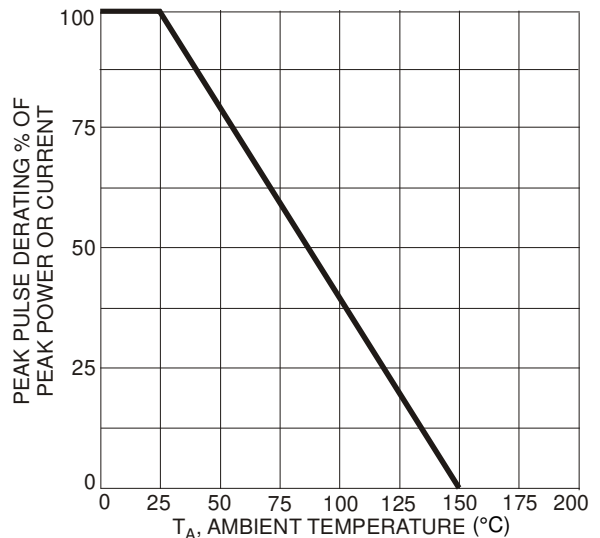
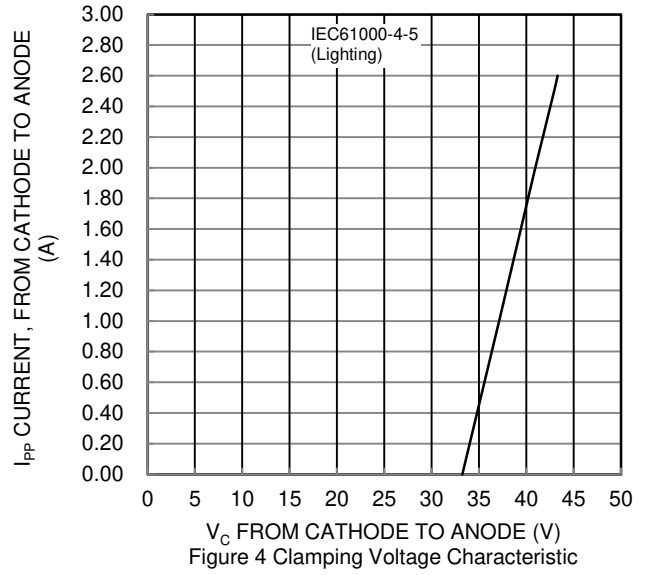
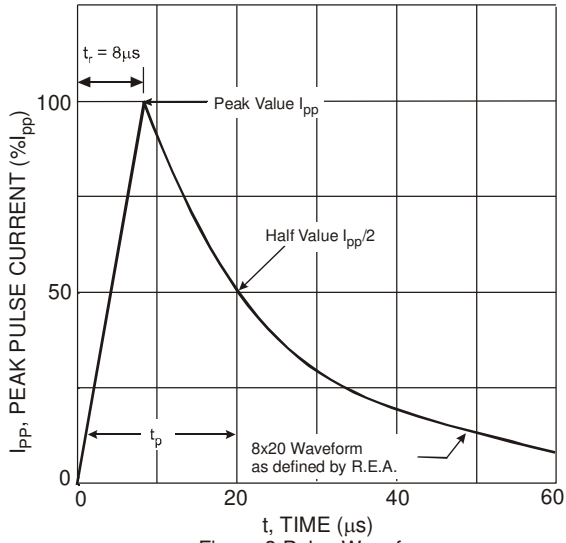


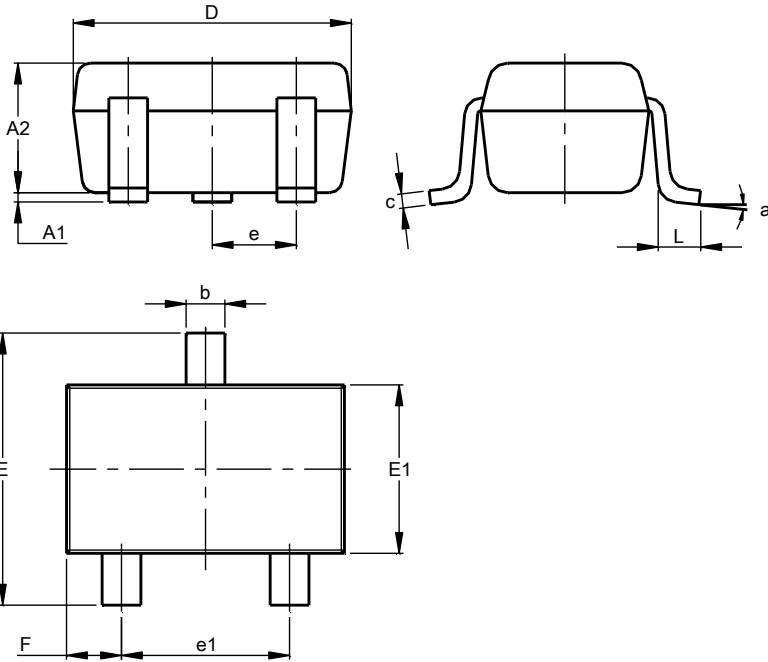
Figure 2 Pulse Derating Curve



Package Outline Dimensions

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

SOT323

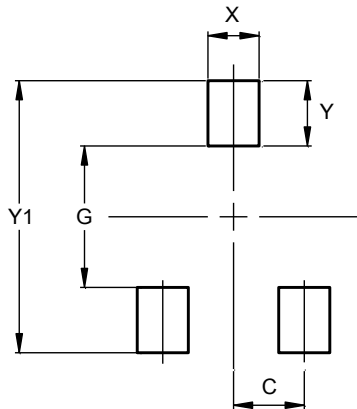


SOT323			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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