

Product Summary

V_{BR} (MIN)	P_{PP} (MAX)	I_R (MAX)
30.9V	4000W	200nA

Description

The D28V0S1U3LP20 is new generation TVS and is a design which includes a uni-directional surge rated clamping cell to protect one power line or control line in an electronic system. The robust diode can safely absorb repetitive ESD strikes at $\pm 30kV$ (contact and air discharge, IEC 61000-4-2) without performance degradation.


Applications

- USB VBUS protections
- Panel modules
- Touch Panels
- Notebooks and handhelds

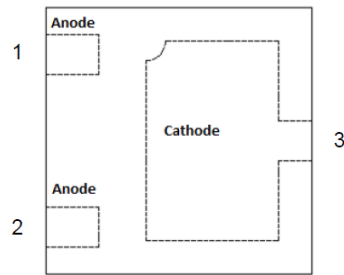
Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air $\pm 30kV$, Contact $\pm 30kV$
- One Channel of ESD Protection
- Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

- Package: U-DFN2020-3
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiPdAu over Copper Leadframe. Solderable per MIL-STD-202, Method 208 
- Weight: 0.004 grams (Approximate)

U-DFN2020-3 (Type C)



Top View



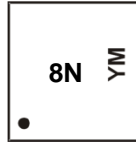
1 and 2 must be electrically connected at the PCB

Ordering Information (Note 4)

Part Number	Package	Marking Code	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D28V0S1U3LP20-7	U-DFN2020-3 (Type C)	8N	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/>.

Marking Information



8N = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: L = 2024)
 M = Month (ex: 9 = September)

Date Code Key

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Code	L	M	N	P	R	S	T	U	V	W	X	Y

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	Conditions
Peak Pulse Power Dissipation	P _{PP}	4000	W	8/20μs (Note 6)
Peak Pulse Power Dissipation	P _{PP}	260	W	10/1000μs
ESD Protection – Contact Discharge	V _{ESD_CONTACT}	±30	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V _{ESD_AIR}	±30	kV	Standard IEC 61000-4-2

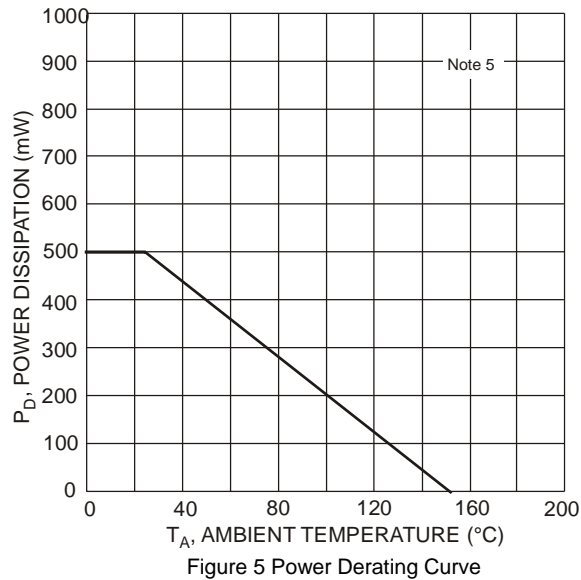
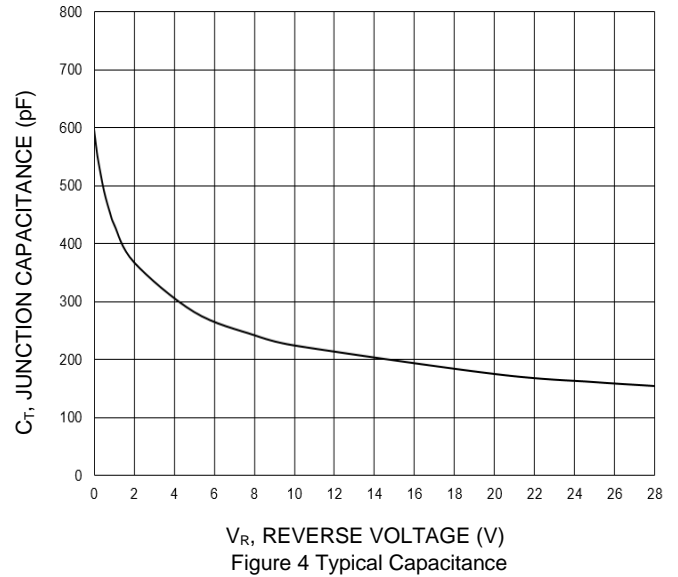
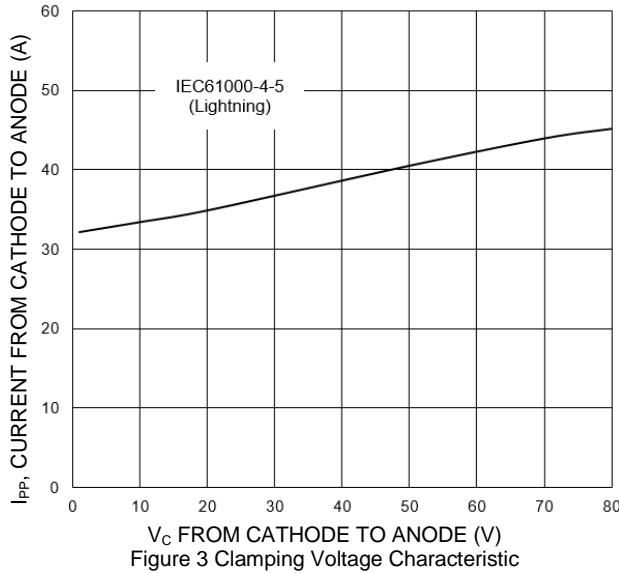
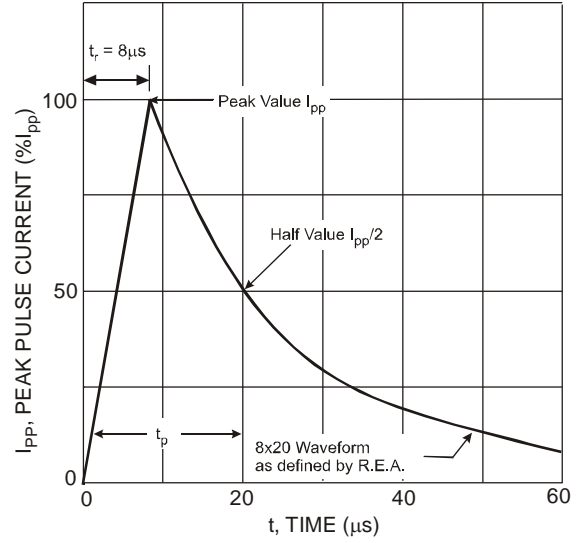
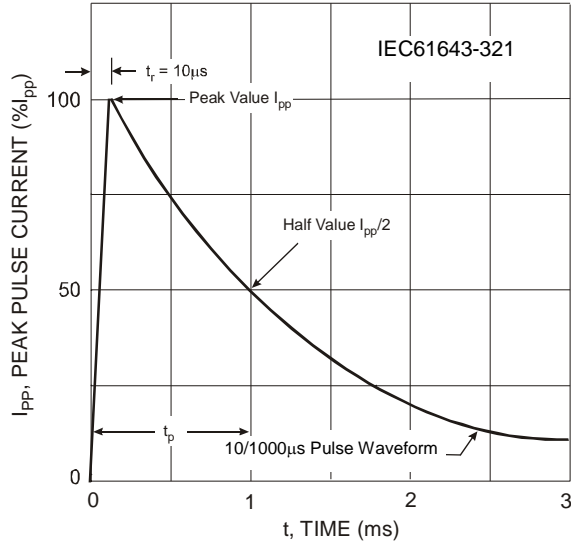
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	500	mW
Thermal Resistance, Junction to Ambient T _A = +25°C	R _{θJA}	250	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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

Part Number	Reverse Standoff Voltage V _{RWM} (V)	Breakdown Voltage V _{BR} (V) I _R = 1mA			Reverse Leakage Current I _{RM} (nA) at V _{RWM}	Rated Peak Pulse Current I _{PPM} (A) 8/20μs	Rated Peak Pulse Current I _{PPM} (A) 10/1000μs	Clamping Voltage V _{CL} (V) at I _{PPM} 8/20μs	Clamping Voltage V _{CL} (V) at I _{PPM} 10/1000μs	Capacitance C _T (pF) V _R = 0V f = 1MHz
	Max	Min	Typ	Max	Max	Max	Max	Max	Max	Typ
D28V0S1U3LP20-7	28	30.9	—	34.6	200	70	5.4	57.1	48.1	598

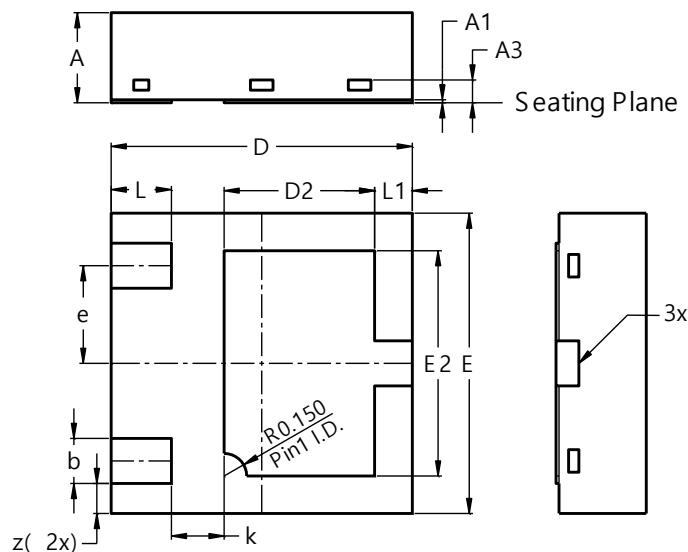
Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 6. Clamping voltage value is based on an 8x20μs peak pulse current (I_{PP}) waveform, measured from Pin1 and Pin2 to Pin3.



Package Outline Dimensions

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

U-DFN2020-3 (Type C)

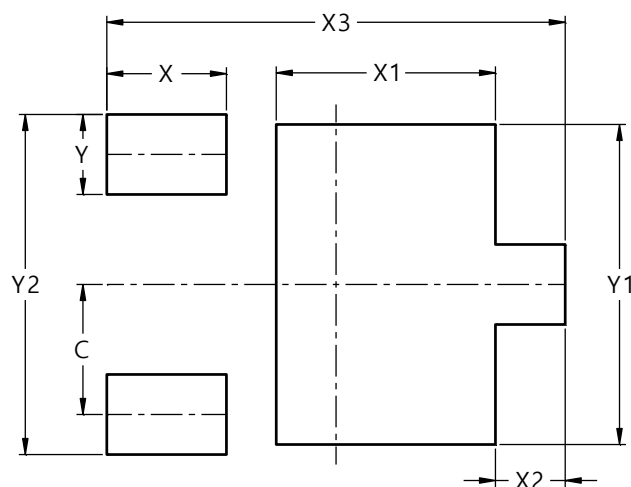


U-DFN2020-3 (Type C)			
Dim	Min	Max	Typ
A	0.55	0.65	0.60
A1	0.00	0.05	0.02
A3	--	--	0.152
b	0.25	0.35	0.30
D	1.95	2.05	2.00
D2	0.90	1.10	1.00
E	1.95	2.05	2.00
E2	1.40	1.60	1.50
e	0.65BSC		
k	--	--	0.35
L	0.35	0.45	0.40
L1	0.20	0.30	0.25
z	--	--	0.20
All Dimensions in mm			

Suggested Pad Layout

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

U-DFN2020-3 (Type C)



Dimensions	Value (in mm)
C	0.650
X	0.600
X1	1.100
X2	0.350
X3	2.300
Y	0.400
Y1	1.600
Y2	1.700

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