Product Summary

$V_{BR\ (min)}$	$I_{PP\ (max)}$	$I_{R\ (max)}$
24V	100A	200nA

Features

- Provides ESD Protection per IEC 61000-4-2 Standard:
  Air ±30kV, Contact ±30kV
- One Channels of ESD Protection
- Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Description

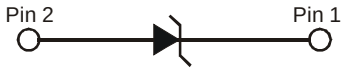
This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal for use in portable applications such as cellular phones, digital cameras, and MP3 players.

Mechanical Data

- Case: U-DFN2020-2
- Case Material: Molded Plastic, "Green" Molding Compound.
  UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- ⓔ4 Terminals: NiPdAu over Copper Leadframe.
  Solderable per MIL-STD-202, Method 208 ⓔ4
- Weight: 0.004 grams (Approximate)

Applications

- Cellular Handsets
- Portable Electronics
- Computers and Peripheral



Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D22V0S1U2LP20-7	Standard	PL3	7	8	3000/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 http://www.diodes.com.

Marking Information

PL3 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: B = 2014)
M = Month (ex: 9 = September)

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 7)
Peak Pulse Current	I_{PP}	100	A	8/20µs (Note 7)
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	$R_{\Theta JA}$	250	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V_{RWM}	—	—	22	V	—
Channel Leakage Current (Note 6)	I_R	—	—	200	nA	V_R = 22V
Forward Voltage	V_F	0.6	0.8	1.2	V	I_R = 10mA
Reverse Breakdown Voltage	V_{BR}	24	—	—	V	I_R = 1mA
Clamping Voltage, Positive Transients (Note 7)	V_C	—	—	30	V	I_{PP} = 1A, t_p = 8/20µs
		—	—	30	V	I_{PP} = 10A, t_p = 8/20µs
		—	—	40	V	I_{PP} = 100A, t_p = 8/20µs
Channel Input Capacitance (Note 8)	C_T	—	690	—	pF	V_R = 0V, f = 1MHz

Notes:
5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at http://www.diodes.com.
6. Short duration pulse test used to minimize self-heating effect.
7. Clamping voltage value is based on an 8 × 20µs peak pulse current (I_{pp}) waveform.
8. Measured from any I/O to GND.
9. For information on the impact of Diodes' USB 2.0 compatible ESD protectors on signal integrity including eye diagram plots, please refer to AN77 at https://www.diodes.com/assets/App-Note-Files/AN77.pdf.

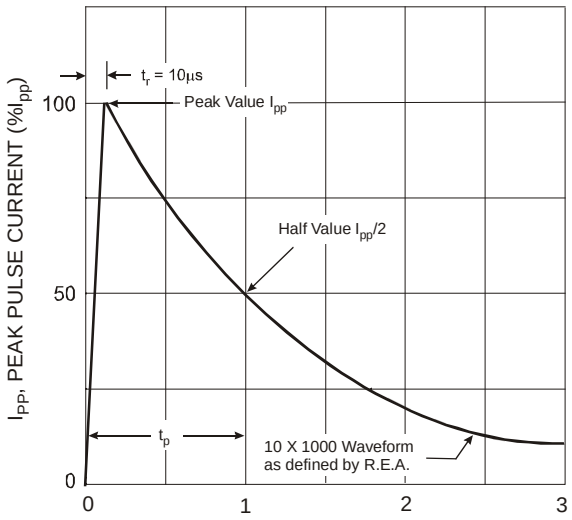


Figure 1 Pulse Waveform

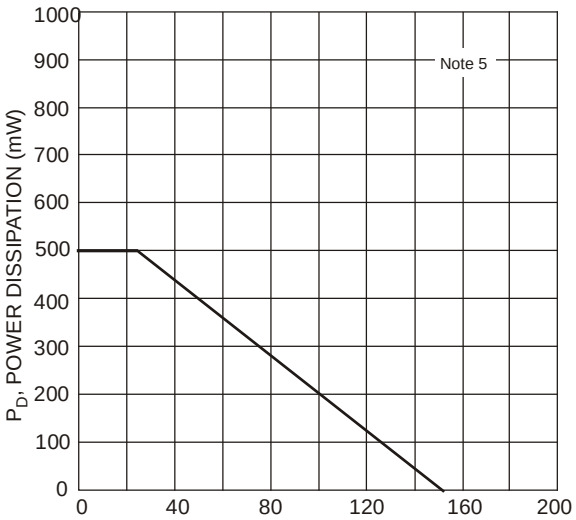


Figure 2 Power Derating Curve

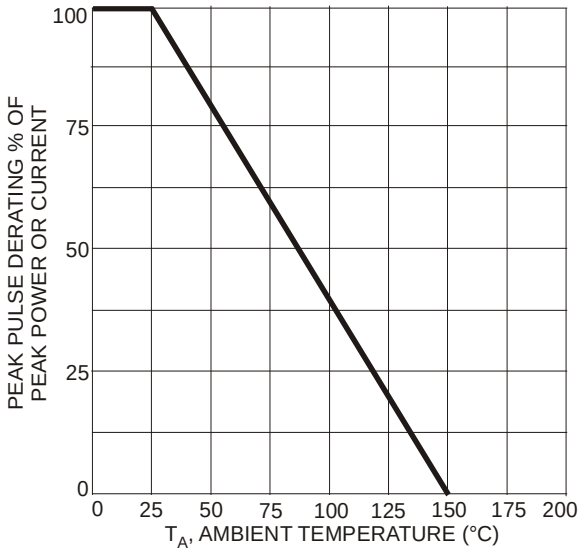


Figure 3 Power Dissipation vs. Ambient Temperature

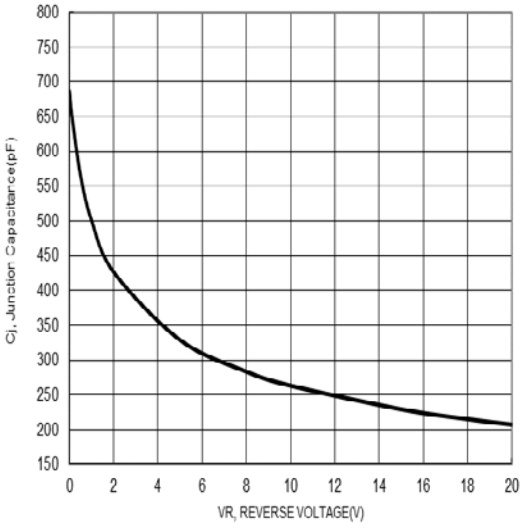


Figure4: Typical Junction Capacitance

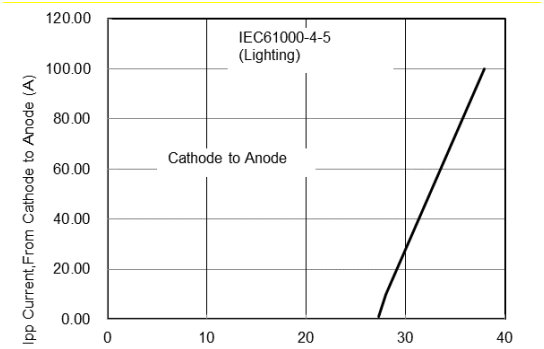
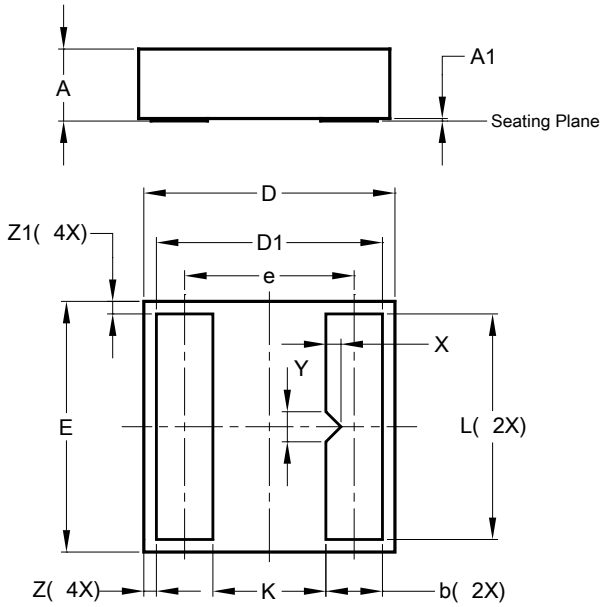


Figure 5 Clamping Voltage Characteristic

Package Outline Dimensions

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

U-DFN2020-2



U-DFN2020-2			
Dim	**Min**	**Max**	**Typ**
A	0.545	0.605	0.575
A1	0	0.05	0.02
b	0.35	0.55	0.45
D	1.90	2.10	2.00
D1	1.70	1.90	1.80
E	1.90	2.10	2.00
e	1.35 BSC		
K	0.80	1.00	0.90
L	1.70	1.90	1.80
X	—	—	0.120
Y	—	—	0.240
Z	0.10 BSC		
Z1	0.10 BSC		
All Dimensions in mm			

Suggested Pad Layout

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

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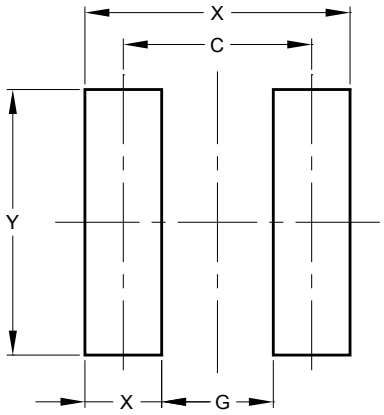

Dimensions	Value (in mm)
C	1.350
G	0.800
X	0.550
X1	1.900
Y	1.900

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