

Product Summary

V_{BR} (Min)	I_{PP} (Max)	C_T (Typ)
5.1V	120A	390pF

Description

This new generation TVS is designed to protect sensitive electronics from the damage due to ESD, surge and lightning. 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.

Applications

- Cellular handsets
- Portable electronics
- Computers and peripherals

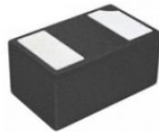
Features

- Provide ESD Protection per IEC 61000-4-2 Standard:
Air $\pm 30kV$, Contact $\pm 30kV$
- Provide Surge and Lightning Protection per IEC 61000-4-5 Standard: I_{PP} Max 120A
- 1 Channel of ESD/Surge Protection
- 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-DFN1610-2
- 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 (Lead Free Plating). Solderable per MIL-STD-202, Method 208 
- Weight: 0.003 grams (Approximate)

U-DFN1610-2 (Type B)



Bottom View



Device Schematic

Ordering Information (Note 4)

Orderable Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D5V0S1UN2LP1610-7	U-DFN1610-2 (Type B)	D01	7	8	10,000	Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 - 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.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information

D01
YM
•

D01 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: M = 2025)
M = Month (ex: 9 = September)
Dot Denotes Pin 1

D01
YWX
•

D01 = Product Type Marking Code
YWX = Date Code Marking
Y = Year (ex: 5 = 2025)
W = Week (ex: a = Week 27; z Represents Weeks 52 and 53)
X = Internal Code (ex: U = Monday)
Dot Denotes Pin 1

Date Code Key for YM

Year	2019	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	G	-	M	N	P	R	S	T	U	V	W	X
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

Date Code Key for YWX

Year	2019	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	9	-	5	6	7	8	9	0	1	2	3	4

Week	1-26				27-52				53			
Code	A-Z				a-z				z			

Internal Code	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Code	T	U	V	W	X	Y	Z

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I _{PP}	120	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

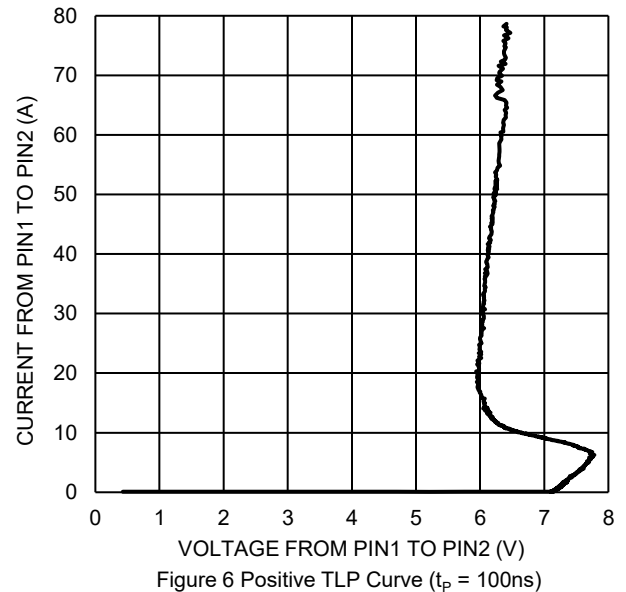
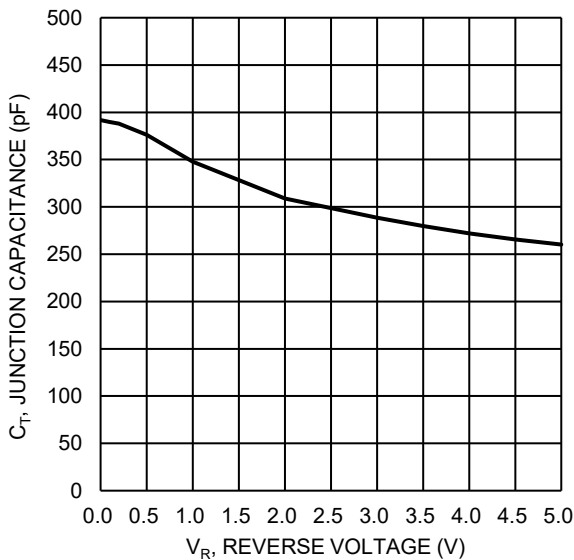
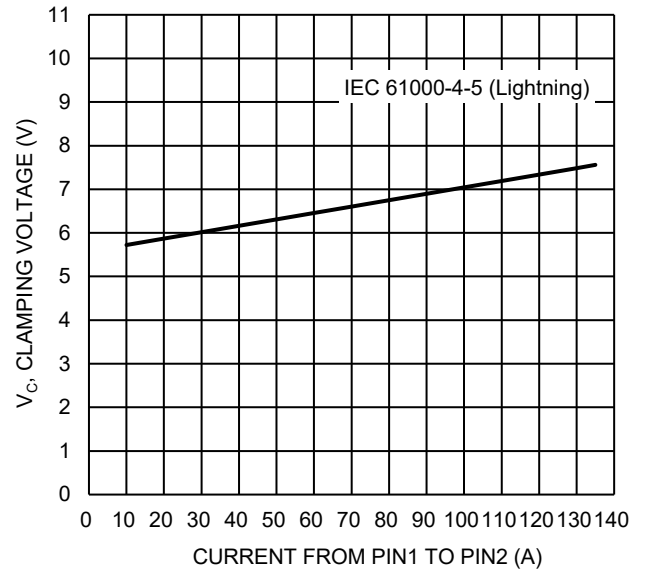
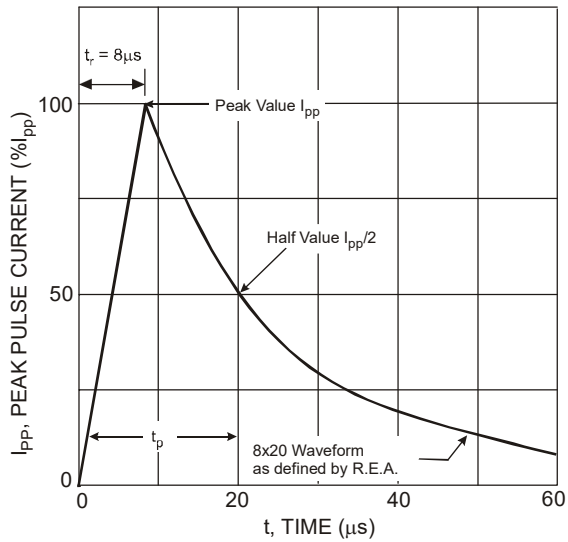
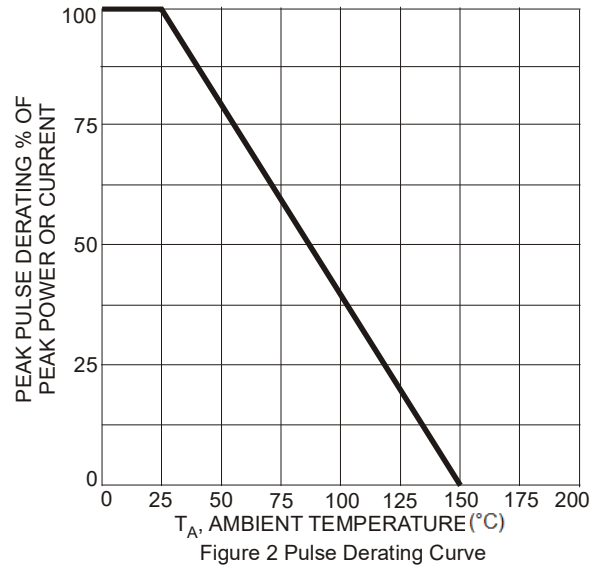
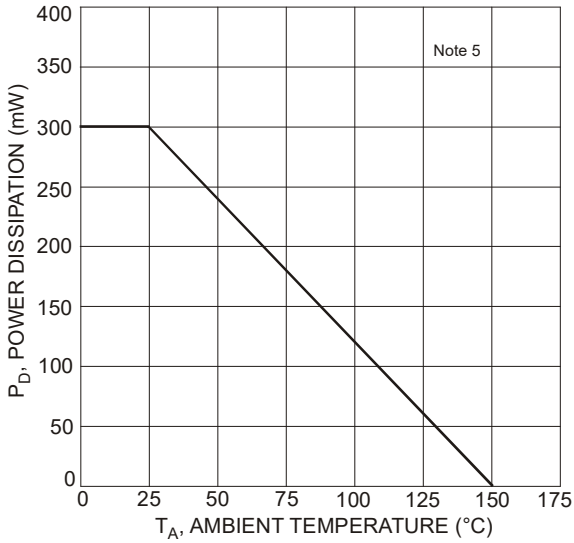
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	300	mW
Thermal Resistance, Junction to Ambient T _A = +25°C	R _{θJA}	317	°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 Conditions
Reverse Standoff Voltage	V _{RWM}	—	—	5.0	V	—
Channel Leakage Current (Note 6)	I _R	—	—	0.1	μA	V _R = V _{RWM}
Reverse Breakdown Voltage	V _{BR}	5.1	—	—	V	I _R = 1mA
Clamping Voltage, Positive Transients (Note 7)	V _C	—	6.2	—	V	I _{PP} = 40A, t _p = 8/20μs
		—	6.8	—	V	I _{PP} = 80A, t _p = 8/20μs
		—	7.4	—	V	I _{PP} = 120A, t _p = 8/20μs
Channel Input Capacitance	C _T	—	390	—	pF	V _R = 0, f = 1MHz, Pin1 to Pin2
Dynamic Resistance	R _{DYN}	—	0.03	—	Ω	TLP, t _p = 100ns

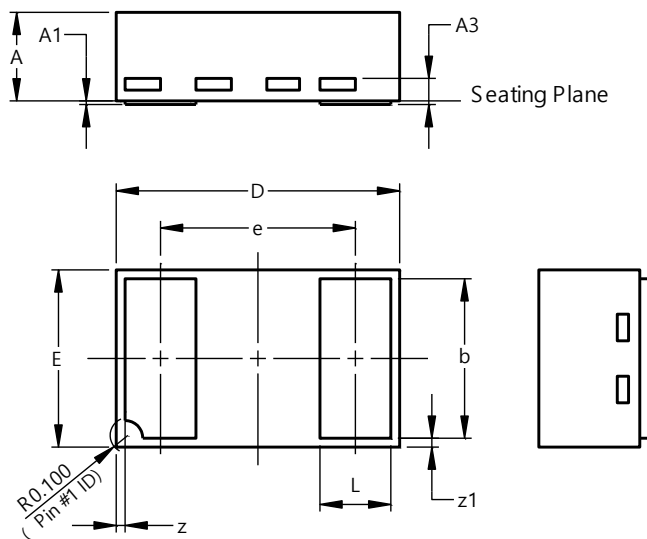
Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
6. Short duration pulse test used to minimize self-heating effect.
7. Clamping voltage value is based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



Package Outline Dimensions

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

U-DFN1610-2 (Type B)

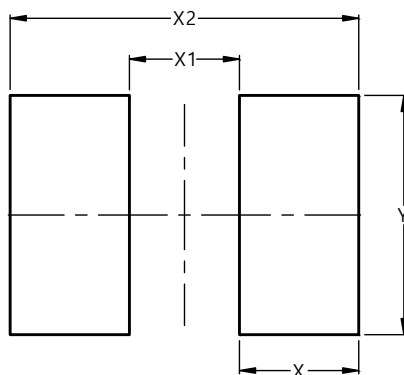


U-DFN1610-2 (Type B)			
Dim	Min	Max	Typ
A	0.45	0.55	0.50
A1	0.00	0.05	0.015
A3	-	-	0.127
b	0.85	0.95	0.90
D	1.55	1.65	1.60
E	0.95	1.05	1.00
e	-	-	1.10
L	0.35	0.45	0.40
z	0.050 REF		
z1	0.050 REF		
All Dimensions in mm			

Suggested Pad Layout

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

U-DFN1610-2 (Type B)



Dimensions	Value (in mm)
X	0.650
X1	0.600
X2	1.900
Y	1.300

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