

## Product Summary

<b>VBR (Min)</b>	<b>IPP (Max)</b>	<b>Vc Typ at IPP Max</b>
11.4V	100A	17.5V

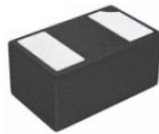
## Description

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

U-DFN1610-2 (Type B)



Top View

## Features

- Low Profile Package (0.50mm typical) and Ultra-Small PCB Footprint Area (1.9mm × 1.3mm max) Suitable for Compact Portable Electronics
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- Provides Surge and Lightning Protection per IEC 61000-4-5 Standard: IPP max 100A
- One Channel of ESD and 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. Solderable per MIL-STD-202, Method 208 (4)
- Weight: 0.003 grams (Approximate)



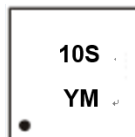
Device Schematic

## Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D10V0S1US2LP1610-7	U-DFN1610-2 (Type B)	10S	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



10S = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: L = 2024)  
 M = Month (ex: 1 = January)

### Date Code Key

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	K	L	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

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P <sub>PP</sub>	1750	W	8/20μs (Note 6)
Peak Pulse Current	I <sub>PP</sub>	100	A	8/20μs, per Figure 3
ESD Protection – Contact Discharge	V <sub>ESD_CONTACT</sub>	±30	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V <sub>ESD_AIR</sub>	±30	kV	Standard IEC 61000-4-2

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	300	mW
Thermal Resistance, Junction to Ambient T <sub>A</sub> = +25°C	R <sub>θJA</sub>	417	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Working Voltage	V <sub>RWM</sub>	—	—	10	V	—
Reverse Current	I <sub>R</sub>	—	—	0.1	μA	V <sub>R</sub> = V <sub>RWM</sub> = 10V
Reverse Breakdown Voltage	V <sub>BR</sub>	11.4	—	14.0	V	I <sub>R</sub> = 1mA
Reverse Clamping Voltage (Note 6)	V <sub>C</sub>	—	14.5	—	V	I <sub>PP</sub> = 50A, t <sub>P</sub> = 8/20μs
		—	17.5	—		I <sub>PP</sub> = 100A, t <sub>P</sub> = 8/20μs
Dynamic Resistance	R <sub>DYN</sub>	—	0.05	—	Ω	Surge, t <sub>P</sub> = 8/20μs
Junction Capacitance	C <sub>J</sub>	—	270	—	pF	V <sub>R</sub> = 0, f = 1MHz

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<sub>PP</sub>) waveform.

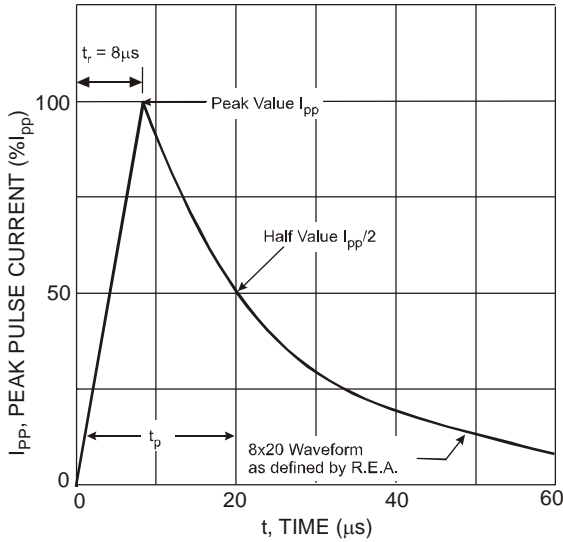


Figure 1. Typical 8x20µs Pulse Waveform

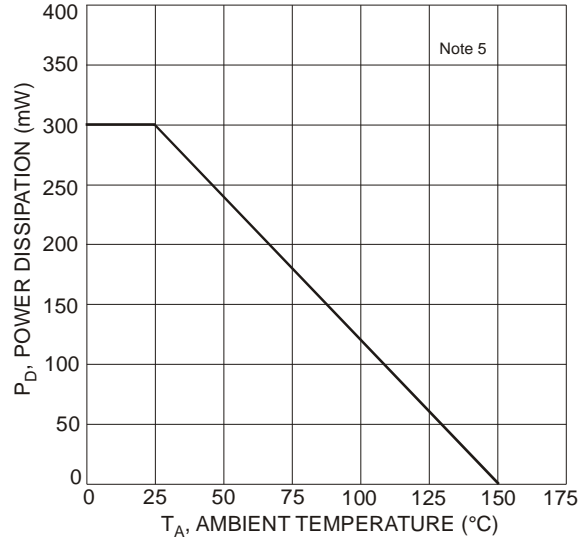


Figure 2. Power Derating Curve

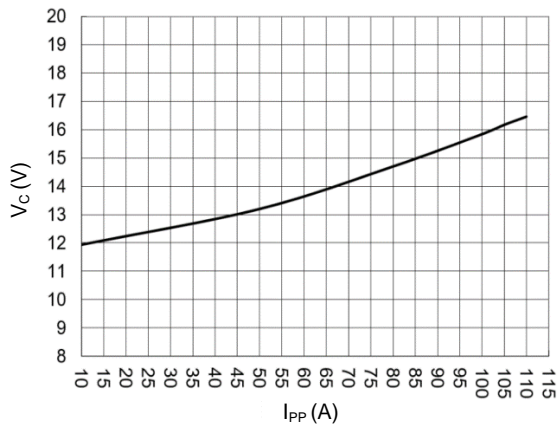


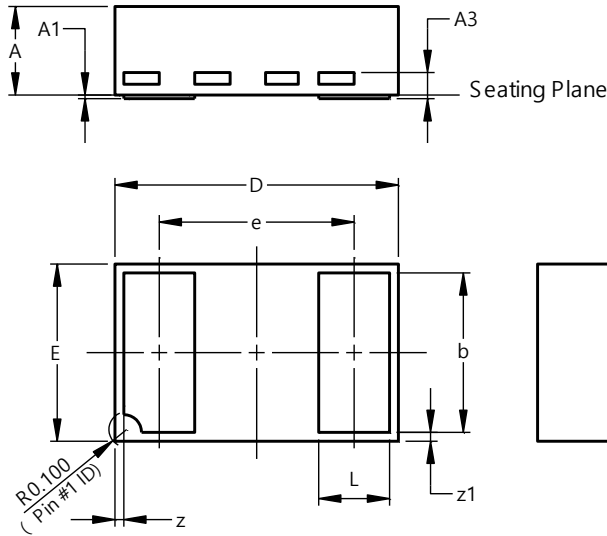
Figure 3. Typical Peak Clamping Voltage  $V_C$  vs. Peak Pulse Current  $I_{PP}$

Note: 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>.

**Package Outline Dimensions**

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

**U-DFN1610-2 (Type B)**

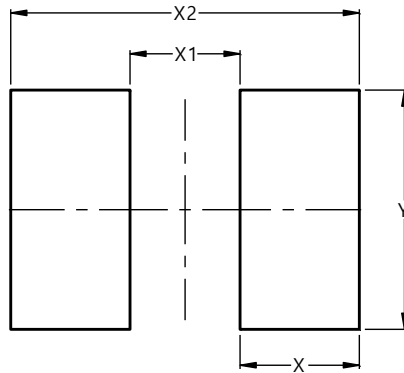


U-DFN1610-2 (Type B)			
Dim	Min	Max	Typ
A	0.45	0.55	0.50
A1	0.00	0.05	0.015
A3	-	-	0.127
b	0.85	0.95	0.90
D	1.55	1.65	1.60
E	0.95	1.05	1.00
e	-	-	1.10
L	0.35	0.45	0.40
z	0.050 REF		
z1	0.050 REF		
All Dimensions in mm			

**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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