



### 1 CHANNEL HIGH SURGE TVS DIODE

### **Product Summary**

V <sub>BR (Min)</sub>	I <sub>PP (Max)</sub>	C <sub>T (Typ)</sub>
5.5V	90A	800pF

### **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.

## **Applications**

- Cellular Handsets
- Portable Electronics
- Computers and Peripheral

## **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)

### **Mechanical Data**

- Case: U-DFN1610-2 (Type B)
- Case 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)

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Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D4V5H1U2LP1610-7	Standard	MW2	7	8	10,000/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 2. See http://www.diodes.com/quality/lead free.html 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.</p>
  4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

## **Marking Information**



MW2 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: E = 2017)M = Month (ex: 9 = September)



# **Maximum Ratings** (@ $T_A = +25^{\circ}C$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	IPP	90	Α	8/20μs (Note 7)
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**

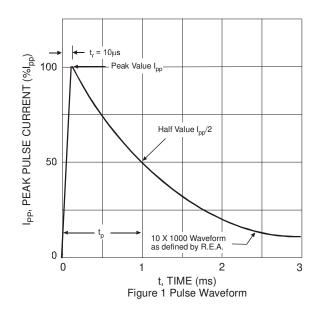
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_{D}$	500	mW
Thermal Resistance, Junction to Ambient, T <sub>A</sub> = +25°C	R <sub>0JA</sub>	250	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

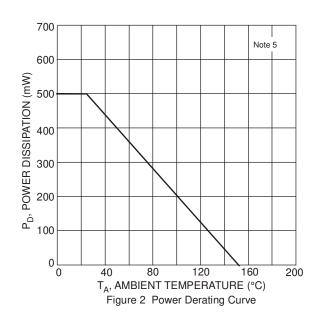
# **Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
Reverse Standoff Voltage	$V_{RWM}$	_	_	4.5	V	_
Channel Leakage Current (Note 6)	$I_{R}$		_	1.0	μΑ	$V_R = 4.5V$
Reverse Breakdown Voltage	$V_{BR}$	5.5	_	8	V	$I_R = 1mA$
Clamping Voltage, Positive Transients (Note 7)	V <sub>C</sub>	_	_	8.7	V	$I_{PP} = 10A$ , $t_p = 8/20 \mu s$
			_	9.5	V	$I_{PP} = 50A$ , $t_p = 8/20\mu s$
			_	11.5	V	$I_{PP} = 90A$ , $t_p = 8/20\mu s$
Channel Input Capacitance (Note 8)	Ст	_	800	_	pF	$V_R = 0V$ , $f = 1MHz$ , Any I/O to GND
Dynamic Resistance	$R_{DYN}$	1	0.05	_	Ω	TLP, 10A, tp = 100ns

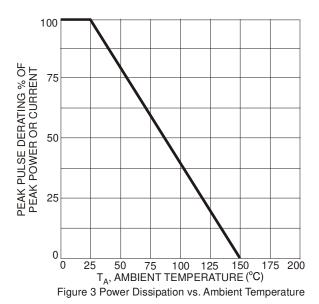
Notes:

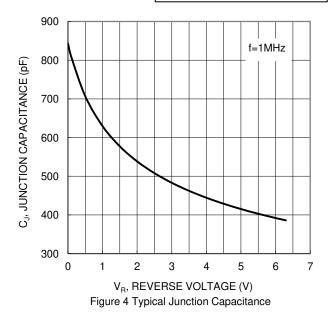
- 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
- 6. Short duration pulse test used to minimize self-heating effect.
- 7. Clamping voltage value is based on an  $8x20\mu s$  peak pulse current ( $I_{pp}$ ) waveform. 8. Measured from any I/O to GND.





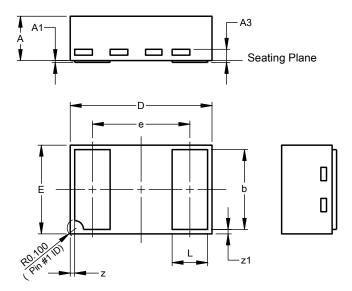






# **Package Outline Dimensions**

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

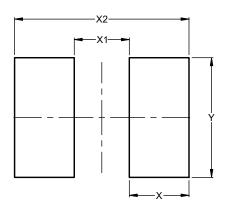


U-DFN1610-2							
(Type B)							
Dim	Min	Min Max Ty					
Α	0.45	0.55	0.50				
A1	0.00	0.05	0.015				
А3	-	0.127					
b	0.85	0.95	0.90				
D	1.55 1.65		1.60				
Е	0.95	1.00					
е	1.10						
L	0.35 0.45 0.40						
Z	0.050 REF						
z1	0.050 REF						
All Dimensions in mm							



## Suggested Pad Layout

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



Dimensions	Value (in mm)		
Х	0.650		
X1	0.600		
X2	1.900		
Υ	1.300		

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