


## Features

- Provides ESD Protection per IEC 61000-4-2 Standard:  
Air  $\pm 30\text{kV}$ , Contact  $\pm 30\text{kV}$
- 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)**

## Mechanical Data

- Case: U-DFN1608-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiPdAu. Solderable per MIL-STD-202, Method 208 
- Weight: 0.003 grams (Approximate)

U-DFN1608-2



Device Schematic

## Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
D12V0S1U2LP1608-7	Commercial	12E	7	8	10,000/Tape & Reel
D15V0S1U2LP1608-7	Commercial	15E	7	8	10,000/Tape & Reel
D33V0S1U2LP1608-7	Commercial	33E	7	8	10,000/Tape & Reel
D40V0S1U2LP1608-7	Commercial	40E	7	8	10,000/Tape & Reel
D50V0S1U2LP1608-7	Commercial	50E	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



XXE = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: G = 2019)  
 M = Month (ex: 9 = September)  
 Dot Denotes Cathode Side

### Date Code Key

Year	2018	2019	2020	2021	2022	2023	2024
Code	F	G	H	I	J	K	L

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
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.)

Part Number	Reverse Standoff Voltage	Breakdown Voltage		Test Current	Maximum Reverse Leakage Current @ V <sub>RWM</sub> (Note 6)	Maximum Clamping Voltage @ I <sub>PP</sub> (Note 7)	Maximum Peak Pulse Current	Channel Input Capacitance (Note 8) V <sub>R</sub> = 0V, f = 1MHz, Any I/O to GND	Marking Code
		V <sub>BR</sub> @ I <sub>T</sub>							
	V <sub>RWM</sub> (V)	Min (V)	Max (V)	I <sub>T</sub> (mA)	I <sub>R</sub> (μA)	V <sub>C</sub> (V)	I <sub>PP</sub> (A)	(pF)	
D12V0S1U2LP1608-7	12	13	17	1	1	22	55	380	12E
D15V0S1U2LP1608-7	15	17	23	1	1	30	35	264	15E
D33V0S1U2LP1608-7	33	36	40	1	1	55	19	156	33E
D40V0S1U2LP1608-7	40	45	55	1	1	75	14	138	40E
D50V0S1U2LP1608-7	50	56	63	1	1	90	15	126	50E

- Notes:
- 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>.
  - Short duration pulse test used to minimize self-heating effect.
  - Clamping voltage value is based on an 8x20μs peak pulse current (I<sub>PP</sub>) waveform.
  - Measured from any I/O to GND.

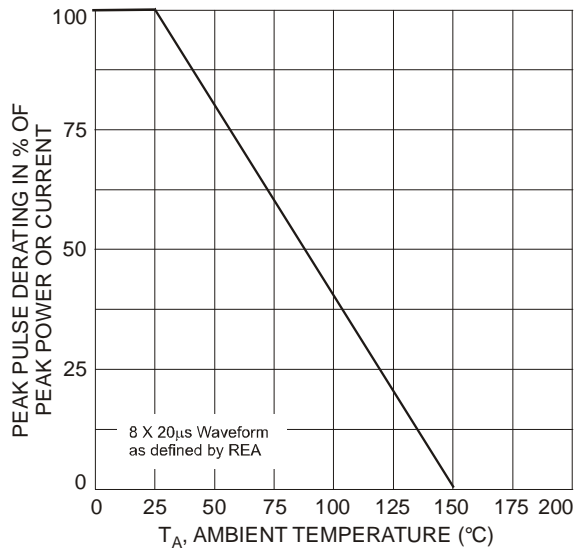


Fig. 1 Pulse Derating Curve

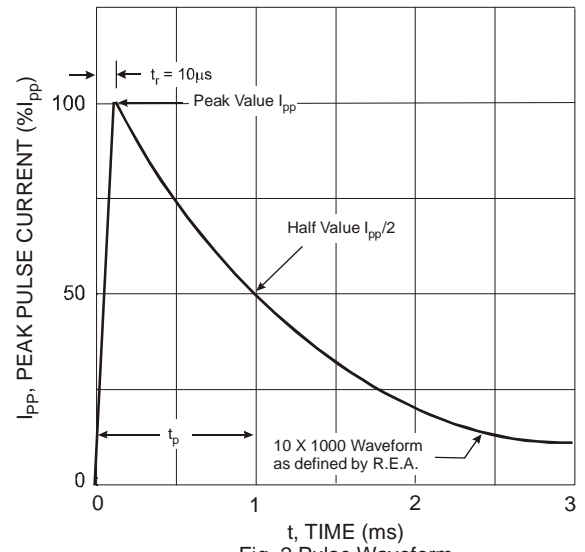


Fig. 2 Pulse Waveform

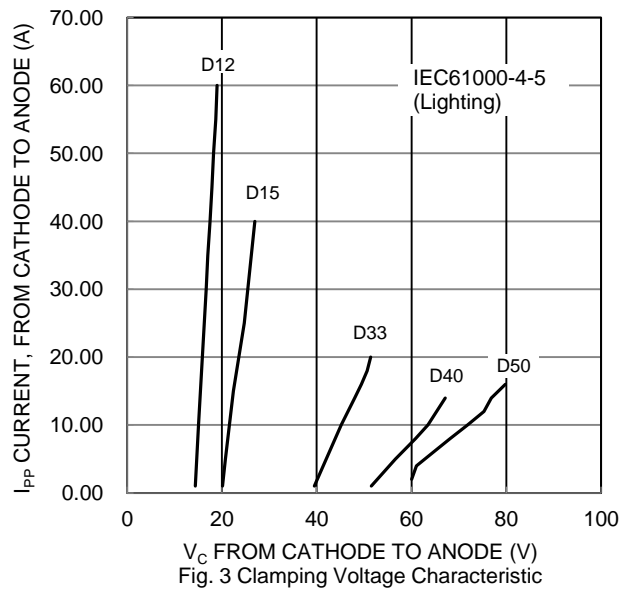
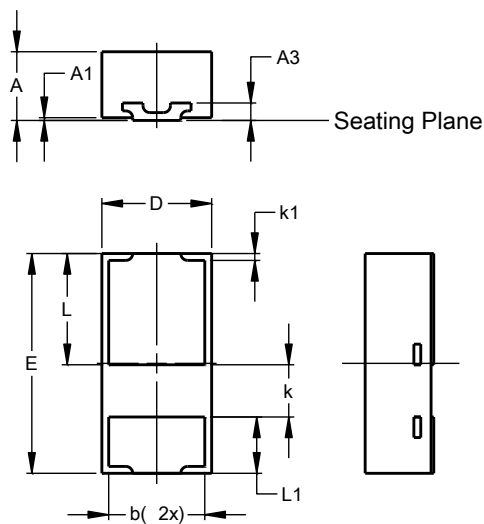


Fig. 3 Clamping Voltage Characteristic

## Package Outline Dimensions

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

### U-DFN1608-2

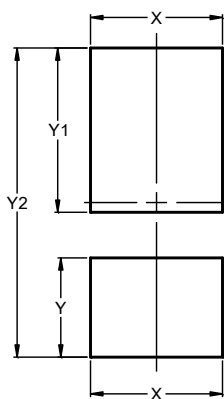


U-DFN1608-2			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0.00	0.05	0.02
A3	-	-	0.127
b	0.65	0.75	0.70
D	0.75	0.85	0.80
E	1.55	1.65	1.60
k	0.38 BSC		
k1	0.05 BSC		
L	0.76	0.86	0.81
L1	0.36	0.46	0.41
All Dimensions in mm			

## Suggested Pad Layout

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

### U-DFN1608-2



Dimensions	Value (in mm)
X	0.800
Y	0.610
Y1	1.010
Y2	1.900

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