

Product Summary

V _{BR} (Min)	I _{PP} (Max)	C _T (Typ)
6.5V	90A	800pF

Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- 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)**
- **The D6V3H1U2LP1610Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

Description

The D6V3H1U2LP1610Q is designed for use in harsh transient environments to protect sensitive electronic equipment from EOS, lightning, CDE, and ESD. It offers ideal features for board-level protection, including fast response time and clamping voltage. D6V3H1U2LP1610Q has excellent protection characteristics highlighted by high surge current capability (90A, t_p = 8/20µs), low peak ESD clamping voltage and high ESD withstand voltage (±30kV according to IEC 61000-4-2).

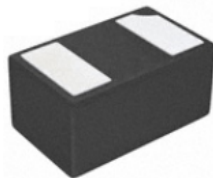
Mechanical Data

- 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
- Weight: 0.003 grams (Approximate)

Applications

- Power line protections
- Touch panels
- Small panel modules

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
D6V3H1U2LP1610Q-7	U-DFN1610-2 (Type B)	CE	7	8	10,000	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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information

Option A:



CE = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: L = 2024)
 M = Month (ex: 9 = September)

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

Option B:



CE = Product Type Marking Code
 YWX = Date Code Marking
 Y = Year (ex: 4 = 2024)
 W = Week (ex: a = Week 27; z Represents Week 52 and 53)
 X = Internal Code (ex: U = Monday)

Date Code Key

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	3	4	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}	90	A	8/20μs (Note 5)
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
ESD Protection – 1000 Contact Discharges (Open Alliance Spec)	V _{ESD_CONTACT1k}	±30	kV	Standard IEC 61000-4-2
ESD Protection – Contact Discharge (ISO Spec)	V _{ESD_CONTACT2}	±30	kV	ISO 10605, 150pF, 330Ω
ESD Protection – Air Discharge (ISO Spec)	V _{ESD_AIR2}	±30	kV	ISO 10605, 150pF, 330Ω
ESD Protection – Contact Discharge (ISO Spec)	V _{ESD_CONTACT3}	±30	kV	ISO 10605, 330pF, 330Ω
ESD Protection – Air Discharge (ISO Spec)	V _{ESD_AIR3}	±30	kV	ISO 10605, 330pF, 330Ω

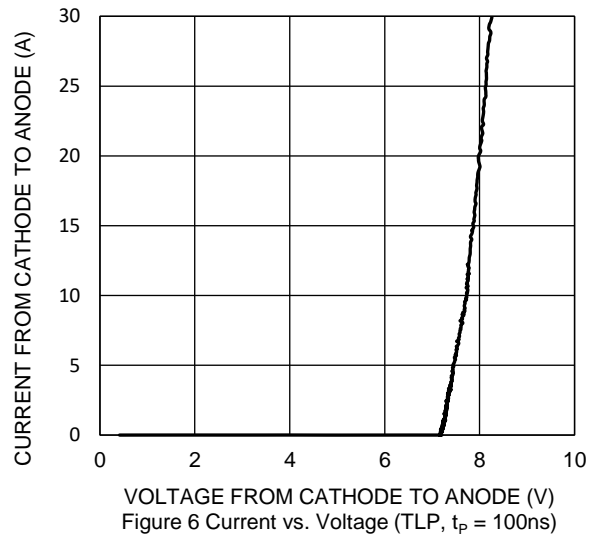
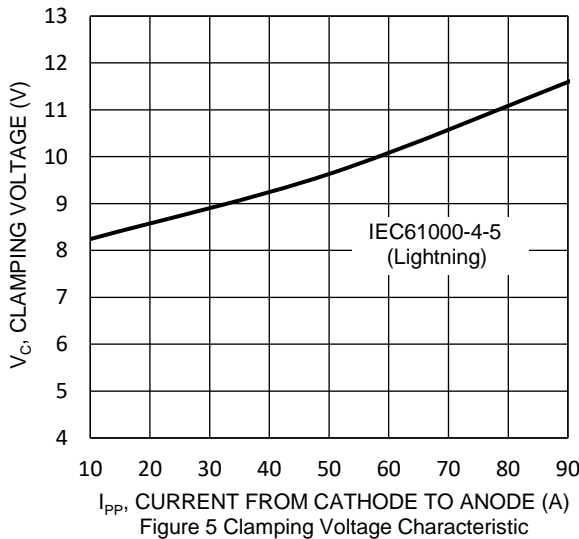
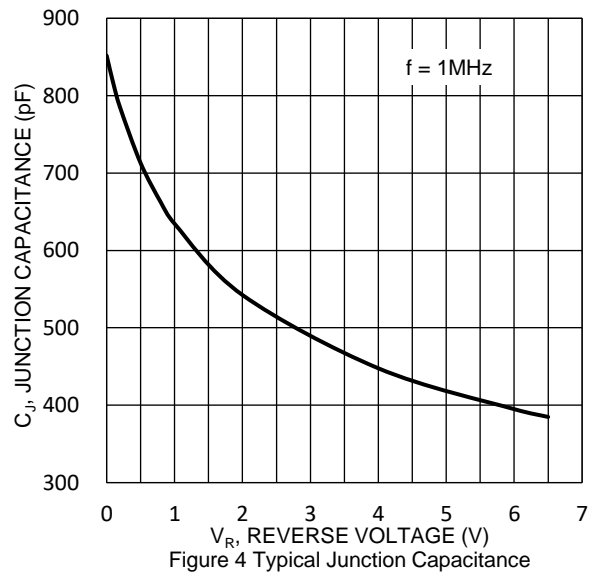
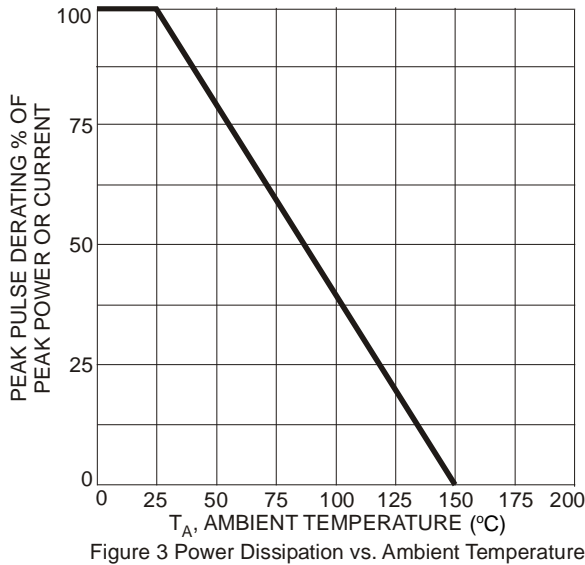
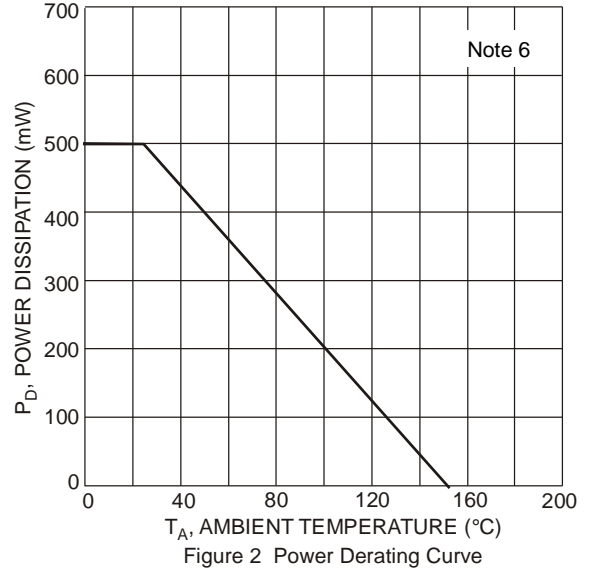
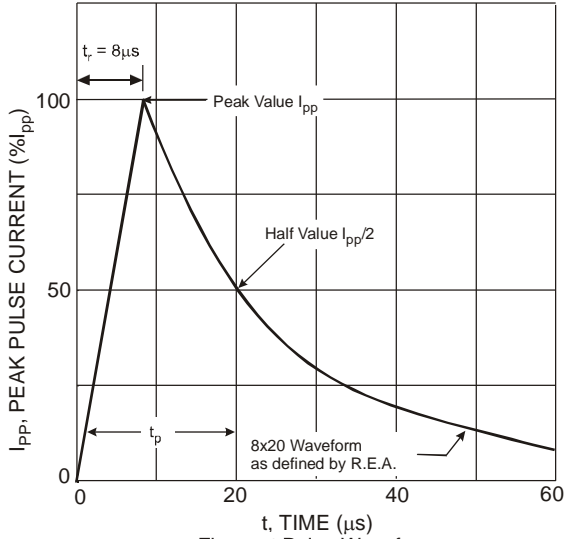
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	500	mW
Thermal Resistance, Junction to Ambient, T _A = +25°C	R _{θJA}	250	°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}	—	—	6.3	V	—
Channel Leakage Current (Note 7)	I _R	—	—	500	nA	V _R = 6.3V
Reverse Breakdown Voltage	V _{BR}	6.5	—	9	V	I _R = 1mA
Clamping Voltage, Positive Transients (Note 5)	V _C	—	—	10	V	I _{PP} = 10A, t _P = 8/20μs
		—	—	11	V	I _{PP} = 50A, t _P = 8/20μs
		—	—	13	V	I _{PP} = 90A, t _P = 8/20μs
Channel Input Capacitance (Note 8)	C _T	—	800	—	pF	V _R = 0V, f = 1MHz, Any I/O to GND
Dynamic Resistance	R _{DYN}	—	0.05	—	Ω	TLP, 10A, t _P = 100ns

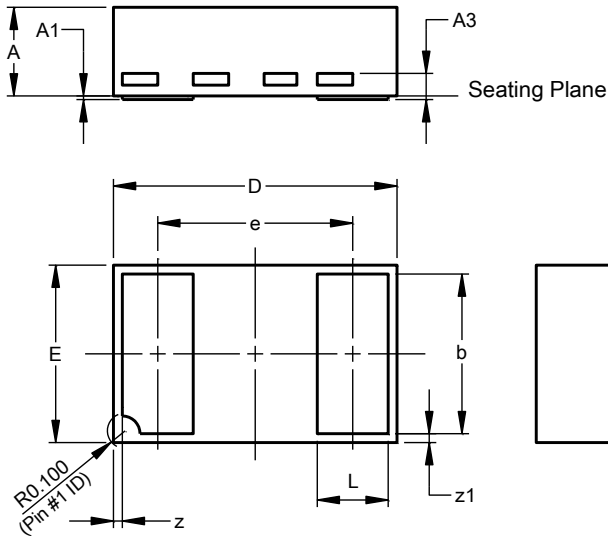
- Notes:
- Clamping voltage value is based on an 8 x 20μs peak pulse current (I_{pp}) waveform.
 - Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 - Short duration pulse test used to minimize self-heating effect.
 - 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)

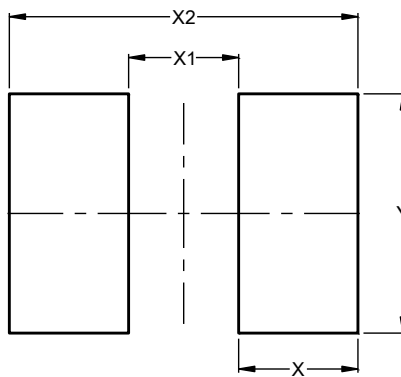


U-DFN1610-2 (Type B)			
Dim	Min	Max	Typ
A	0.45	0.55	0.50
A1	0.00	0.05	0.015
A3	-	-	0.127
b	0.85	0.95	0.90
D	1.55	1.65	1.60
E	0.95	1.05	1.00
e	-	-	1.10
L	0.35	0.45	0.40
z	0.050 REF		
z1	0.050 REF		
All Dimensions in mm			

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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