Product Summary

$V_{BR\ (min)}$	$I_{PP\ (max)}$	$I_{R\ (max)}$
15.5V	90A	200nA

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 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-DFN1616-2
- 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 e4
- Weight: 0.004 grams (Approximate)



Device Schematic

Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D15V0H1U2LP16-7	Standard	QE6	7	8	3,000/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 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



Top View

QE6 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: E = 2017)
M = Month (ex: 9 = September)
Dot Denotes Pin#1 or Cathode

Date Code Key

Year	2017	2018	2019	2020	2021	2022
Code	E	F	G	H	I	J

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

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	2,250	W	8/20µs (Note 7)
Peak Pulse Current	I_{PP}	90	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	$R_{\theta JA}$	417	°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}	—	—	15	V	—
Channel Leakage Current (Note 6)	I_R	—	—	200	nA	V_R = 15V
Forward Voltage	V_F	0.6	0.8	1.2	V	I_R = 10mA
Reverse Breakdown Voltage	V_{BR}	15.5	—	—	V	I_R = 1mA
Clamping Voltage, Positive Transients (Note 7)	V_C	—	—	18	V	I_{PP} = 1A, t_P = 8/20µs
		—	—	20	V	I_{PP} = 10A, t_P = 8/20µs
		—	—	25	V	I_{PP} = 90A, t_P = 8/20µs
Channel Input Capacitance (Note 8)	C_T	—	700	—	pF	V_R = 0V, f = 1MHz

Notes:
5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown in Diodes Incorporated's package outline PDFs, 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.
8. Measured from any I/O to GND.

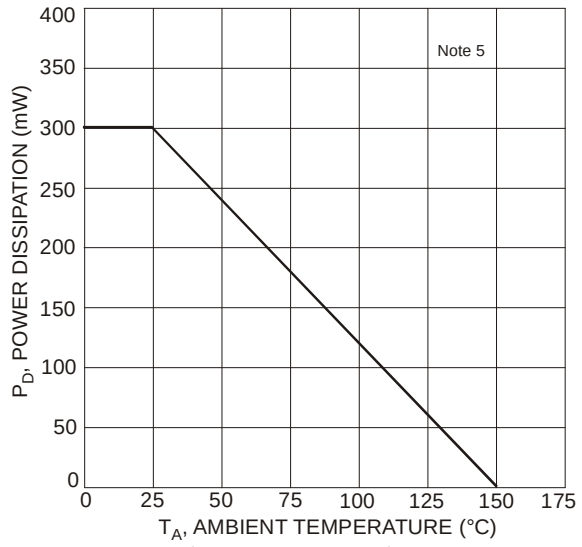

Figure 1 Power Derating Curve

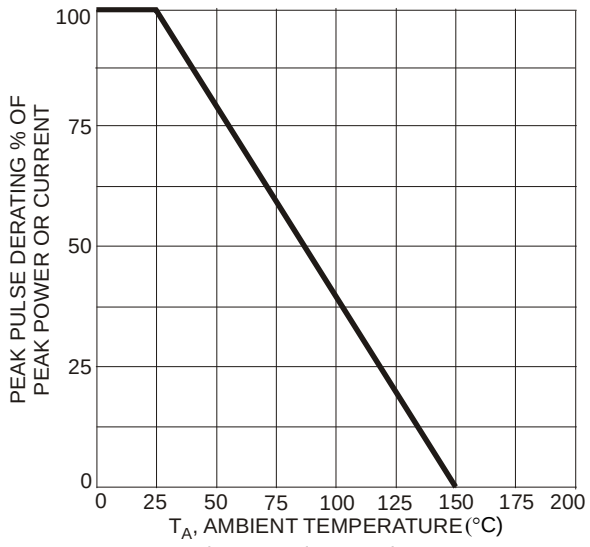

Figure 2 Pulse Derating Curve

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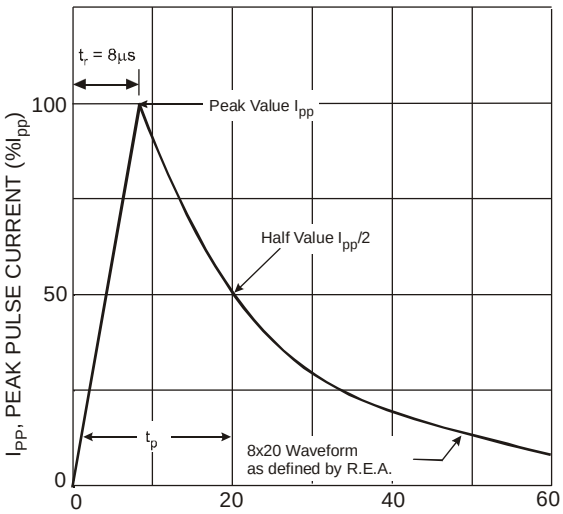


Figure 3 Pulse Waveform

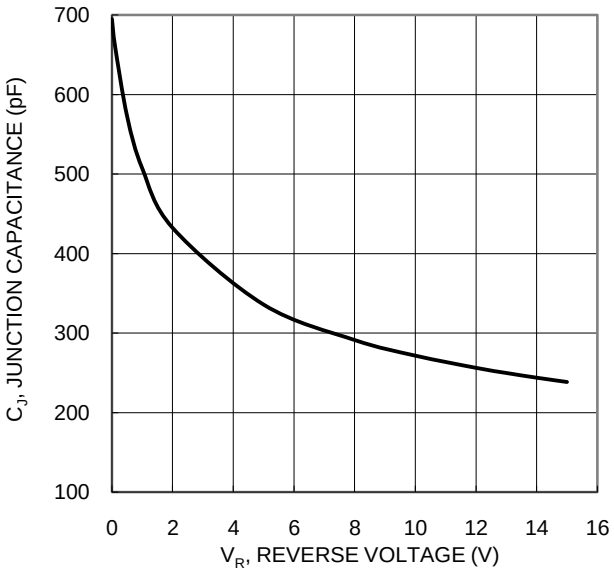
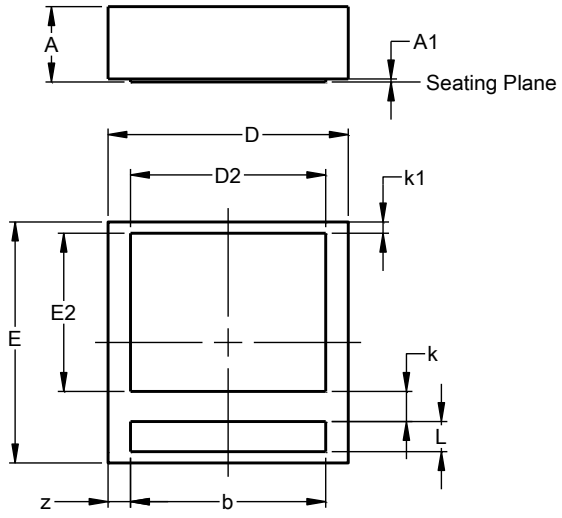


Figure 4 Typical Junction Capacitance

Package Outline Dimensions

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

U-DFN1616-2



U-DFN1616-2			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0.00	0.05	0.02
b	1.25	1.35	1.30
D	1.55	1.65	1.60
D2	1.20	1.40	1.30
E	1.55	1.65	1.60
E2	0.95	1.15	1.05
k	0.20 BSC		
k1	0.075 BSC		
L	0.15	0.25	0.20
z	0.15 BSC		
All Dimensions in mm			

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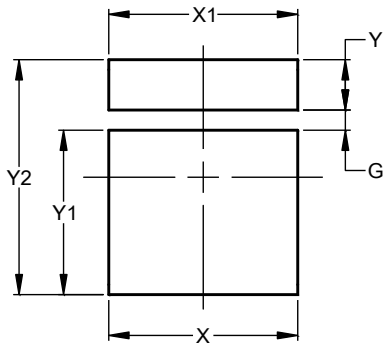
Suggested Pad Layout

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

U-DFN1616-2



Dimensions	Value (in mm)
G	0.150
X	1.400
X1	1.400
Y	0.375
Y1	1.225
Y2	1.750

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