

Product Summary

V_{BR} (min)	I_{PP} (max)	C_T (typ)
14.2V	1.5A	6.0pF

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

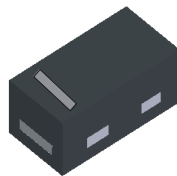
- Cellular Handsets
- Portable Electronics
- Computers and Peripheral

Features

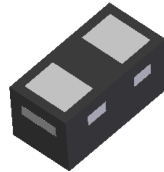
- Ultra-Small, Low Profile Leadless Surface Mount Package (0.6mm * 0.3mm * 0.3mm)
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±15kV, Contact ±8kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: X3-DFN0603-2
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin over Copper Leadframe, solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.0002 grams (Approximate)



Top View



Bottom View



Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DESDALC14V2LP3-7	Standard	TA	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.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



TA = Product Type Marking Code
Bar Denotes Cathode Side

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P _{PP}	30	W	8/20μs, per Figure 3
Peak Pulse Current	I _{PP}	1.5	A	8/20μs, per Figure 3
ESD Protection – Contact Discharge	V _{ESD_Contact}	±8	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V _{ESD_Air}	±15	kV	IEC 61000-4-2 Standard

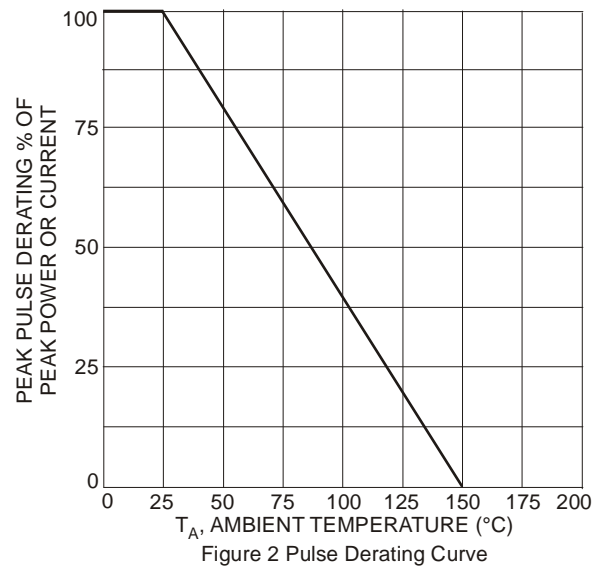
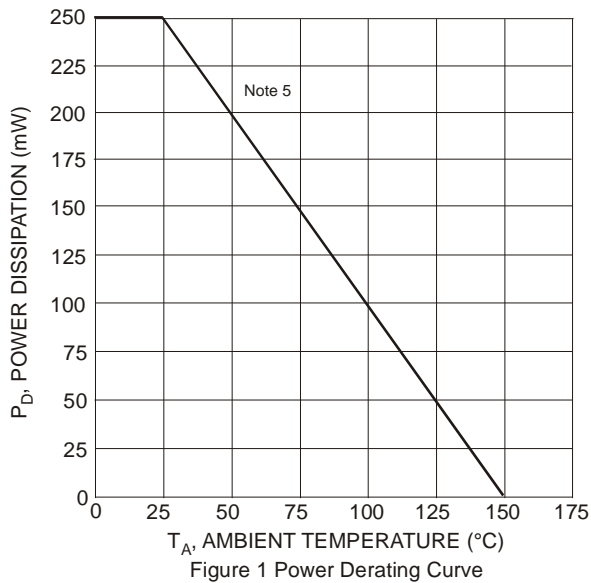
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	P _D	250	mW
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Breakdown Voltage	V _{BR}	14.2	—	17.0	V	I _R = 1mA
Leakage Current	I _{RM}	—	—	100	nA	V _{RWM} = 3V
Dynamic Impedance	R _d	—	2.6	—	Ω	Square Pulse, I _{pp} = 1A, t _p =2.5 μS
Channel Input Capacitance	C _T	—	6.0	—	pF	V _R = 0V, f = 1MHz

- Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at <http://www.diodes.com>.
 6. Short duration pulse test used to minimize self-heating effect.



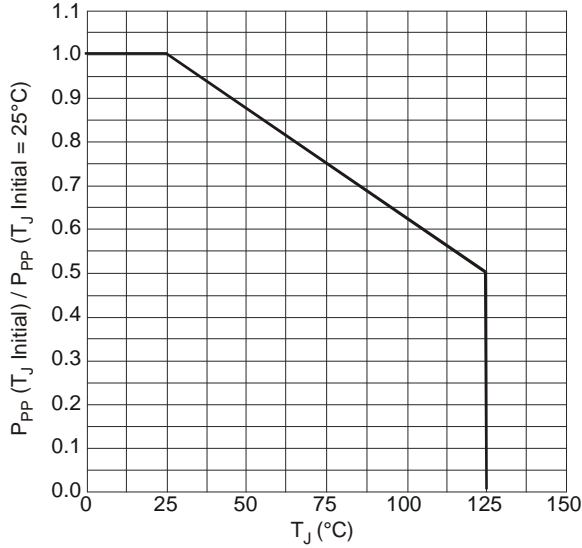


Figure 3 Relative Variation of Peak Pulse Power vs. Initial Junction Temperature

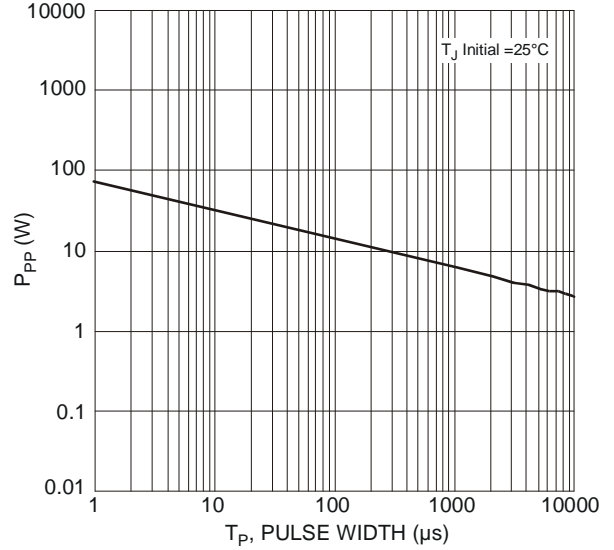


Figure 4 Peak Pulse Power vs. Exponential Pulse Duration

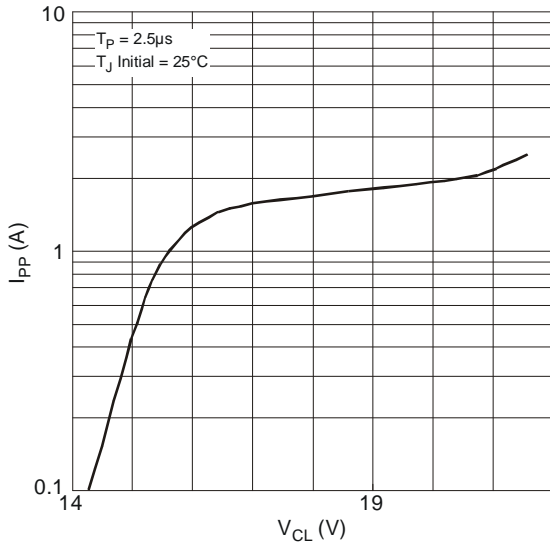


Figure 5 Clamping Voltage vs. Peak Pulse Current (Square Pulse, Typical Values)

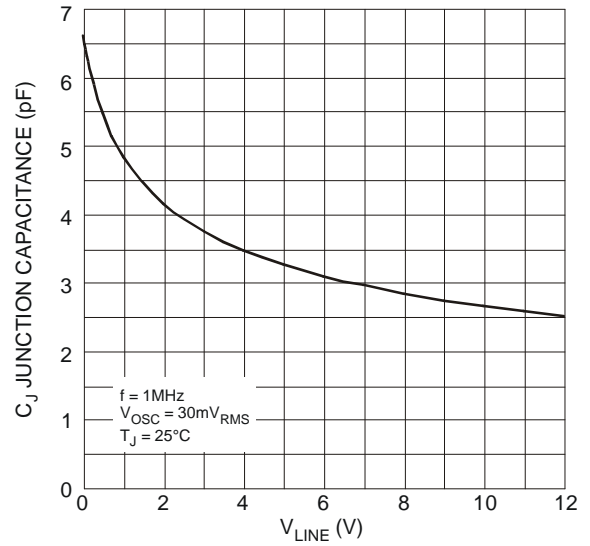


Figure 6 Junction Capacitance vs. Reverse Applied Voltage

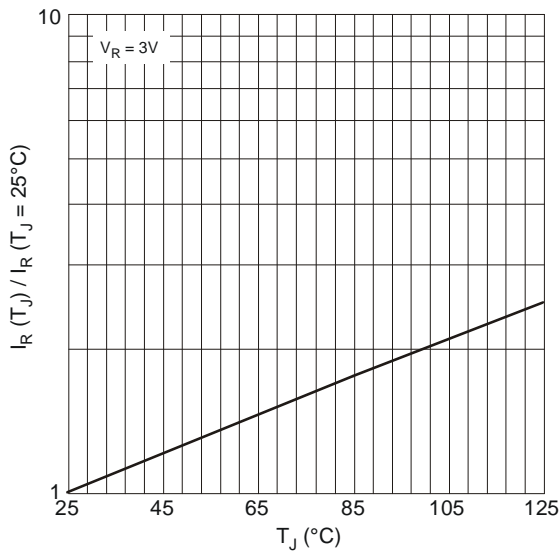


Figure 7 Relative Variation of Leakage Current vs. Junction Temperature (Typical Values)

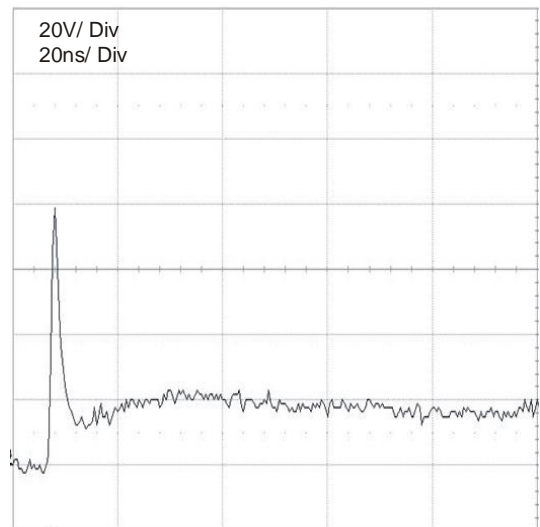


Figure 8 ESD Response to IEC6100-4-2 (+8kV Contact Discharge)

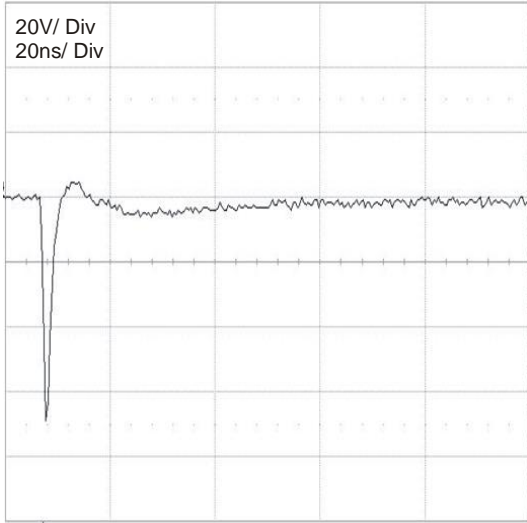


Figure 9 ESD Response to IEC6100-4-2 (-8kV Contact Discharge)

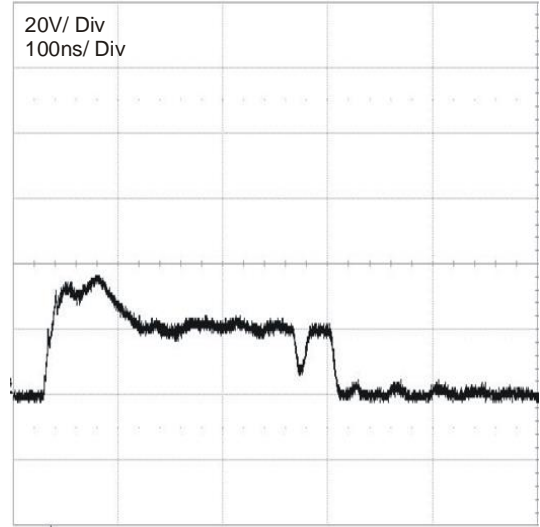


Figure 10 ESD Response to IEC6100-4-2 (+15kV Air Discharge)

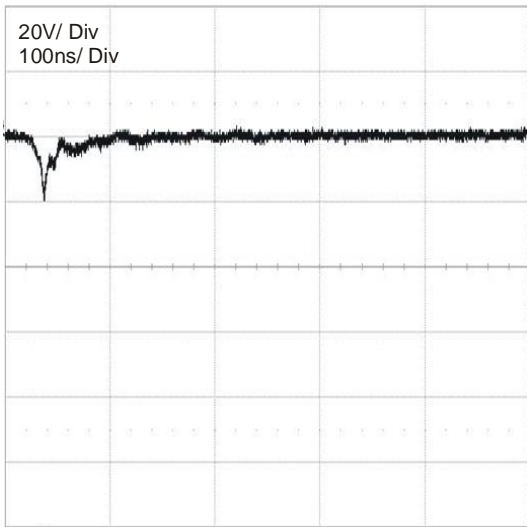


Figure 11 ESD Response to IEC6100-4-2 (-15kV Air Discharge)

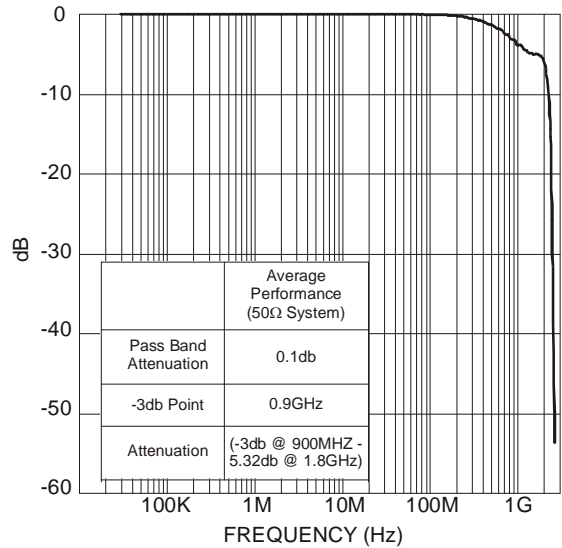
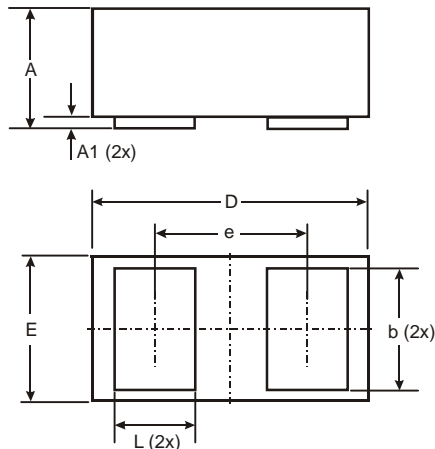


Figure 12 S21 Attenuation Measurement Results

Package Outline Dimensions

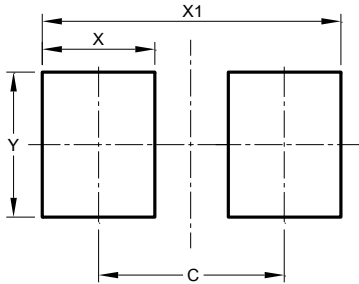
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



X3-DFN0603-2			
Dim	Min	Max	Typ
A	0.27	0.35	0.30
A1	0.00	0.03	0.02
b	0.19	0.29	0.24
D	0.595	0.645	0.62
E	0.295	0.345	0.32
e	-	-	0.355
L	0.14	0.24	0.19
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
C	0.380
X	0.230
X1	0.610
Y	0.300

NEW PRODUCT

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