



#### LOW CAPACITANCE BIDIRECTIONAL TVS DIODE

#### **Features**

- Ultra-Small, Low Profile Leadless Surface Mount Package (0.6 \* 0.3 \* 0.3mm)
- IEC 61000-4-2 (ESD): Air ±30kV, Contact ±30kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- 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 (3)
- Weight: 0.0002 grams (approximate)

#### X3-DFN0603-2







Top View

**Bottom View** 

**Device Schematic** 

### Ordering Information (Note 4)

h					
Product	Compliance	Marking	Reel size(inches)	Tape width(mm)	Quantity per reel
DESD5V0S1BLP3-7	Standard	ZZ	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**

ZZ

ZZ = Product Type Marking Code



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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P <sub>PP</sub>	145	W	8/20µs, Per Figure 3
Peak Pulse Current	I <sub>PP</sub>	10	Α	8/20µs, Per Figure 3
ESD Protection – Contact Discharge	V <sub>ESD_Contact</sub>	±30	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	$V_{ESD\_Air}$	±30	kV	Standard IEC 61000-4-2

### **Thermal Characteristics**

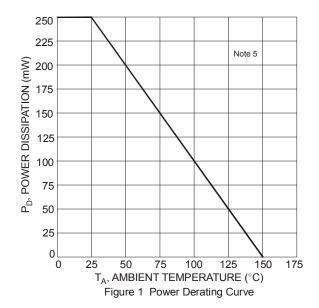
Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{ hetaJA}$	500	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

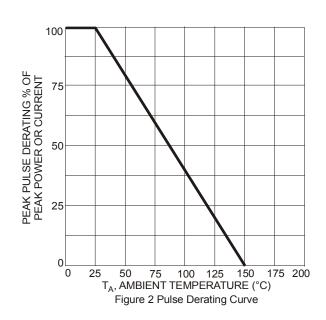
# Electrical Characteristics (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
Reverse Standoff Voltage	$V_{RWM}$	_	_	5	V	_
Channel Leakage Current (Note 6)	I <sub>RM</sub>	_	1	100	nA	V <sub>RWM</sub> = 5V
Clamping Voltage, Positive Transients	V <sub>CL</sub>	_	_	10	V	$I_{PP}$ = 1A, tp = 8/20 $\mu$ S
Clamping voltage, Positive Transients		_	_	14.5	V	I <sub>PP</sub> = 10A, tp = 8/20μS
Breakdown Voltage	$V_{BR}$	6	_	9.5	V	I <sub>R</sub> = 1mA
Differential Resistance	R <sub>DIF</sub>	_	0.5	_	Ω	$I_{PP} = 10A, t_p = 8/20\mu s$
Channel Input Capacitance	Ст	_	22	28	pF	$V_R = 0V$ , $f = 1MHz$
Спанне три Сарасцансе		_	16	22		V <sub>R</sub> = 5V, f = 1MHz

Notes:

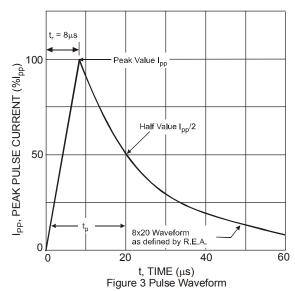
<sup>6.</sup> Short duration pulse test used to minimize self-heating effect.

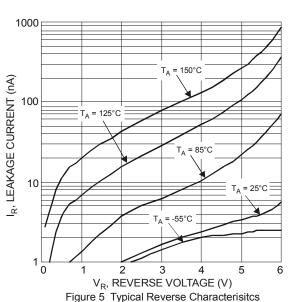


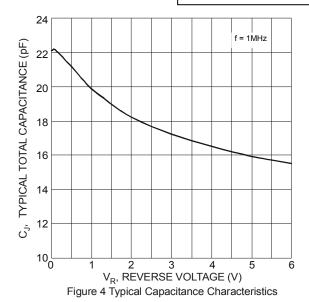


<sup>5.</sup> Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at http://www.diodes.com.



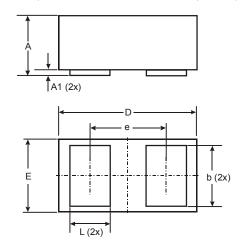






# **Package Outline Dimensions**

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

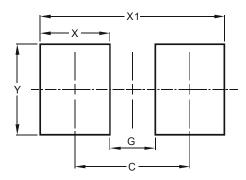


X3-DFN0603-2					
Dim	Min	Max	Тур		
Α	0.27	0.35	0.30		
A1	0.00	0.03	0.02		
b	0.19	0.29	0.24		
D	0.595	0.645	0.62		
Е	0.295	0.345	0.32		
е	-	-	0.355		
L	0.14	0.24	0.19		
All Dimensions in mm					



# Suggested Pad Layout

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



Dimensions	Value (in mm)
С	0.355
G	0.150
Х	0.230
X1	0.610
Y	0.300

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