LOW CAPACITANCE BIDIRECTIONAL TVS DIODE

NEW PRODUCT

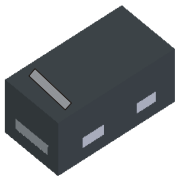
Features

- 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)**

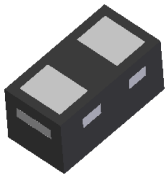
Mechanical Data

- 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 e3
- Weight: 0.0002 grams (approximate)

X3-DFN0603-2



Top View



Bottom View

Device Schematic

Ordering Information (Note 4)

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 = Product Type Marking Code

NEW PRODUCT

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	145	W	8/20μs, Per Figure 3
Peak Pulse Current	I_{PP}	10	A	8/20μs, Per Figure 3
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
Package Power Dissipation (Note 5)	P_D	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	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
Reverse Standoff Voltage	V_{RWM}	—	—	5	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	1	100	nA	V_{RWM} = 5V
Clamping Voltage, Positive Transients	V_{CL}	—	—	10	V	I_{PP} = 1A, tp = 8/20μS
		—	—	14.5	V	I_{PP} = 10A, tp = 8/20μS
Breakdown Voltage	V_{BR}	6	—	9.5	V	I_R = 1mA
Differential Resistance	R_{DIF}	—	0.5	—	Ω	I_{PP} = 10A, t_p = 8/20μs
Channel Input Capacitance	C_T	—	22	28	pF	V_R = 0V, f = 1MHz
		—	16	22		V_R = 5V, 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.

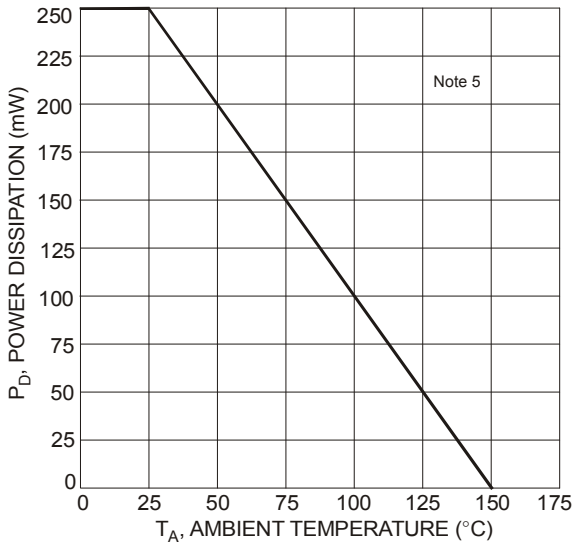


Figure 1 Power Derating Curve

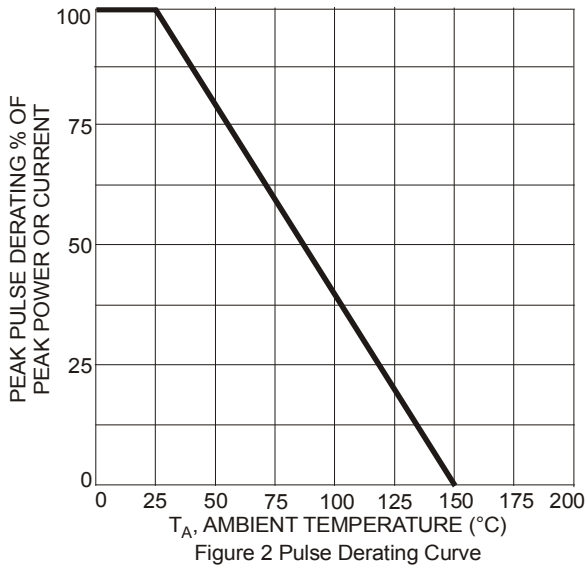


Figure 2 Pulse Derating Curve

NEW PRODUCT

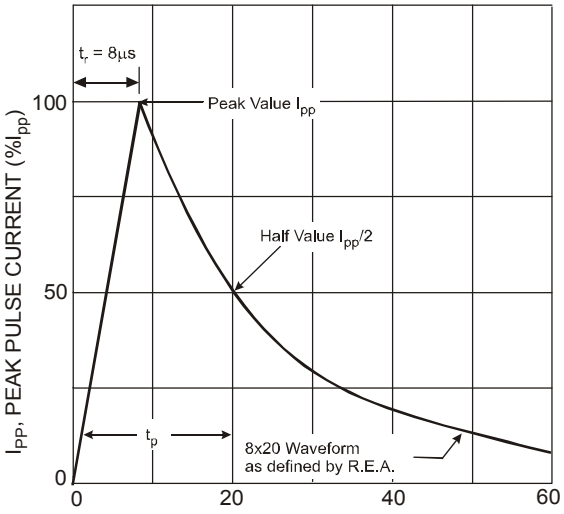


Figure 3 Pulse Waveform

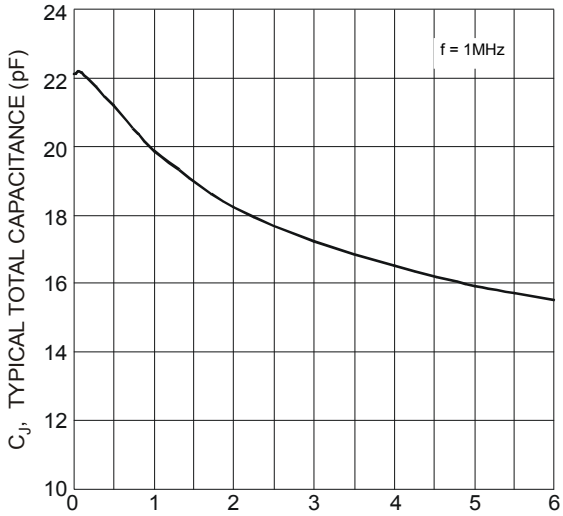


Figure 4 Typical Capacitance Characteristics

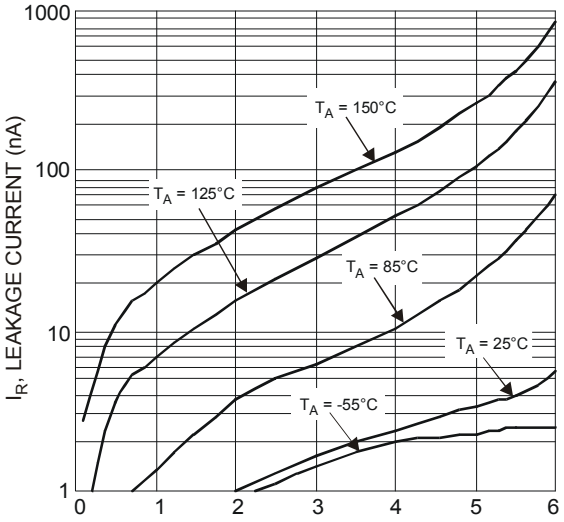
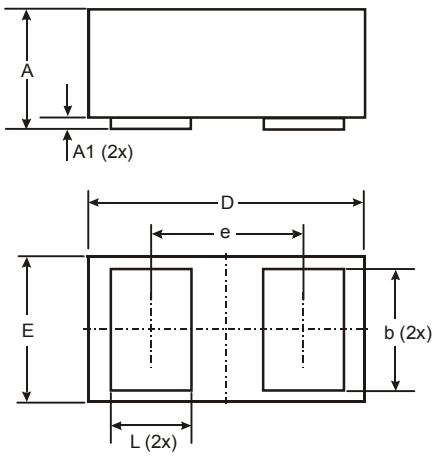


Figure 5 Typical Reverse Characterisitcs

Package Outline Dimensions

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

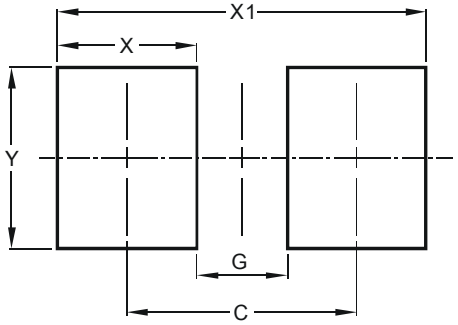


X3-DFN0603-2			
Dim	**Min**	**Max**	**Typ**
A	0.27	0.35	0.30
A1	0.00	0.03	0.02
b	0.19	0.29	0.24
D	0.595	0.645	0.62
E	0.295	0.345	0.32
e	-	-	0.355
L	0.14	0.24	0.19
All Dimensions in mm			

NEW PRODUCT

Suggested Pad Layout

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



Dimensions	Value (in mm)
C	0.355
G	0.150
X	0.230
X1	0.610
Y	0.300