Product Summary

$V_{BR\ (min)}$	$I_{PP\ (max)}$	$C_{T\ (typ)}$
6.0V	3A	5.5pF

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.

Features

- Ultra-Small, Low Profile Leadless Surface Mount Package (0.600 * 0.300 x 0.300mm)
- IEC 61000-4-2 (ESD): Air – ±15kV, Contact – ±14kV
- IEC 61000-4-5 (Lightning): 3A (8/20μs)
- 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)**

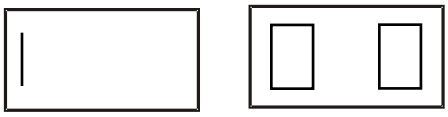
Applications

- Cellular Handsets
- Portable Electronics
- Computers and Peripheral

Mechanical Data

- Case: X2-DSN0603-2
- Case Material: Chip Scale Package
- Terminals: NiAu Bump. Solderable per MIL-STD-202, Method 208 e4
- Weight: 0.0002 grams (Approximate)

X2-DSN0603-2



Top View

Bottom View

Device Schematic

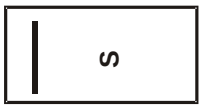
Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D5V0Q1B2CSP-7	Standard	S	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

X2-DSN0603-2



S = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I_{PP}	3	A	8/20µs, per Figure 1
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	±14	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 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}	—	—	5.5	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	—	100	nA	V_{RWM} = 5.5V
Clamping Voltage	V_{CL}	—	7.2	—	V	I_{PP} = 1A, tp = 8/20µS
		—	8.4	—		I_{PP} = 3A, tp = 8/20µS
ESD Clamping Voltage	V_{CL}	—	5.9	—	V	TLP, 1A, tp = 100 ns, I/O to V_{SS}
		—	8.3	—		TLP, 16A, tp = 100 ns, I/O to V_{SS}
Differential Resistance	R_{DYN}	—	0.2	—	Ω	TLP, 10A, tp = 100ns
Breakdown Voltage	V_{BR}	6	—	10	V	I_R = 1mA
Channel Input Capacitance	C_T	—	5.5	—	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, 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.

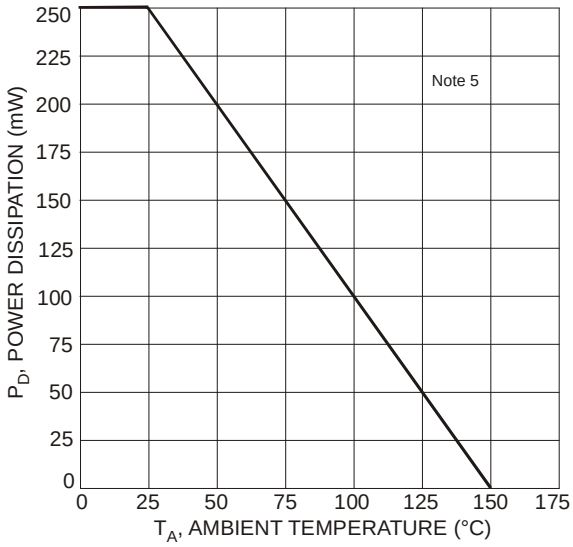


Figure 1 Power Derating Curve

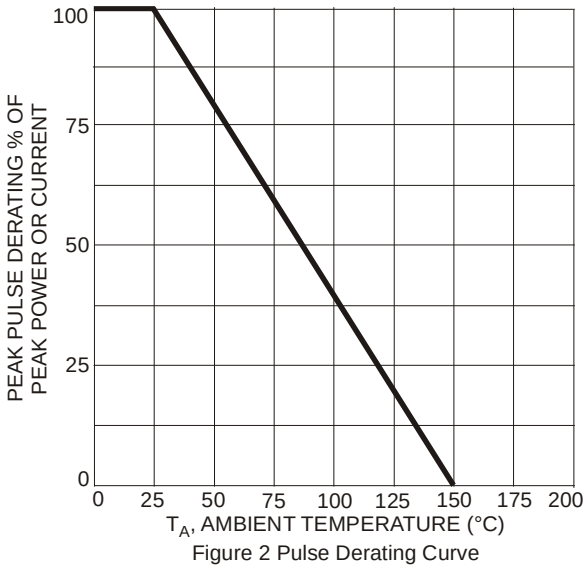


Figure 2 Pulse Derating Curve

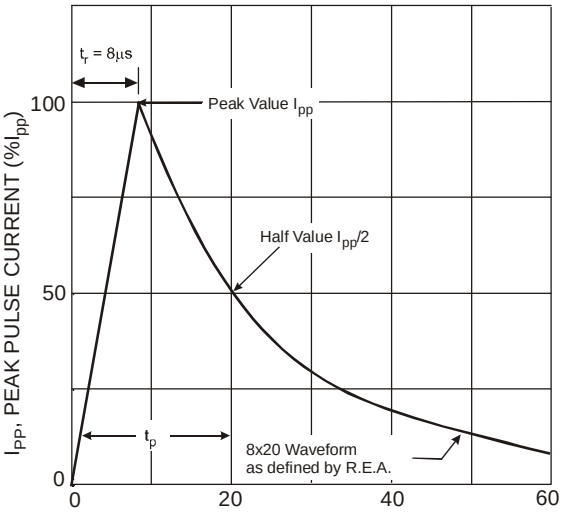


Figure 3 Pulse Waveform

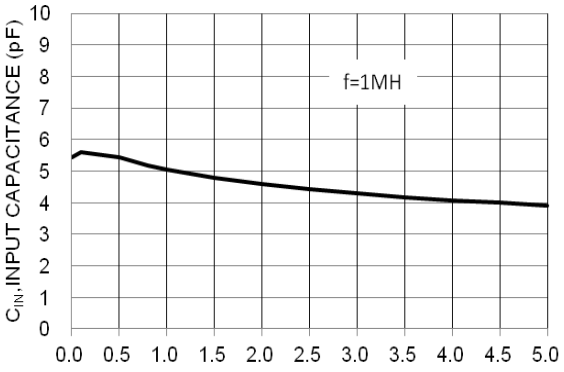


Figure 4 Input Capacitance vs. Input Voltage

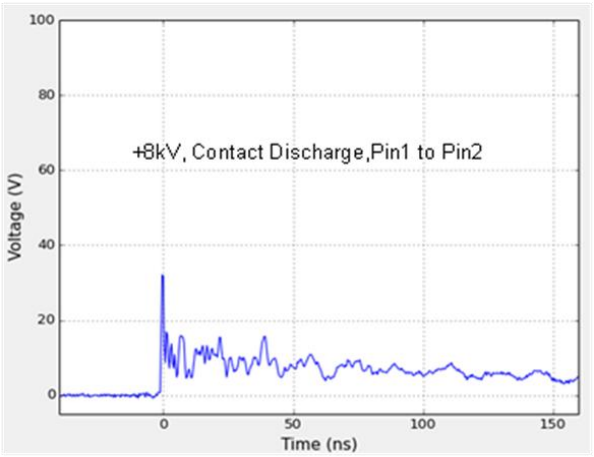


Figure 5 ESD response ESD response to IEC 61000-4-2

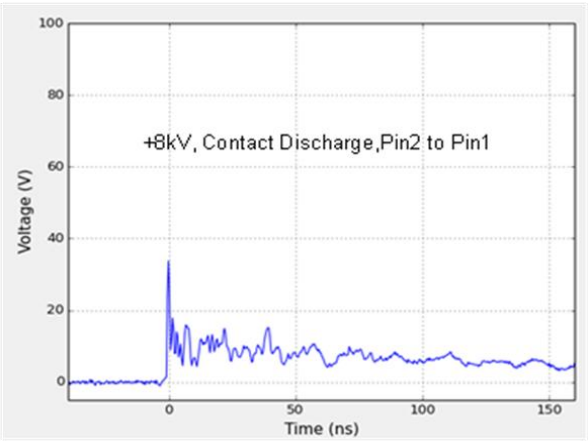


Figure 6 ESD response ESD response to IEC 61000-4-2

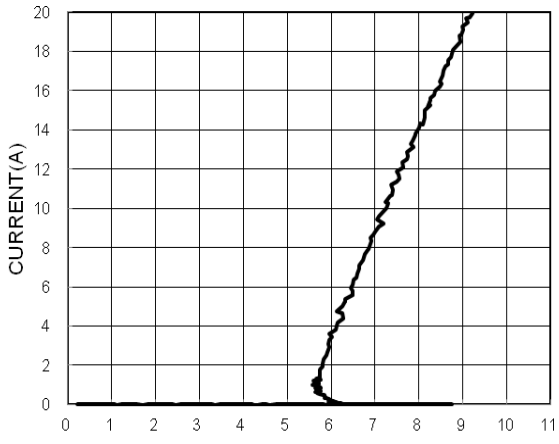
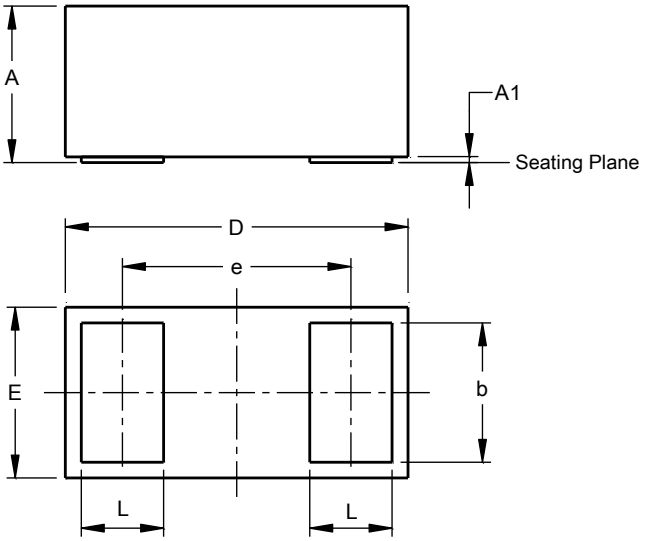


Figure 7 Current vs. Voltage

Package Outline Dimensions (Note 7)

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

X2-DSN0603-2



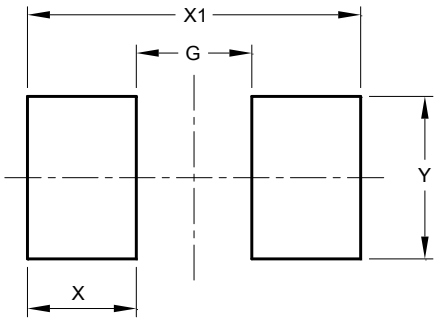
X2-DSN0603-2			
Dim	**Min**	**Max**	**Typ**
A	0.280	0.320	0.300
A1	0.00	0.020	0.010
b	0.220	0.260	0.240
D	0.575	0.625	0.600
E	0.275	0.325	0.300
e	-	-	0.400
L	0.120	0.160	0.140
All Dimensions in mm			

Note: 7. Device side walls are electrically active bare silicon. Avoid contact of solder or flux on the side walls during the PCB assembly process.

Suggested Pad Layout

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

X2-DSN0603-2



Dimensions	Value (in mm)
G	0.206
X	0.194
Y	0.291
X1	0.594

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