2 CHANNEL HIGH SURGE BIDIRECTIONAL TVS DIODE

Product Summary

$V_{BR\ Min}$	$I_{PP\ Max}$	$C_{IN\ Typ}$
5.5V	12A	28pF

Description

This new generation TVS is designed to protect sensitive electronics from 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 peripherals

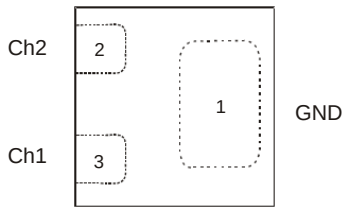
Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- 2 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)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

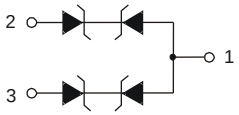
Mechanical Data

- Package: X2-DFN1010-3
- Package 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: 0.001 grams (Approximate)

X2-DFN1010-3



Top View



Device Schematic

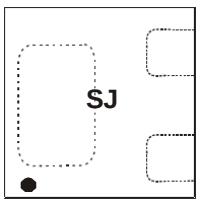
Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
D5V0M2B3LP10-7	X2-DFN1010-3	SJ	7	8	5000	Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ 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

X2-DFN1010-3



SJ = Product Type Marking Code
Dot = Pin 1 Marking

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	130	W	8/20µs, per Figure 1
Peak Pulse Current	I_{PP}	12	A	8/20µs, per Figure 1
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_Air}	±30	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	V	—
Channel Leakage Current (Note 6)	I_{RM}	—	5	100	nA	V_{RWM} = 5V
Clamping Voltage, Positive Transients	V_{CL}	—	—	10	V	I_{PP} = 1A, t_p = 8/20µs
		—	—	14		I_{PP} = 12A, t_p = 8/20µs
Breakdown Voltage	V_{BR}	5.5	—	9.5	V	I_R = 1mA
Differential Resistance	R_{DIF}	—	0.3	—	Ω	I_R = 10A, t_p = 8/20µs
Channel Input Capacitance	C_{IN}	—	28	32	pF	V_R = 0V, f = 1MHz

Notes: 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.
6. Short duration pulse test used to minimize self-heating effect.

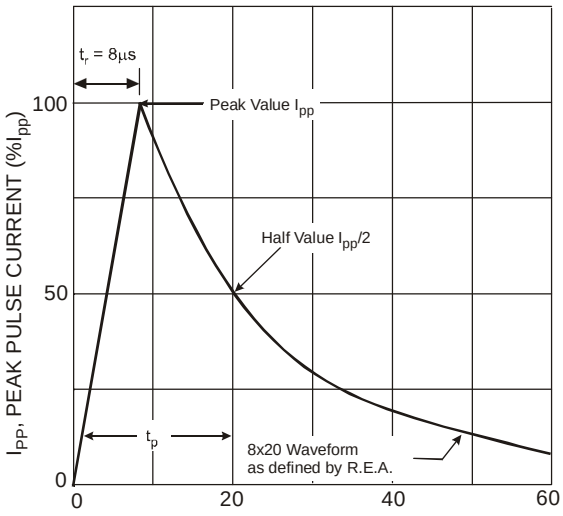


Figure 1. Pulse Waveform

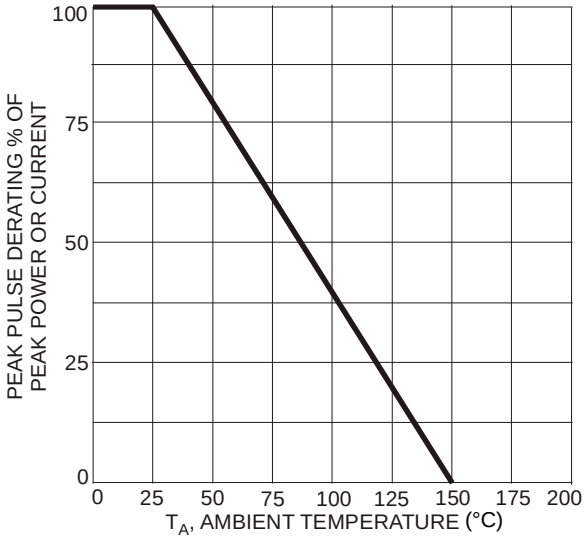


Figure 2. Pulse Derating Curve

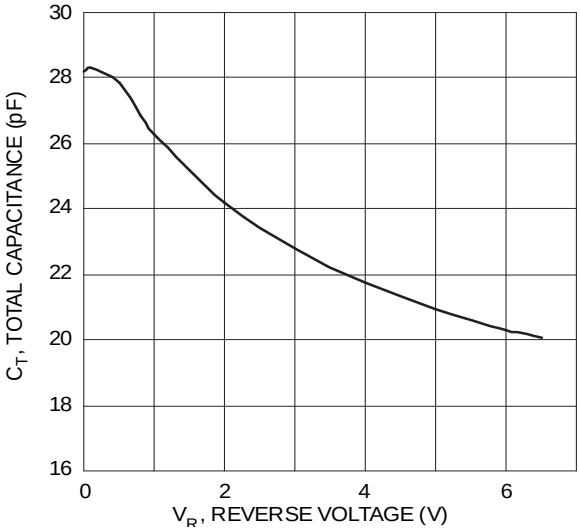


Figure 3. Typical Total Capacitance vs. Reverse Voltage

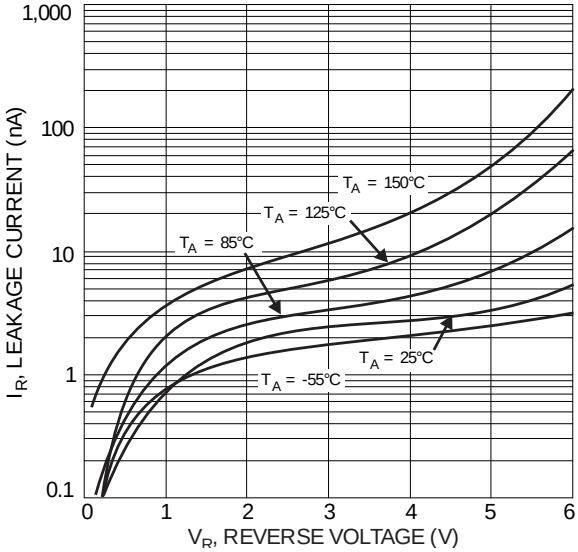


Figure 4. Typical Reverse Characteristics

Package Outline Dimensions

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

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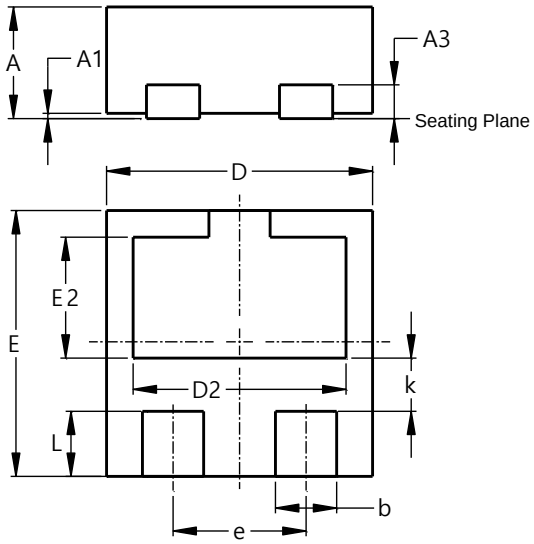

X2-DFN1010-3			
Dim	**Min**	**Max**	**Typ**
A	-	0.40	0.39
A1	0.00	0.05	0.02
A3	-	-	0.13
b	0.18	0.28	0.23
D	0.95	1.05	1.00
D2	0.70	0.90	0.80
E	0.95	1.05	1.00
E2	0.36	0.56	0.46
e	-	-	0.50
k	-	-	0.20
L	0.195	0.295	0.245
All Dimensions in mm			

Suggested Pad Layout

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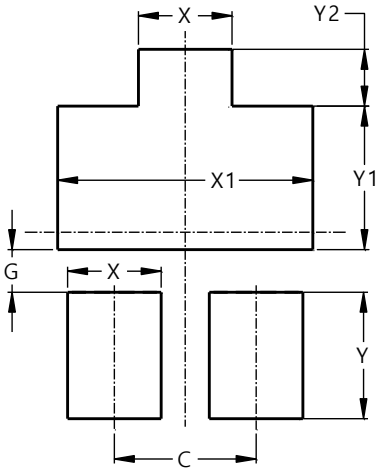
X2-DFN1010-3



Dimensions	Value (in mm)
C	0.500
G	0.150
X	0.330
X1	0.900
Y	0.445
Y1	0.505
Y2	0.200

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