

Product Summary

VBR (min)	IPP (max)	CT (max)
21V	7A	45pF

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

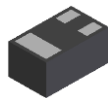
Features

- Low Profile Package (0.40mm Max) and Ultra-Small PCB Footprint Area (1.05 x 0.65mm Max) Suitable for Compact Portable Electronics
- Provides ESD Protection per IEC 61000-4-2 Standard: Air $\pm 25kV$, Contact $\pm 25kV$
- 2 Channels 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-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

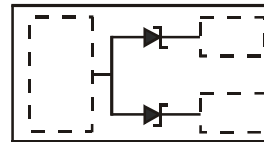
Mechanical Data

- Case: X2-DFN1006-3
- Case 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 $\text{\textcircled{4}}$
- Weight: 0.001 grams (Approximate)

X2-DFN1006-3



Bottom View



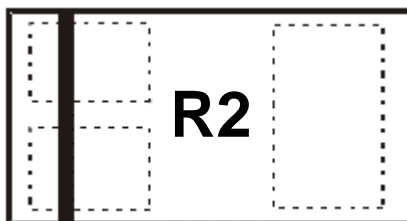
Device Schematic

Ordering Information (Note 4)

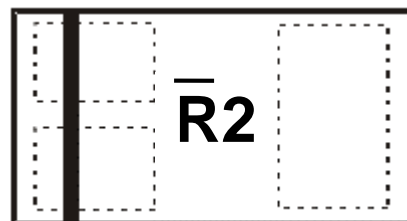
Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D20V0M2U3LP4-7B	Standard	R2	7	8	10,000/Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 - 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.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



Top View
Bar Denotes Cathode Side



Top View
Bar Denotes Cathode Side

R2 or $\bar{R}2$ = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power	P _{PP}	300	W	8/20μs, per Figure 3
Peak Pulse Current	I _{PP}	7	A	8/20μs, per Figure 3
ESD Protection – Contact Discharge	V _{ESD_Contact}	±25	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V _{ESD_Air}	±25	kV	Standard IEC 61000-4-2

Thermal Characteristics

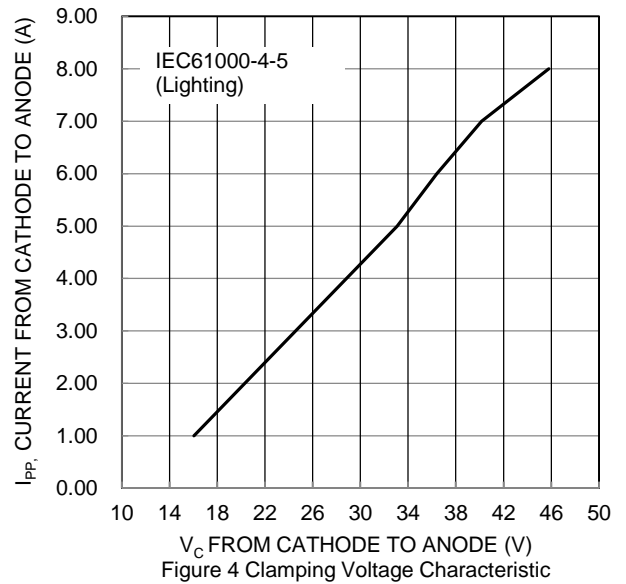
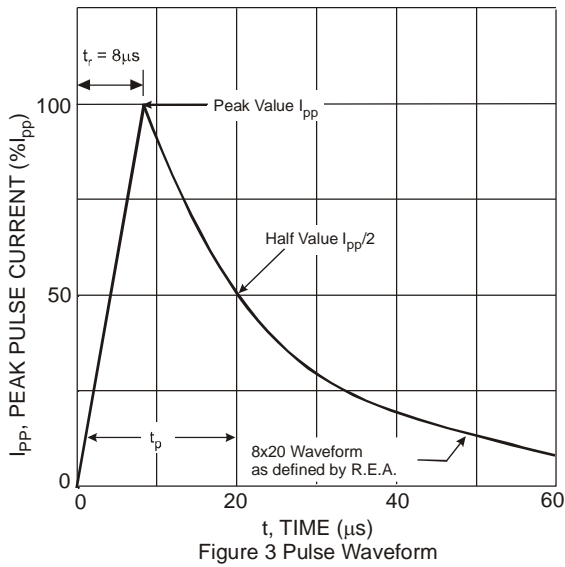
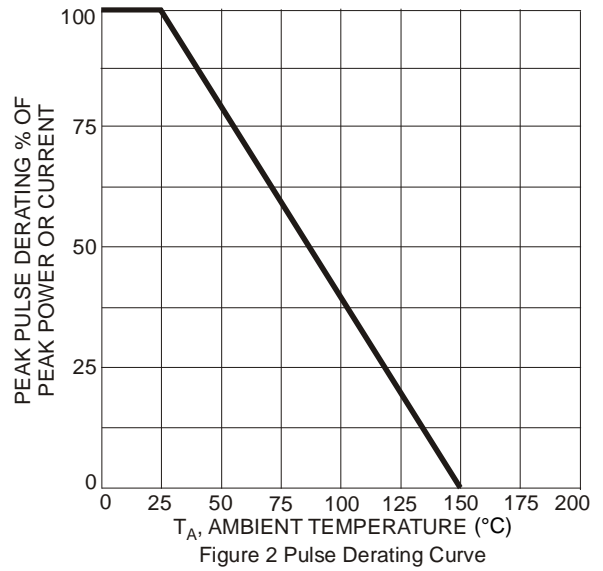
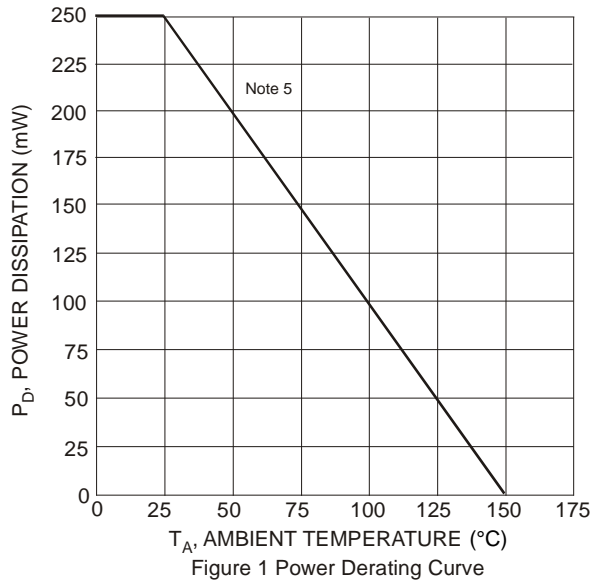
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	250	mW
Thermal Resistance, Junction to Ambient T _A = +25°C (Note 5)	R _{θJA}	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V _{RWM}	—	—	20	V	—
Channel Leakage Current (Note 6)	I _R	—	—	100	nA	V _R = V _{RWM} = 20.0V
Reverse Breakdown Voltage	V _{BR}	21	—	24	V	I _R = 1mA
Clamping Voltage, Positive Transients	V _{CL}	—	—	43	V	I _{PP} = 7A, t _P = 8/20μs
Channel Input Capacitance	C _T	—	—	45	pF	V _R = 0V, f = 1MHz, Any I/O to GND

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 <http://www.diodes.com/package-outlines.html>.

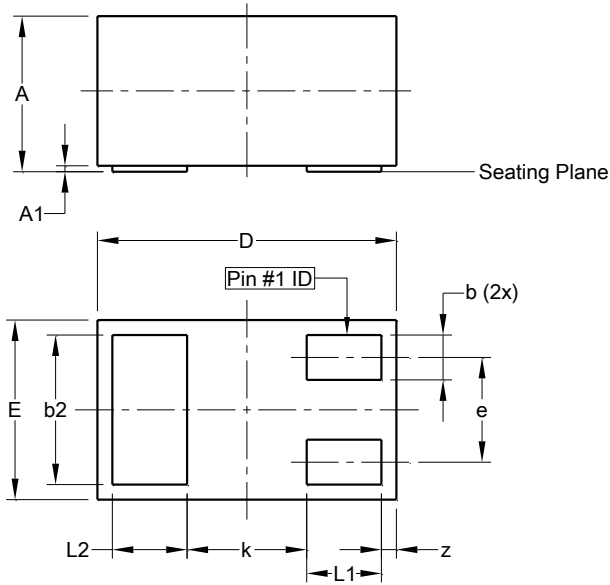
6. Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

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

X2-DFN1006-3

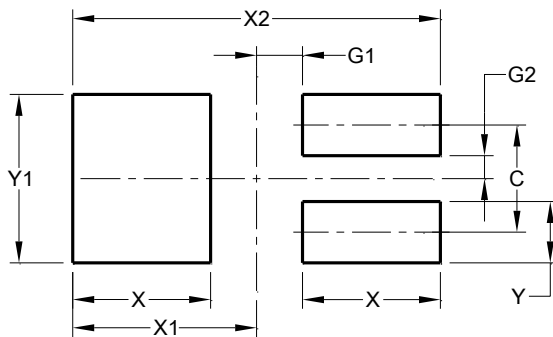


X2-DFN1006-3			
Dim	Min	Max	Typ
A	—	0.40	—
A1	0.00	0.05	0.03
b	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.05	1.00
E	0.55	0.65	0.60
e	-	-	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
k	-	-	0.40
z	0.02	0.08	0.05
All Dimensions in mm			

Suggested Pad Layout

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

X2-DFN1006-3



Dimensions	Value (in mm)
C	0.350
G1	0.150
G2	0.075
X	0.450
X1	0.600
X2	1.200
Y	0.200
Y1	0.550

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