NEW PRODUCT

6 CHANNEL LOW CAPACITANCE TVS DIODE ARRAY

Product Summary

$V_{BR\ (min)}$	$I_{PP\ (max)}$	$C_{T\ (typ)}$
6V	2A	0.5pF

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.

Applications

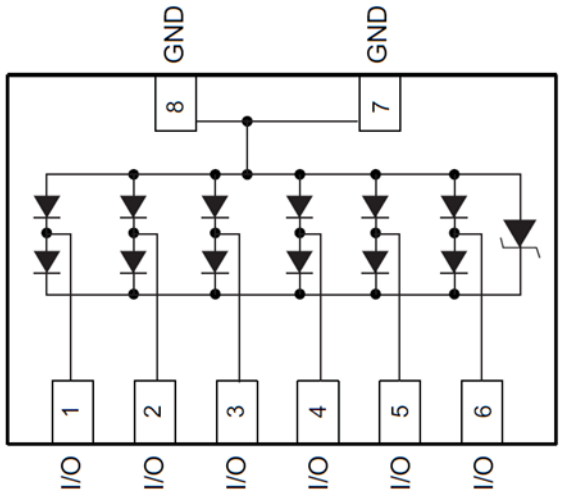
- Cellular Handsets
- Portable Electronics
- Computers and Peripheral

Features

- Ultra Low Profile Package (0.42mm max) and Small PCB Footprint Area (3.38mm x 1.38mm max) Suitable for Compact Portable Electronics
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±15kV, Contact ±12kV
- 6 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)**

Mechanical Data

- Case: X1-DFN3313-8
- 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 e4
- Weight: TBD grams (Approximate)



Pin Description (Top View)

Ordering Information (Note 4)

Product	Compliance	Marking	Reel size(inches)	Tape width(mm)	Quantity per reel
D5V0F6U8LP33-7	Standard	TG7	7	8	3000/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.

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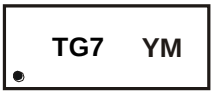
Marking Information



TG7 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: B = 2014)
M = Month (ex: 9 = September)

Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020
Code	B	C	D	E	F	G	H

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I_{PP}	2.0	A	8/20µs (Note 7)
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	±12	kV	Standard IEC 61000-4-2
ESD Protection – Air Discharge	V_{ESD_Air}	±15	kV	Standard IEC 61000-4-2

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	300	mW
Thermal Resistance, Junction to Ambient T_A = +25°C	$R_{\theta JA}$	417	°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}	—	—	5.5	V	–
Channel Leakage Current (Note 6)	I_R	—	—	100	nA	V_R = 5V, Any I/O to GND
Reverse breakdown voltage	V_{BR}	6.0	—	—	V	I_R = 1mA
Forward voltage	V_F	—	0.85	—	V	I_F = 4mA
Clamping Voltage, Positive Transients (Note 7)	V_C	—	9.5	11.5	V	I_{PP} = 1A, t_p = 8/20µs
		—	10.5	12.5		I_{PP} = 2A, t_p = 8/20µs
Channel Input Capacitance (Note 8)	C_T	—	0.5	—	pF	V_R = 0V, f = 1MHz, Any I/O to GND
		—	0.4	0.65		V_R = 2.5V, f = 1MHz, Any I/O to GND
Dynamic Resistance	R_{DYN}	—	0.9	—	Ω	I_{PP} = 1A, t_p = 8/20µs

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.
7. Clamping voltage value is based on an 8x20µs peak pulse current (I_{pp}) waveform.
8. Measured from any I/O to GND.
9. For information on the impact of Diodes' USB 2.0 compatible ESD protectors on signal integrity including eye diagram plots, please refer to AN77 at the following URL: http://www.diodes.com/destools/appnote_dnote.html.

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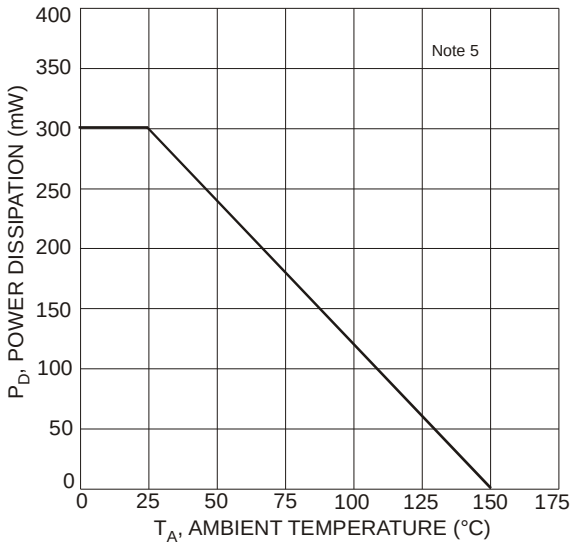

Figure 1 Power Derating Curve

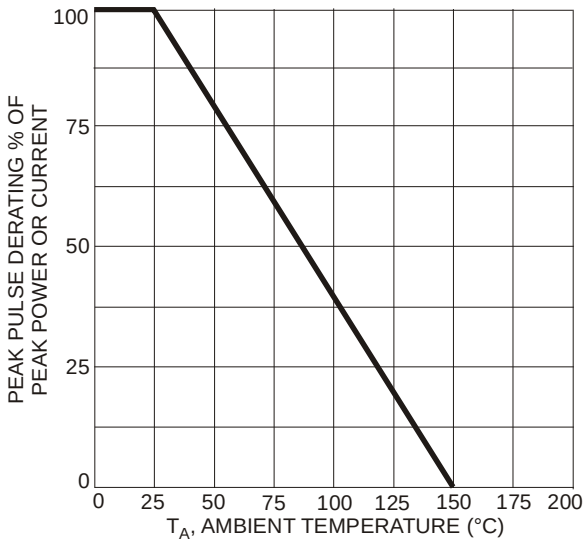

Figure 2 Pulse Derating Curve

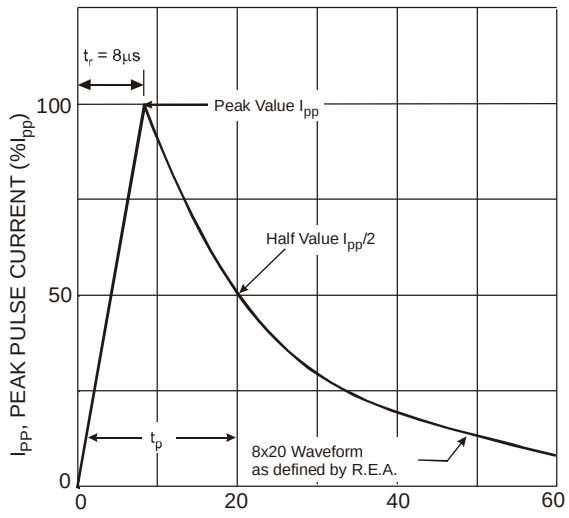

Figure 3 Pulse Waveform

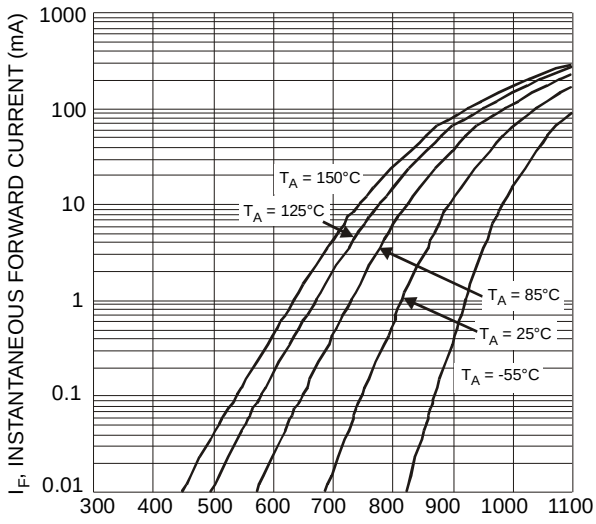

Figure 4 Typical Forward Characteristics

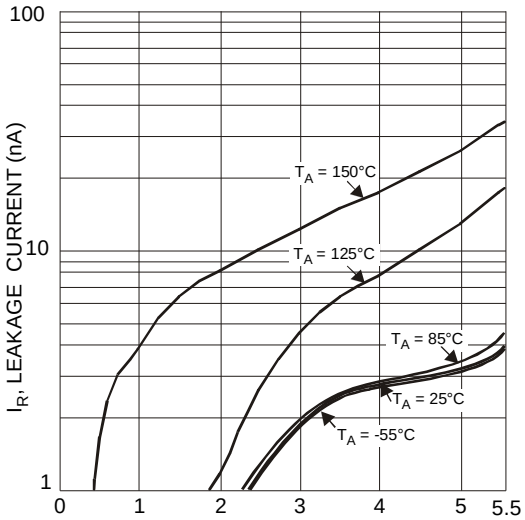

Figure 5 Typical Reverse Characteristics

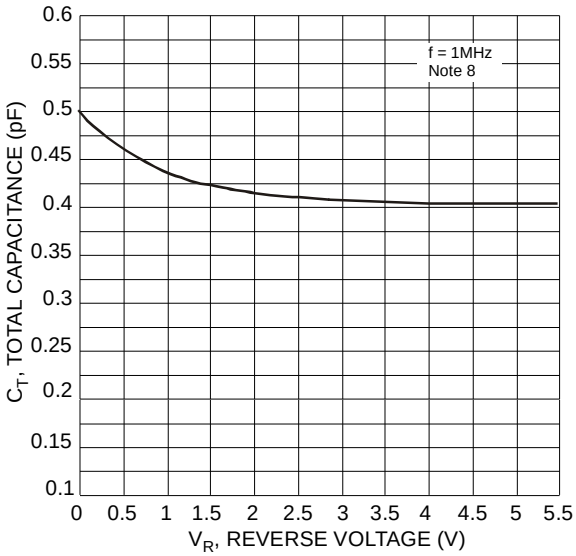

Figure 6 Total Capacitance vs. Reverse Voltage

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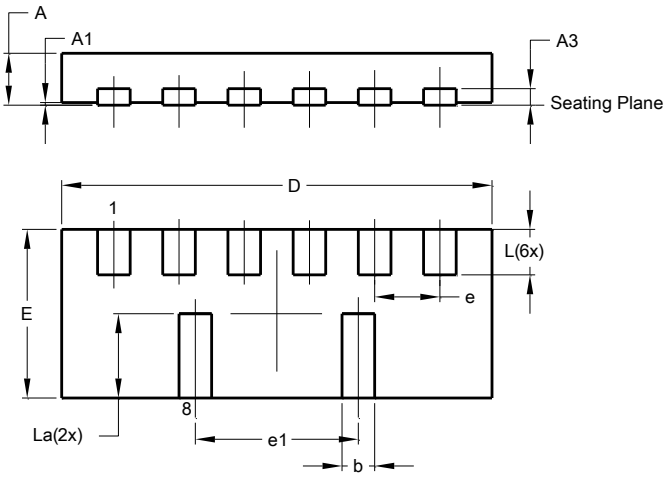
Package Outline Dimensions

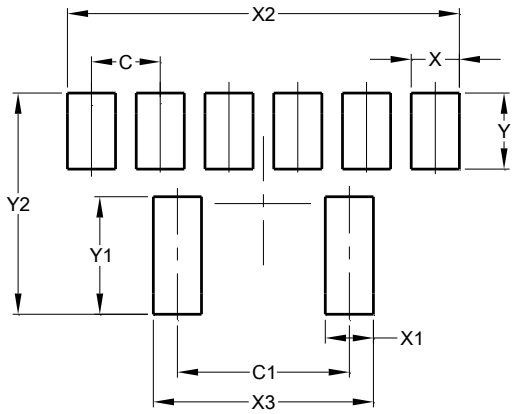
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



X1-DFN3313-8			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.43	0.40
A1	0	0.05	0.02
A2	-	-	0.13
b	0.20	0.30	0.25
D	3.25	3.38	3.30
E	1.25	1.38	1.30
e	0.50 BSC		
e1	1.25 BSC		
L	0.30	0.43	0.38
L1	0.57	0.70	0.65
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)
C	0.500
C1	1.250
X	0.350
X1	0.350
X2	2.850
X3	1.600
Y	0.550
Y1	0.850
Y2	1.600

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