

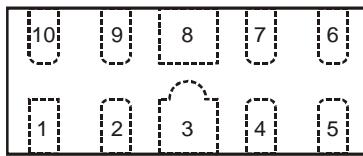
Features

- IEC 61000-4-2 (ESD): Air – $\pm 15\text{kV}$, Contact – $\pm 8\text{kV}$
- 4 Channels of ESD Protection
- Low Channel Input Capacitance of 0.5pF Typical
- Typically Used at High Speed Ports such as USB 2.0, USB 3.0, IEEE1394, Serial ATA, DVI, HDMI, PCI
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

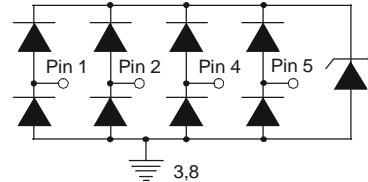
Mechanical Data

- Case: U-DFN2510-10
- 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 (Lead Free Plating). Solderable per MIL-STD-202, Method 208 ⁽⁴⁾
- Weight: 0.039 grams (approximate)

Pin#	Description
1, 2, 4, 5	Input
6, 7, 9, 10	No Connection
3, 8	Ground



Pin Description (Top View)



Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
D5V0F4U10LP-7	Standard	TF2	7	8	3,000/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



TF2 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: A = 2013)
 M = Month (ex: 9 = September)

Date Code Key

Year	2013	2014	2015	2016	2017	2018	2019					
Code	A	B	C	D	E	F	G					
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 (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I_{PP}	3.0	A	8/20 μs , Figure 3
ESD Protection – Contact Discharge	$V_{ESD_Contact}$	± 8	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	380	mW
Thermal Resistance, Junction to Ambient $T_A = +25^\circ\text{C}$	$R_{\theta JA}$	327	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Working Voltage	$V_{RW M}$	—	—	5.5	V	—
Reverse Current (Note 6)	I_R	—	—	200	nA	$V_R = 5.5\text{V}$
Reverse Breakdown Voltage	V_{BR}	6.0	—	—	V	$I_R = 1\text{mA}$
Reverse Clamping Voltage, Positive Transients (Note 7)	V_{CL}	—	10	12	V	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$
Dynamic Resistance	R_{DYN}	—	1.0	—	Ω	$I_R = 1\text{A}, t_p = 8/20\mu\text{s}$
Capacitance (Note 8)	C_T	—	0.4	0.65	pF	$V_R = 2.5\text{V}, f = 1\text{MHz}$
		—	0.5	—	pF	$V_R = 0\text{V}, f = 1\text{MHz}$

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 8x20 μs peak pulse current (I_{PP}) waveform.
8. Measured from any I/O pin 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.

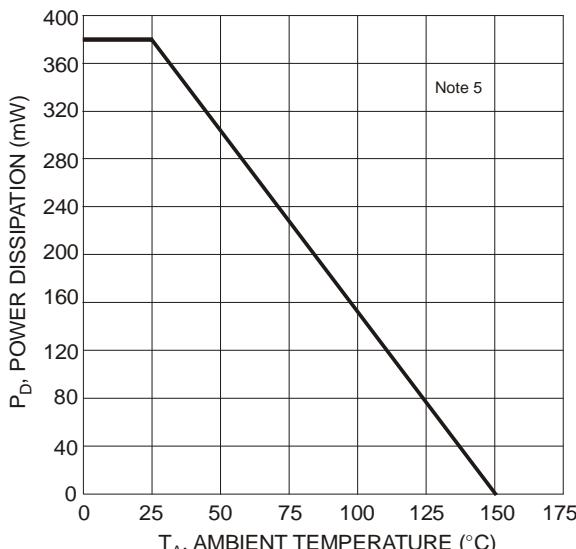


Figure 1 Power Derating Curve

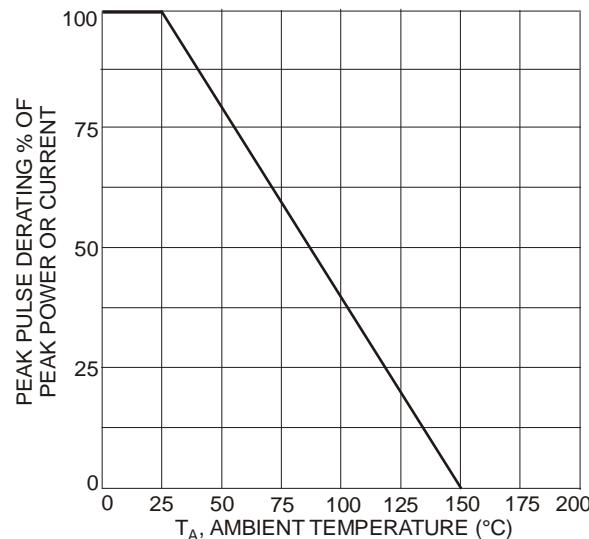
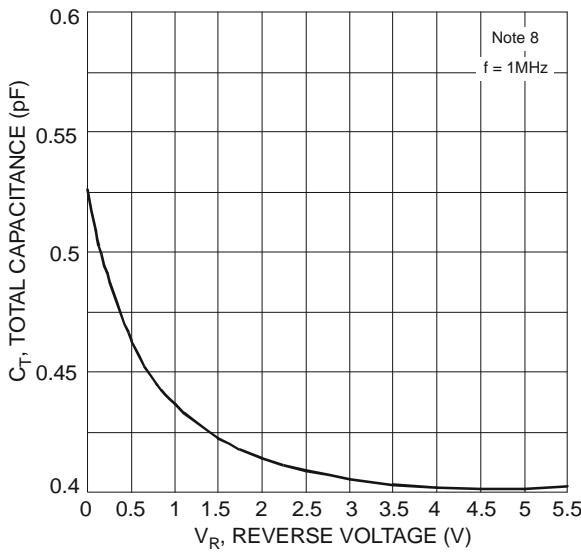
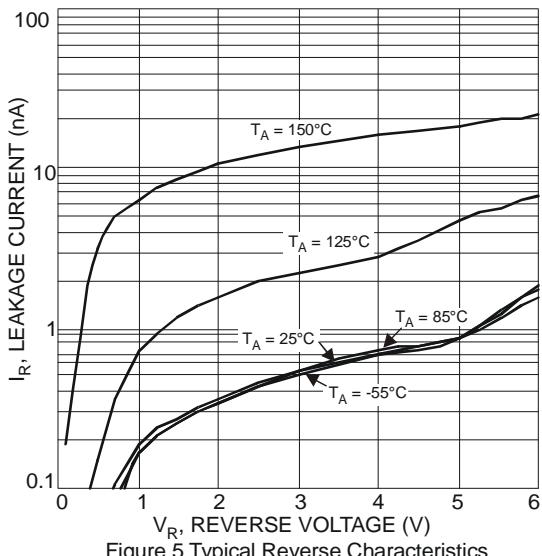
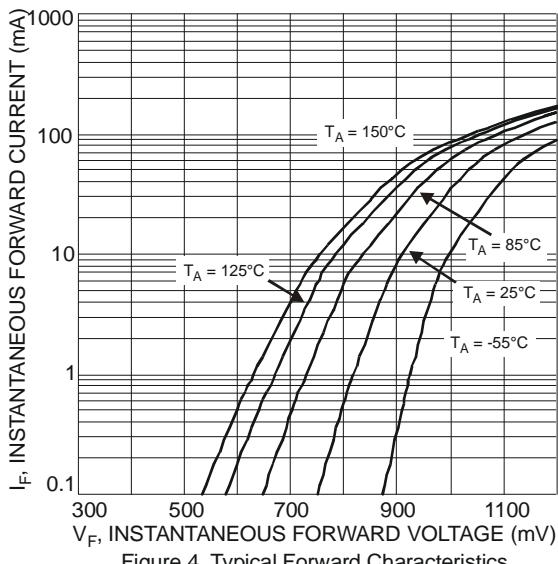
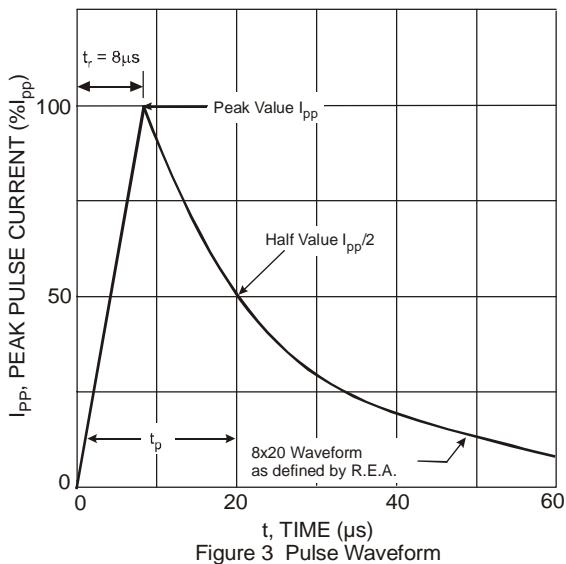
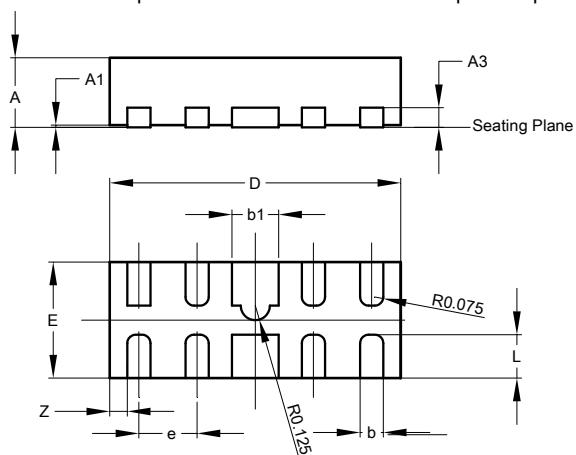


Figure 2 Pulse Derating Curve



Package Outline Dimensions

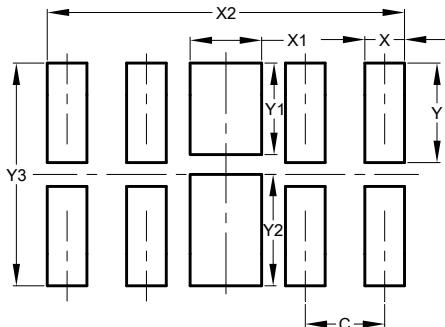
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



U-DFN2510-10			
Dim	Min	Max	Typ
A	0.545	0.605	0.575
A1	0	0.05	0.03
A3	-	-	0.13
b	0.15	0.25	0.20
b1	0.35	0.45	0.40
D	2.450	2.575	2.500
e	-	-	0.50
E	0.950	1.075	1.000
L	0.325	0.425	0.375
Z	-	-	0.150
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
X	0.250
X1	0.450
X2	2.250
Y	0.625
Y1	0.575
Y2	0.700
Y3	1.400

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