

**6 CHANNEL LOW CAPACITANCE TVS DIODE ARRAY**
**NEW PRODUCT**
**Features**

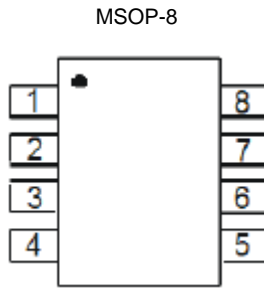
- IEC 61000-4-2 (ESD): Contact – ±8kV
- IEC 61000-4-5 (Lightning): 4A (8/20µs)
- 6 Channels of ESD Protection
- Low Channel Input Capacitance of 0.32pF max
- Typically Used at USB 3.0 and High Speed Ports in Any Electronic Product
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Mechanical Data**

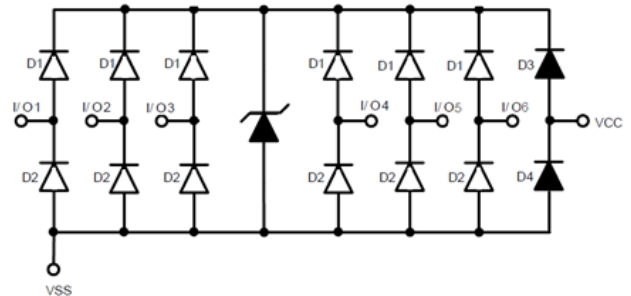
- Case: MSOP-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Terminals: NiPdAu over Copper Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 **Ⓔ4**
- Weight: 0.027 grams (Approximate)

Pin#	Description
1	I/O1
2	I/O2
3	I/O3
4	I/O4
5	I/O5
6	I/O6
7	Vss
8	Vcc

Pin Description



Top View

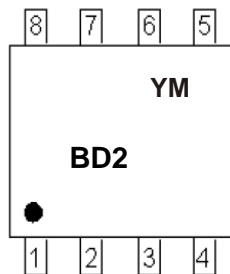


Device Schematic

**Ordering Information (Note 4)**

Product	Compliance	Marking	Reel size(inches)	Tape width(mm)	Quantity per reel
DT6250-06MR-13	Standard	BD2	13	12	2,500/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](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**


BD2 = 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
Code	A	B	C	D	E	F

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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current, per IEC 61000-4-5	I <sub>PP</sub>	4	A	I/O to V <sub>SS</sub> , 8/20μs
ESD Protection – Contact Discharge	V <sub>ESD_I/O</sub>	±8	kV	IO to V <sub>SS</sub> , per IEC 61000-4-2
Operating Temperature	T <sub>OP</sub>	-40 to +85	°C	—
Storage Temperature	T <sub>STG</sub>	-55 to +150	°C	—

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	500	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	250	°C/W

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Working Voltage	V <sub>RWM</sub>	—	—	5.0	V	V <sub>CC</sub> to V <sub>SS</sub>
Reverse Leakage Current (Note 6)	I <sub>R_VCC</sub>	—	—	2.5	μA	V <sub>CC</sub> = 5V, V <sub>CC</sub> to V <sub>SS</sub>
Channel Leakage Current (Note 6)	I <sub>R_IO</sub>	—	—	1.0	μA	V <sub>CC</sub> = 5V, any I/O to V <sub>SS</sub>
Reverse Breakdown Voltage	V <sub>BR</sub>	6	—	—	V	I <sub>BV</sub> = 1mA, V <sub>CC</sub> to V <sub>SS</sub>
Forward Voltage	V <sub>F</sub>	—	0.8	1.2	V	I <sub>F</sub> = 15mA, V <sub>SS</sub> to V <sub>CC</sub>
ESD Clamping Voltage	V <sub>ESD_I/O</sub>	—	10	—	V	TLP, 10A, tp = 100ns, I/O to V <sub>SS</sub>
	V <sub>ESD_VCC</sub>	—	9	—	V	TLP, 10A, tp = 100ns, V <sub>CC</sub> to V <sub>SS</sub>
Differential Resistance	R <sub>DIF_I/O</sub>	—	0.35	—	Ω	TLP, 10A, tp = 100ns, I/O to V <sub>SS</sub>
	R <sub>DIF_VCC</sub>	—	0.25	—	Ω	TLP, 10A, tp = 100ns, V <sub>CC</sub> to V <sub>SS</sub>
Channel Input Capacitance	C <sub>I/O</sub>	—	0.32	—	pF	V <sub>I/O</sub> = 2.5V, V <sub>CC</sub> = 5V, f = 1MHz
Delta C <sub>I/O</sub>	C <sub>I/OMAX</sub> -C <sub>I/OMIN</sub>	—	0.05	—	pF	C <sub>I/OMAX</sub> -C <sub>I/OMIN</sub>

- 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.

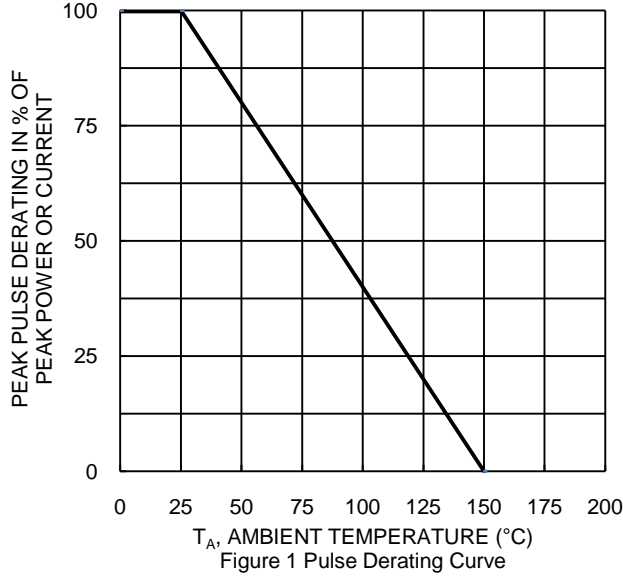


Figure 1 Pulse Derating Curve

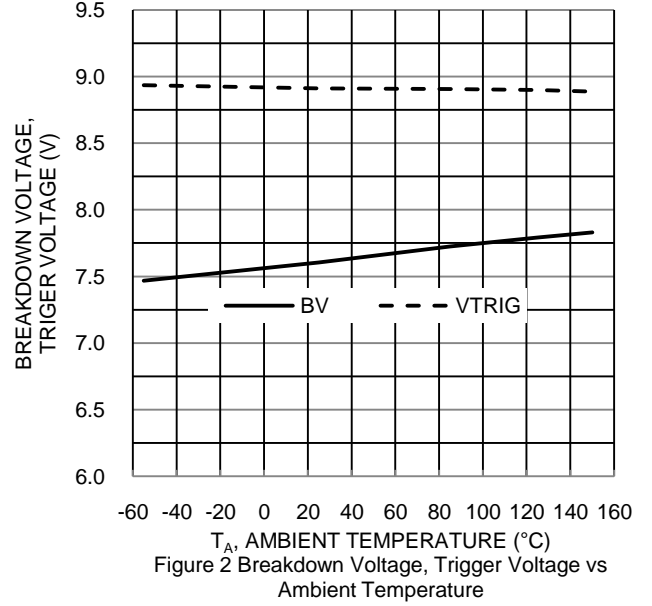


Figure 2 Breakdown Voltage, Trigger Voltage vs Ambient Temperature

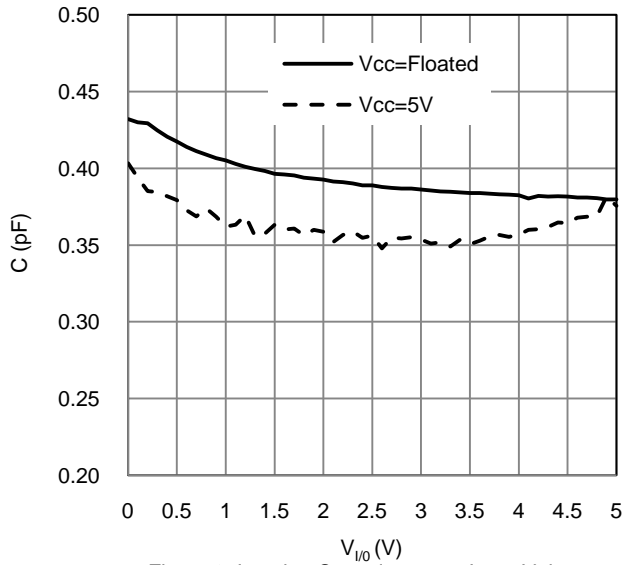


Figure 3 Junction Capacitance vs Input Voltage

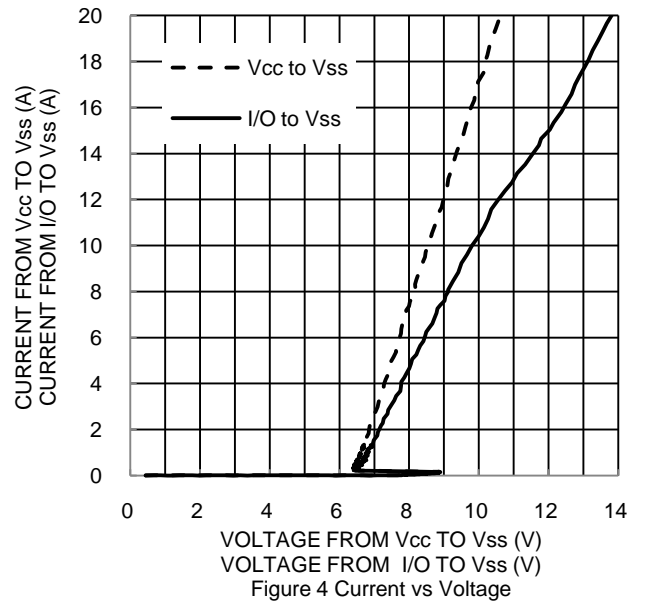


Figure 4 Current vs Voltage

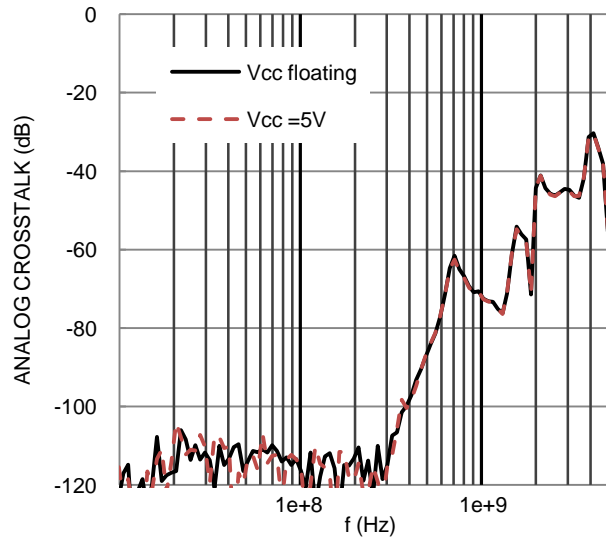


Figure 5 Analog Crosstalk Measurement

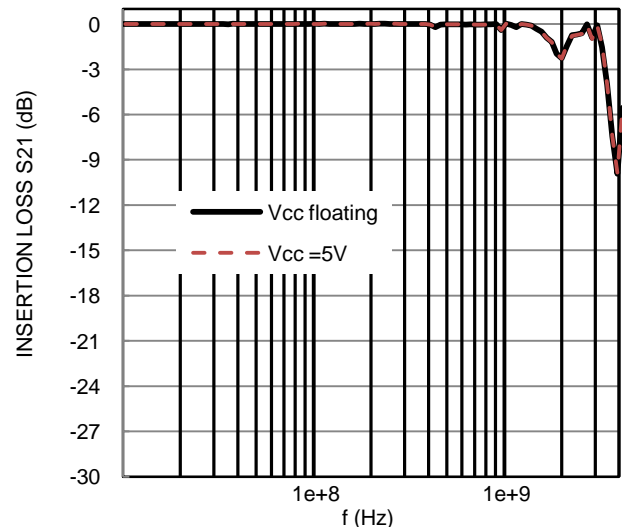
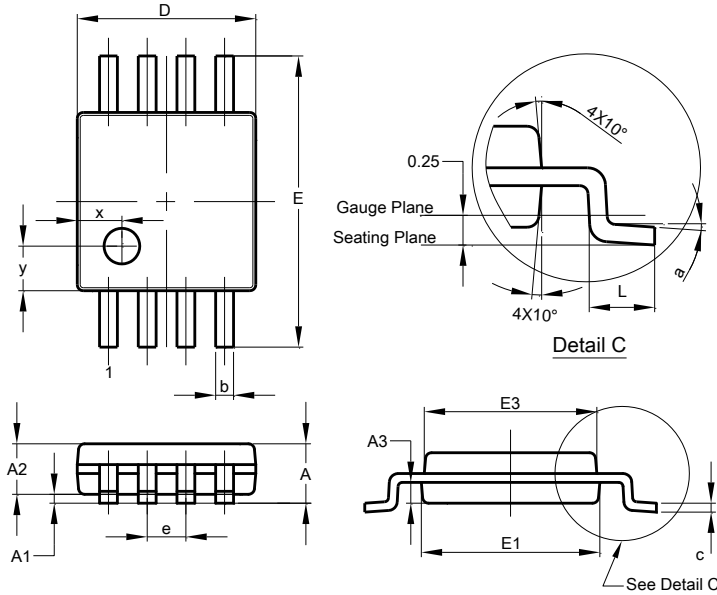


Figure 6 S21(dB) Attenuation Measurement

**Package Outline Dimensions**

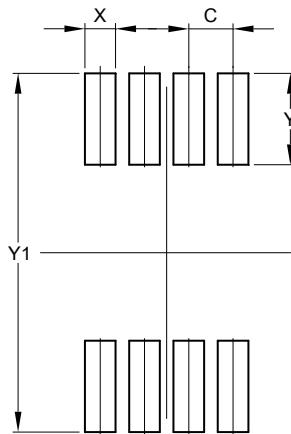
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



MSOP-8			
Dim	Min	Max	Typ
A	-	1.10	-
A1	0.05	0.15	0.10
A2	0.75	0.95	0.86
A3	0.29	0.49	0.39
b	0.22	0.38	0.30
c	0.08	0.23	0.15
D	2.90	3.10	3.00
E	4.70	5.10	4.90
E1	2.90	3.10	3.00
E3	2.85	3.05	2.95
e	-	-	0.65
L	0.40	0.80	0.60
a	0°	8°	4°
x	-	-	0.750
y	-	-	0.750
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
C	0.650
X	0.450
Y	1.350
Y1	5.300

NEW PRODUCT

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