



DT1452-02SO

2 CHANNEL LOW CAPACITANCE TVS DIODE ARRAY

Features

- IEC 61000-4-2 (ESD): Air ±16kV, Contact ±16kV
- IEC 61000-4-4 (EFT) Additional Level, 55A (5/50ns)
- IEC 61000-4-5 (Lightning): 5A (8/20µs)
- 2 Channels of ESD protection
- Low Channel Input Capacitance of 1.2pF Typical
- Typically Used at High Speed Ports such as USB 2.0, IEEE1394, Serial ATA, DVI, HDMI, PCI
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

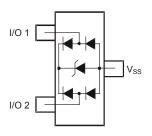
SOT23



Top View

Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 lead frame (Lead Free Plating). Solderable per MIL-STD-202, Method 208 (3)
- Weight: 0.009 grams (approximate)



Device Schematic

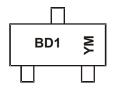
Ordering Information (Note 4)

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Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DT1452-02SO-7	Standard	BD1	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



BD1 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: A = 2013) M = Month (ex: 5 = May)

Date Code Key

Year	20	13	20	14	20	15	20	16	20	17	20	18
Code	P	4	Е	3	()	[)	Е		F	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Current	I _{PP_I/O}	5	Α	I/O to V _{SS} , 8/20μs
ESD Protection – Contact Discharge	V _{ESD_I/O_Contact}	±16	kV	I/O to V _{SS} , per IEC 61000-4-2
ESD Protection – Air Discharge	V _{ESD_I/O_Air}	±16	kV	I/O to V _{SS} , per IEC 61000-4-2

Thermal Characteristics

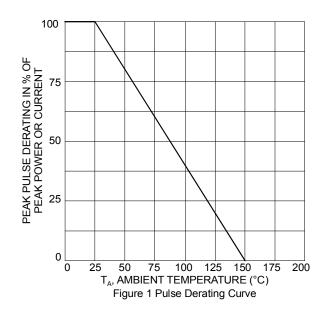
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_{D}	300	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{ heta JA}$	417	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
Reverse Working Voltage	V_{RWM}	_	_	5.5	V	_
Reverse Leakage Current (Note 6)	I _R	_	_	1.0	μA	V _R =5V, I/O to V _{SS}
Reverse Breakdown Voltage	V_{BR}	7	_	10	V	I _R = 1mA, I/O to V _{SS}
Forward Voltage	V _F	_	0.85	1.1	V	I _F = 15mA, V _{SS} to I/O
Reverse Clamping Voltage (Note 7)	V _C	_	8.5	_	V	I _{PP} = 5A, I/O to V _{SS} , 8/20μs
ESD Clamping Voltage	V _{ESD}	_	11	_	V	TLP, 20A, tp = 100 ns, I/O to V _{SS} , per Figure7
Dynamic Resistance	R _{DIF}	_	0.22	_	Ω	TLP, 20A, tp = 100 ns, I/O to V _{SS} , per Figure7
Channel Input Capacitance	C _{I/O}	_	1.2	1.7	pF	V _R = 2.5V, f = 1MHz
Variation of Channel Input Capacitance	ΔC _{I/O}		0.03		pF	V_{SS} = 0V, I/O = 2.5V, f =1MHz, T=+25°C , I/O_x to V_{SS} – I/O_y to V_{SS}

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 (Ipp) waveform.



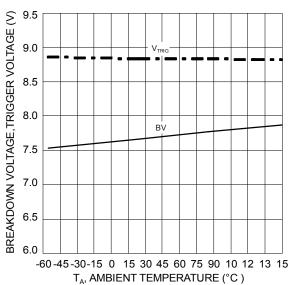
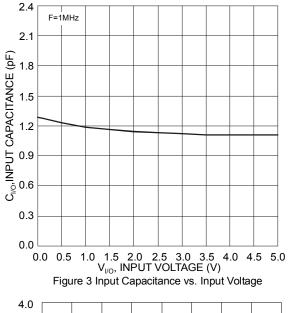
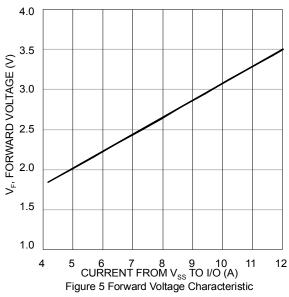
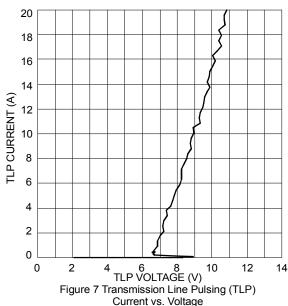


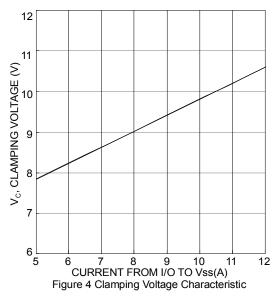
Figure 2 BV, Trigger Voltage vs. Ambient Temperature











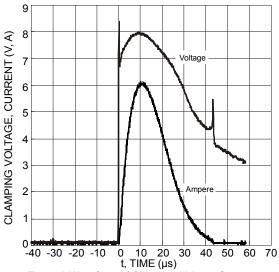
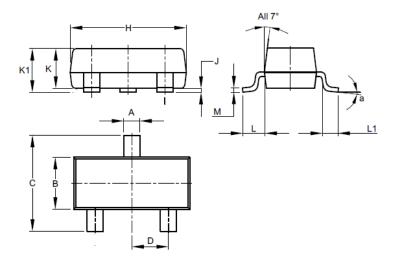


Figure 6 Waveform of Clamping Voltage, Current vs. Time (8/20 μ s, I/O to V $_{\rm SS}$)



Package Outline Dimensions

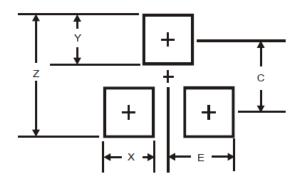
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOT23						
Dim	Min	Max	Тур			
Α	0.37	0.51	0.40			
В	1.20	1.40	1.30			
С	2.30	2.50	2.40			
D	0.89	1.03	0.915			
F	0.45	0.60	0.535			
G	1.78	2.05	1.83			
Н	2.80	3.00	2.90			
J	0.013	0.10	0.05			
K	0.890	1.00	0.975			
K1	0.903	1.10	1.025			
L	0.45	0.61	0.55			
L1	0.25	0.55	0.40			
M	0.085	0.150	0.110			
α	8°					
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)
Z	2.9
Х	0.8
Υ	0.9
С	2.0
Е	1.35



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