SURFACE MOUNT DATALINE PROTECTION DEVICE

Features

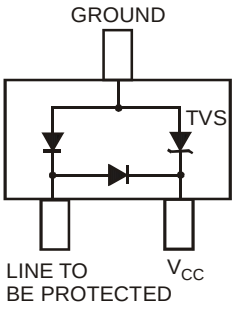
- 300 Watts Peak Pulse Power (tp = 8×20µs)
- Transient Protection for Data Line to IEC61000-4-2 Level 4 (ESD), 8kV HBM
  - Contact: Discharge ±30kV
  - Air: Discharge ±30kV
- IEC 61000-4-4 (EFT)
- Low Leakage Current
- Surface Mount Package Ideally Suited for Automated Insertion
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe) (e3)
- Terminal Connections: See Diagram
- Weight: 0.006 grams (Approximate)

SOT323

Top View



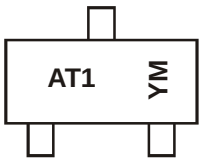
Device Schematic

Ordering Information (Note 4)

Part Number	Case	Packaging
DLPT05W-7	SOT323	3000/Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. 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.
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.

Marking Information



AT1 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: Z = 2012)
M = Month (ex: 9 = September)

Date Code Key

Year	2011	…	2019	2020	2021	2022	2023
Code	Y	…	G	H	I	J	K

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
Peak Pulse Power (tp = 8×20µs, per Figure 2)	P_{PK}	300	W
Peak Forward Voltage (I_{PP} = 1A, tp = 8×20µs, per Figure 2)	V_{FP}	2.1	V
Diode Peak Repetitive Reverse Voltage	V_{RRM}	75	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\Theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Reverse Standoff Voltage	Breakdown Voltage V_{BR} @ I_T		Test Current	Max. Reverse Leakage @ V_{RWM} (Note 6)	Max. Clamping Voltage @ I_{pp} = 1A (Notes 7 & 8)	Typical Peak Pulse Current (Notes 7 & 8)	Typical Total Capacitance (Note 9)
V_{RWM} (V)	Min (V)	Max (V)	I_T (mA)	I_R (µA)	V_C (V)	Ipp(A)	(pF)
5	6.0	—	1.0	20	9.8	17	1.9

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 8×20µs peak pulse current (I_{pp}) waveform.
8. Measured from line to be protected to ground pin.
9. V_R = 0V, f = 1MHz from line to be protected to ground pin.

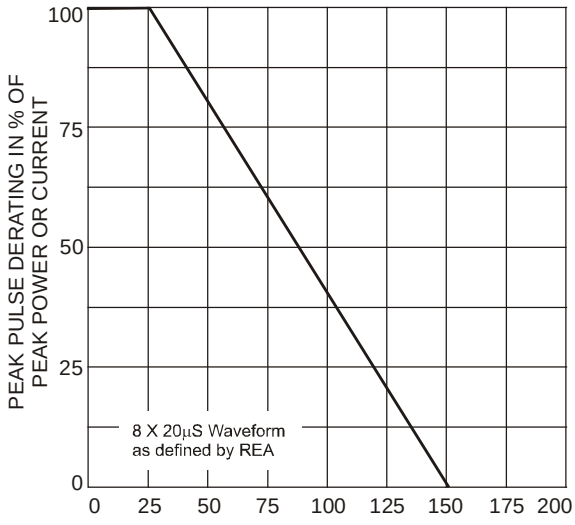


Figure 1. Pulse Derating Curve

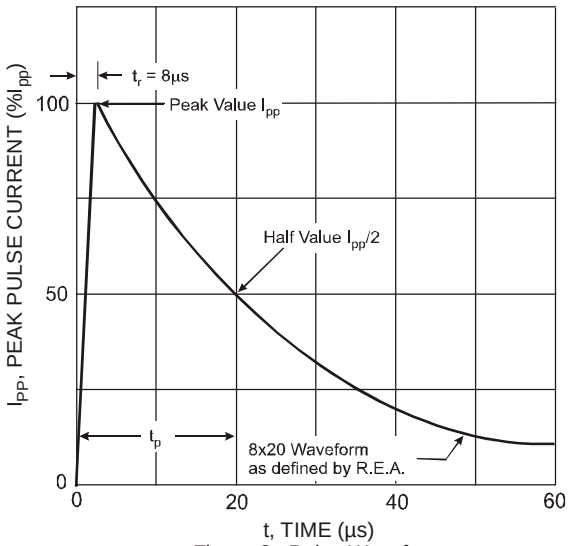


Figure 2. Pulse Waveform

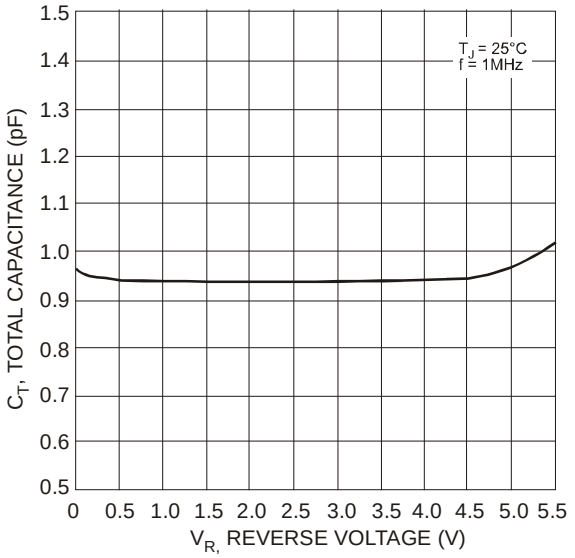


Figure 3. Typical Total Capacitance vs. Reverse Voltage

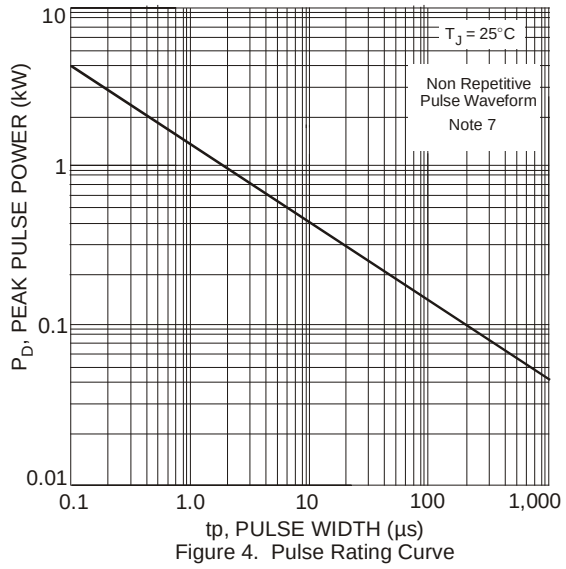


Figure 4. Pulse Rating Curve

Typical Application Schematics

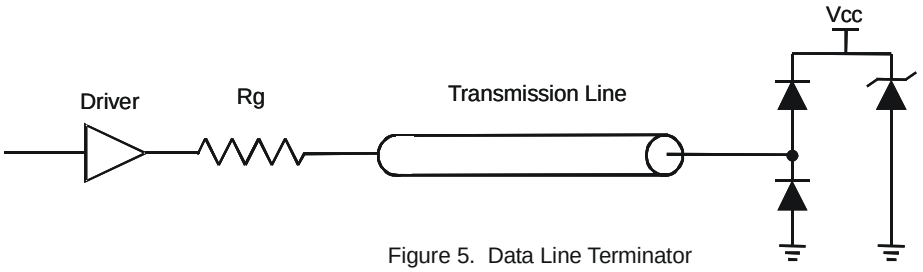


Figure 5. Data Line Terminator

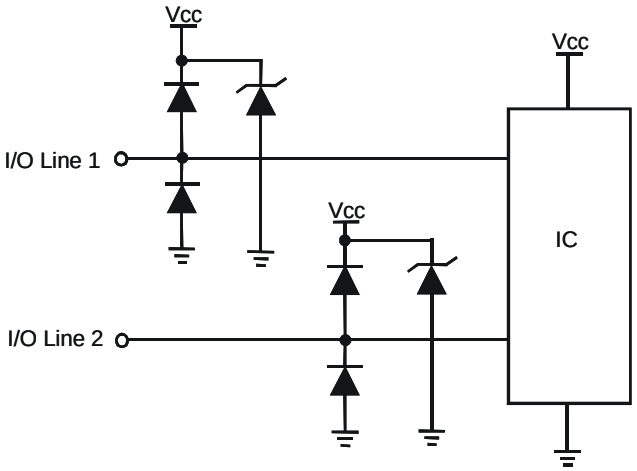
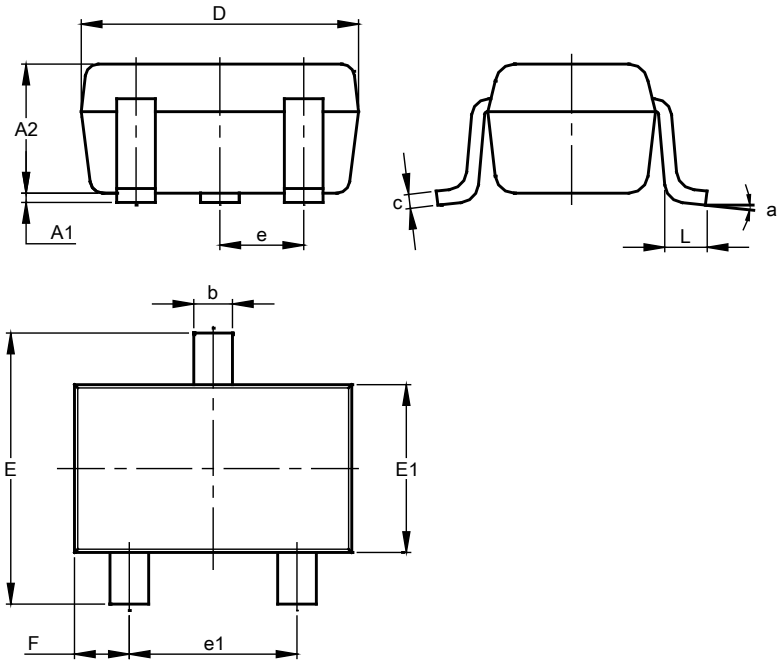


Figure 6. Data Line Protection

Package Outline Dimensions

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

SOT323

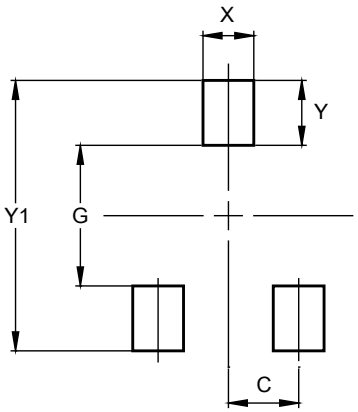


SOT323			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT323



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.470
Y	0.600
Y1	2.500

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