


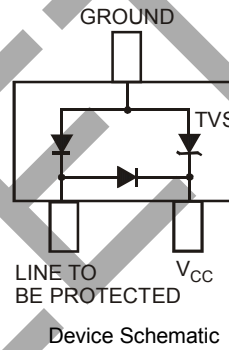
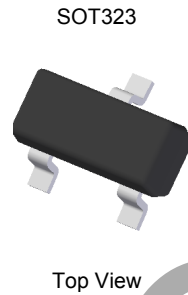
**SURFACE MOUNT DATALINE PROTECTION DEVICE**

**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) 
- Terminal Connections: See Diagram
- Weight: 0.006 grams (Approximate)

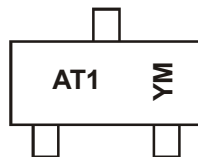


**Ordering Information (Note 4)**

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** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power ( $t_p = 8 \times 20\mu\text{s}$ , per Figure 2)	$P_{PK}$	300	W
Peak Forward Voltage ( $I_{PP} = 1\text{A}$ , $t_p = 8 \times 20\mu\text{s}$ , 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	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Reverse Standoff Voltage	Breakdown Voltage $V_{BR}$ @ $I_T$		Test Current	Max. Reverse Leakage @ $V_{RWM}$ (Note 6)	Max. Clamping Voltage @ $I_{PP} = 1\text{A}$ (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)	$I_R$ ( $\mu\text{A}$ )	$V_C$ (V)	$I_{pp}$ (A)
5	6.0	—	1.0	20	9.8	17	1.9

- Notes:
- 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>.
  - Short duration pulse test used to minimize self-heating effect.
  - Clamping voltage value is based on an  $8 \times 20\mu\text{s}$  peak pulse current ( $I_{pp}$ ) waveform.
  - Measured from line to be protected to ground pin.
  - $V_R = 0\text{V}$ ,  $f = 1\text{MHz}$  from line to be protected to ground pin.

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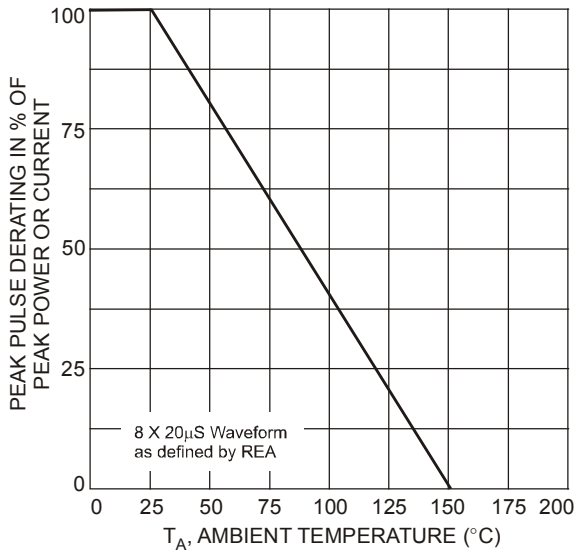


Figure 1. Pulse Derating Curve

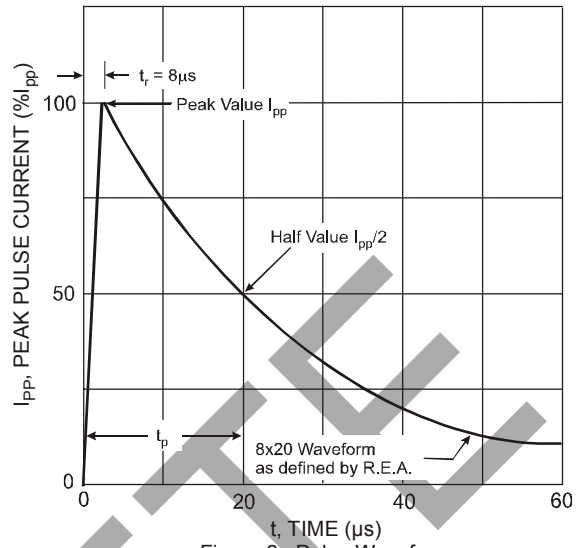


Figure 2. Pulse Waveform

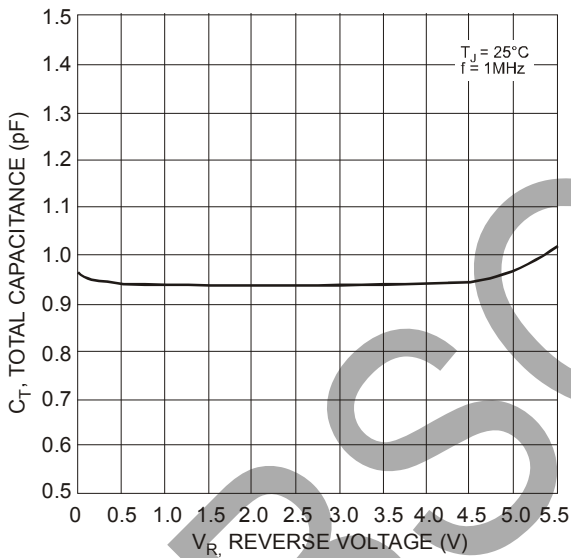


Figure 3. Typical Total Capacitance vs. Reverse Voltage

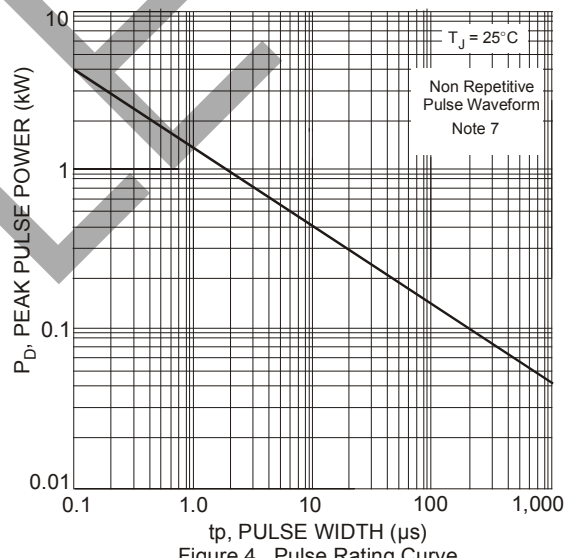


Figure 4. Pulse Rating Curve

**Typical Application Schematics**

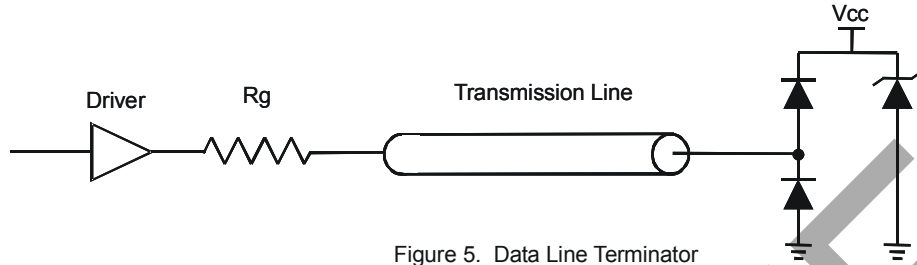


Figure 5. Data Line Terminator

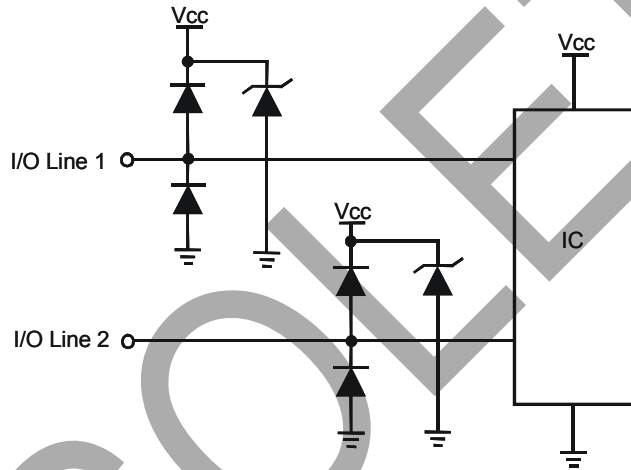


Figure 6. Data Line Protection

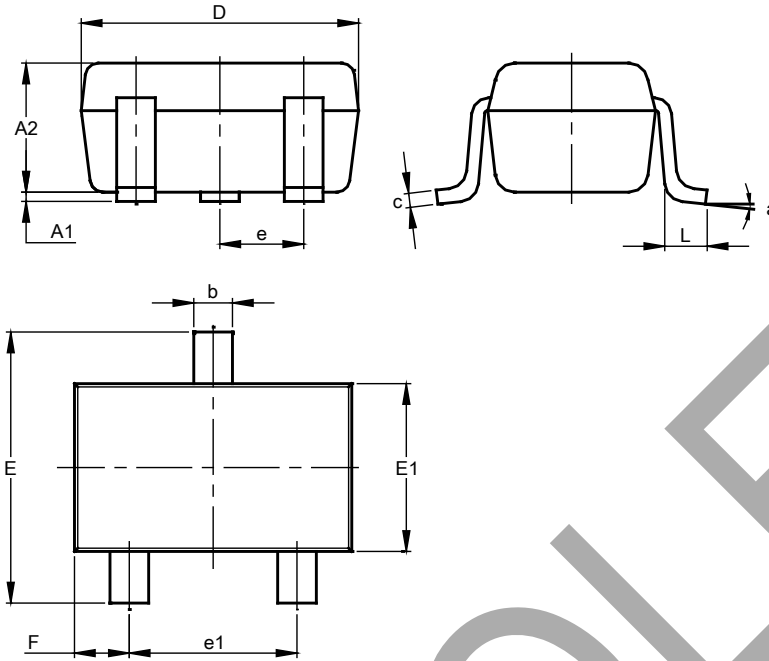
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**Package Outline Dimensions**

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

SOT323



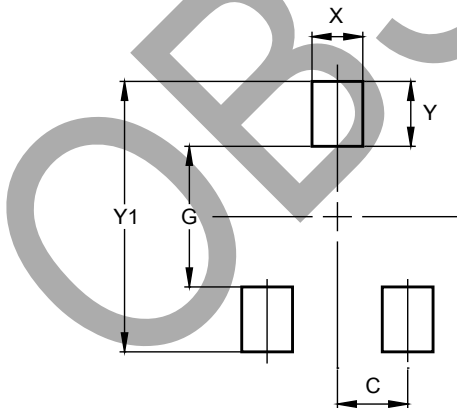
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Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.25	0.40	0.30
c	0.10	0.18	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
e1	1.20	1.40	1.30
F	0.375	0.475	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

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**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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