



**THE DATASHEET OF  
DESD34VS2SO-7**



## Product Summary

$V_{BR}$ (min)	$I_{PP}$ (max)	$I_R$ (max)
36V	7A	5 $\mu$ A

## Description

This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal to protect LIN and CAN Transceiver from ESD, EMI and other Harmful Transient Voltage Events.

## Applications

- Industrial Control Network
- Automotive Networks

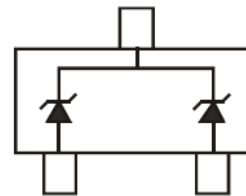
## Features

- 350 W Peak Power Dissipation per Line (8/20 $\mu$ s Waveform)
- Provides ESD Protection per IEC 61000-4-2 Standard: Air  $\pm$ 30kV, Contact  $\pm$ 30kV
- 2 Channels of ESD Protection
- High Surge Capability
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- Qualified to AEC-Q101 Standards for High Reliability**
- PPAP Capable (Note 4)**

## 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 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208<sup>(e3)</sup>
- Weight: 0.009 grams (Approximate)

SOT23



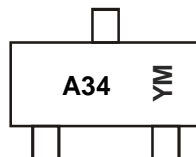
Device Schematic

## Ordering Information (Note 5)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DESD34VS2SO-7	AEC-Q101	A34	7	8	3,000/Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  - 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.
  - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  - Automotive products are AEC-Q10x qualified and are PPAP capable. Automotive, AEC-Q10x and standard products are electrically and thermally the same, except where specified. For more information, please refer to [http://www.diodes.com/quality/product\\_compliance\\_definitions/](http://www.diodes.com/quality/product_compliance_definitions/).
  - For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



A34 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: B = 2014)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020					
Code	B	C	D	E	F	G	H					
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 Power Dissipation	$P_{PP}$	350	W	8/20 $\mu\text{s}$ , per Figure 1
Peak Pulse Current	$I_{PP}$	7	A	8/20 $\mu\text{s}$ , per Figure 1
ESD Protection – Contact Discharge	$V_{ESD\_Contact}$	$\pm 30$	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	$V_{ESD\_Air}$	$\pm 30$	kV	IEC 61000-4-2 Standard

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	$P_D$	300	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	$V_{RWM}$	—	—	34	V	—
Channel Leakage Current (Note 7)	$I_{RM}$	—	—	5	$\mu\text{A}$	$V_{RWM} = 34\text{V}$
Clamping Voltage, Positive Transients	$V_{CL}$	—	—	43	V	$I_{PP} = 1\text{A}$ , $t_p = 8/20\mu\text{s}$ , Figure 1
		—	—	57		$I_{PP} = 7\text{A}$ , $t_p = 8/20\mu\text{s}$ , Figure 1
Breakdown Voltage	$V_{BR}$	36	—	—	V	$I_R = 1\text{mA}$
Channel Input Capacitance	$C_T$	—	100	—	pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

- Notes:
6. 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>.
  7. Short duration pulse test used to minimize self-heating effect.

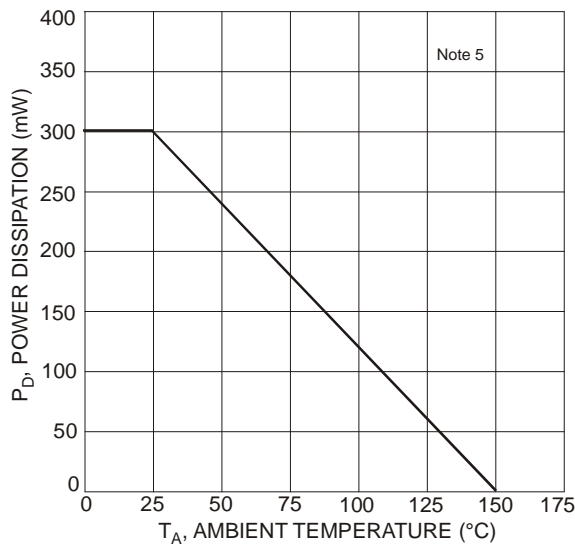


Figure 1 Power Derating Curve

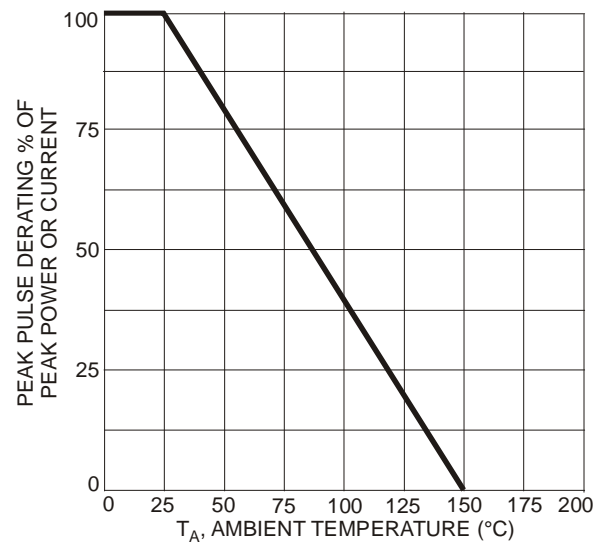


Figure 2 Pulse Derating Curve

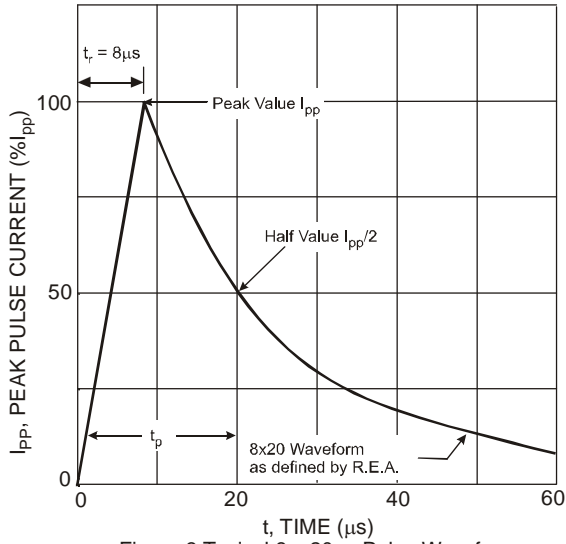


Figure 3 Typical 8 x 20µs Pulse Waveform

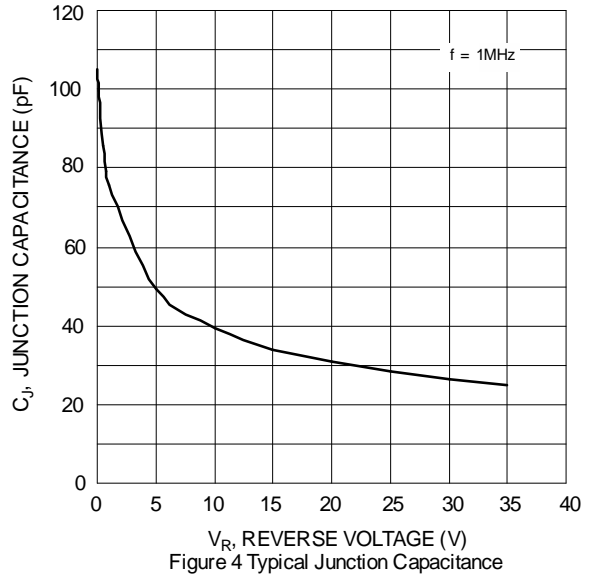


Figure 4 Typical Junction Capacitance

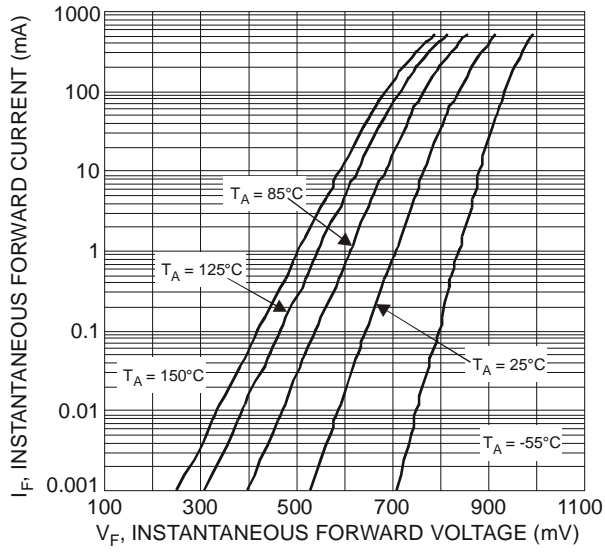


Figure 5 Typical Forward Characteristics

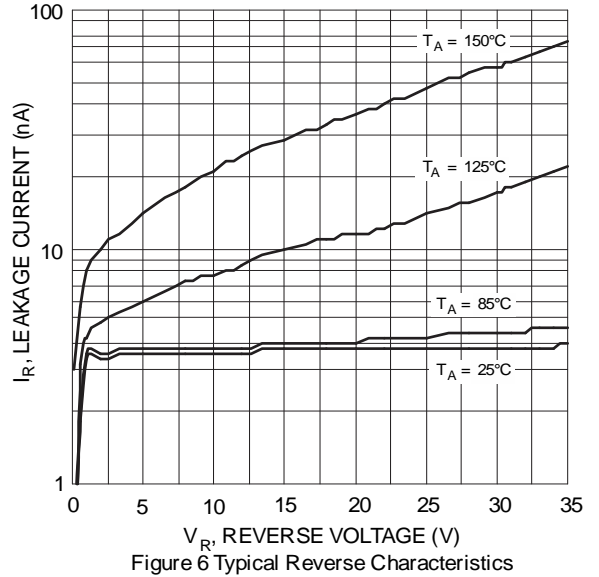
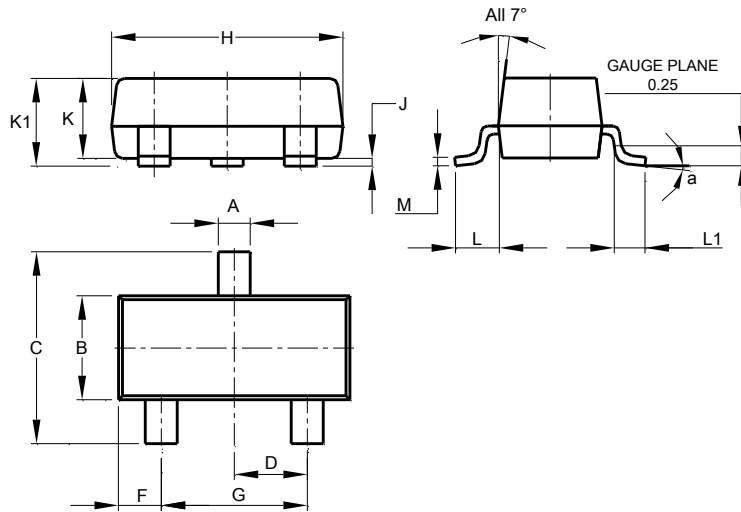


Figure 6 Typical Reverse Characteristics

**Package Outline Dimensions**

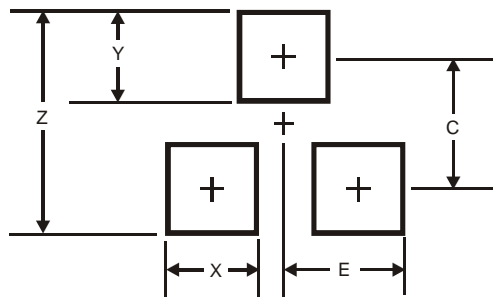
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	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
H	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
a	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
X	0.8
Y	0.9
C	2.0
E	1.35

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