

## Product Summary

<b>V<sub>BR</sub> (Min)</b>	<b>I<sub>PP</sub> (Max)</b>	<b>I<sub>R</sub> (Max)</b>
36V	7A	5μA

## 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 networks
- Automotives

## Features

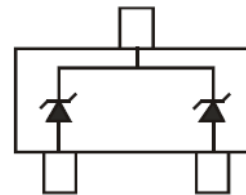
- 350W Peak Power Dissipation per Line (8/20μs Waveform)
- Provides ESD Protection per IEC 61000-4-2 Standard: Air ±30kV, Contact ±30kV
- 2 Channels of ESD Protection
- High Surge Capability
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- Halogen and Antimony Free. "Green" Device (Note 3)**
- The DESD34VS2SOQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

## Mechanical Data

- Package: SOT23
- Package 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 208③
- Weight: 0.009 grams (Approximate)

SOT23



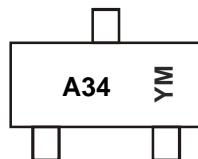
Device Schematic

## Ordering Information (Note 4)

Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
DESD34VS2SOQ-7	SOT23	A34	7	8	3,000	Tape & Reel

- Notes:
- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  - 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.
  - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  - For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



A34 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: L = 2024)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Code	L	M	N	P	R	S	T	U	V	W	X	Y

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 Power Dissipation	PPP	350	W	8/20μs, per Figure 1
Peak Pulse Current	I <sub>PP</sub>	7	A	8/20μs, per Figure 1
ESD Protection – Contact Discharge	V <sub>ESD_CONTACT</sub>	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V <sub>ESD_AIR</sub>	±30	kV	IEC 61000-4-2 Standard

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P <sub>D</sub>	300	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	417	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V <sub>RWM</sub>	—	—	34	V	—
Channel Leakage Current (Note 6)	I <sub>R</sub>	—	—	5	μA	V <sub>RWM</sub> = 34V
Clamping Voltage, Positive Transients	V <sub>CL</sub>	—	—	43	V	I <sub>PP</sub> = 1A, t <sub>P</sub> = 8/20μs, Figure 1
		—	—	57		I <sub>PP</sub> = 7A, t <sub>P</sub> = 8/20μs, Figure 1
Breakdown Voltage	V <sub>BR</sub>	36	—	42	V	I <sub>R</sub> = 1mA
Channel Input Capacitance	C <sub>T</sub>	—	100	—	pF	V <sub>R</sub> = 0V, f = 1MHz

- Notes:
5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes Incorporated's suggested pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
  6. Short duration pulse test used to minimize self-heating effect.

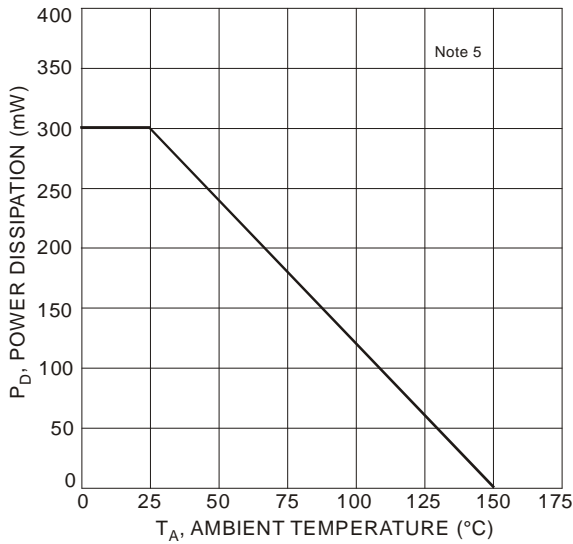


Figure 1 Power Derating Curve

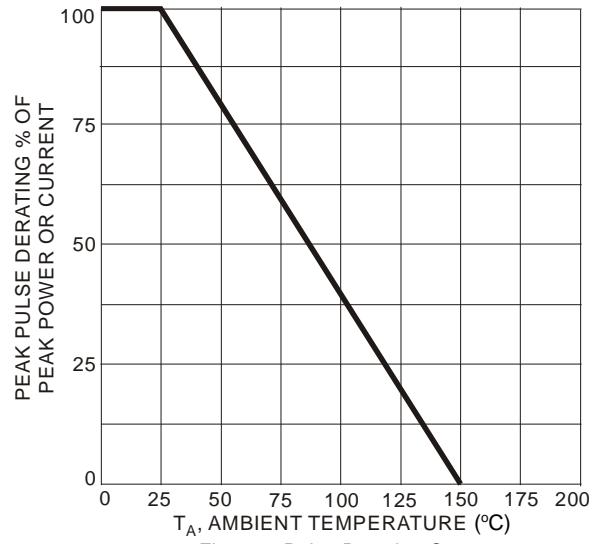


Figure 2 Pulse Derating Curve

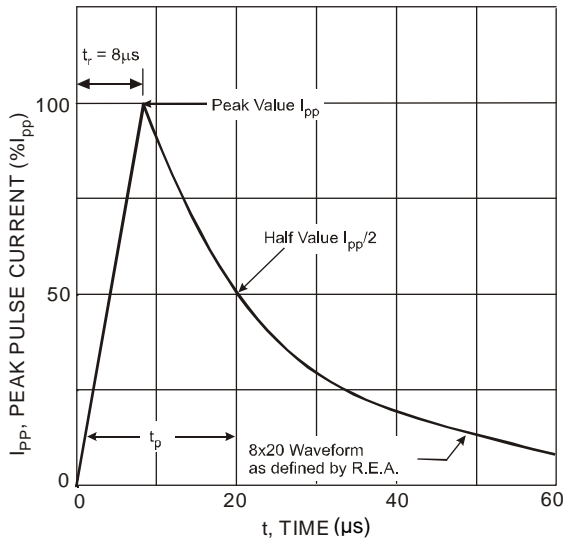


Figure 3 Typical 8 x 20µs Pulse Waveform

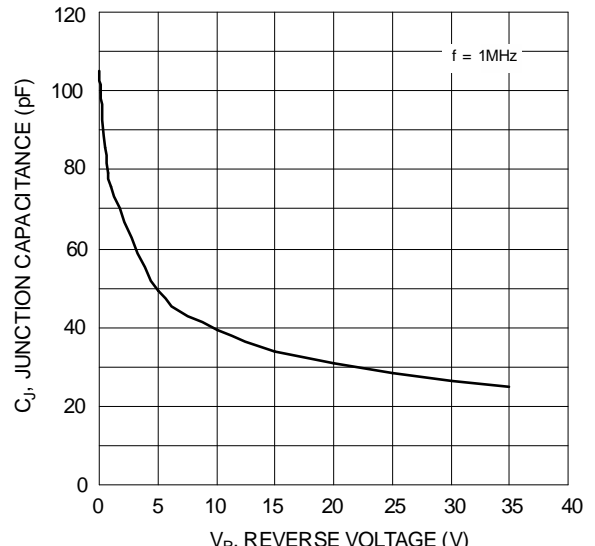


Figure 4 Typical Junction Capacitance

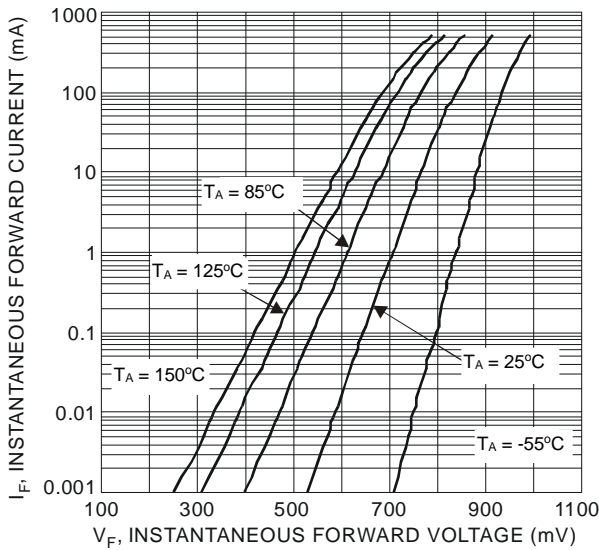


Figure 5 Typical Forward Characteristics

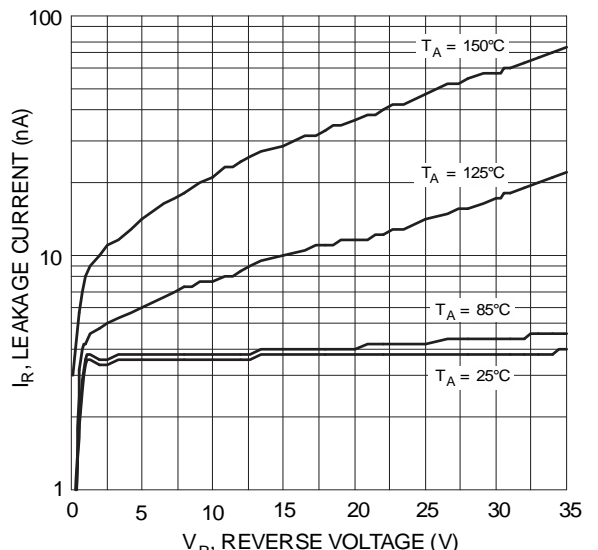
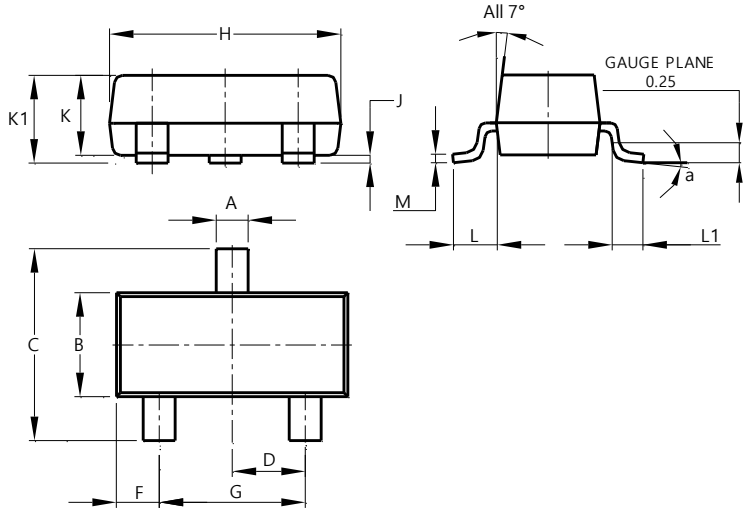


Figure 6 Typical Reverse Characteristics

**Package Outline Dimensions**

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

**SOT23**

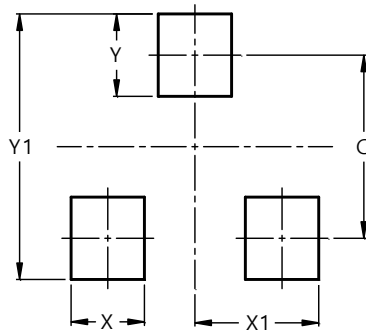


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

**Suggested Pad Layout**

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

**SOT23**



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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