Product Summary

$V_{BR\ (Min)}$	$I_{PP\ (Max)}$	$I_{R\ (Max)}$
35.6V	8A	100nA

Description

This new generation TVS is designed to meet the stringent requirements of Automotive Applications and 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

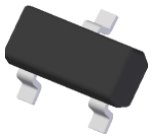
Features

- 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
- Low Channel Input Capacitance
- **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)**

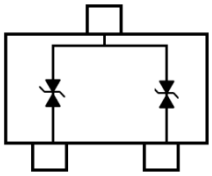
Mechanical Data

- 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 e3
- Weight: 0.009 grams (Approximate)

SOT23



Top View



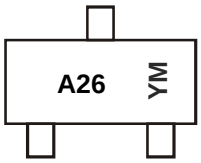
Device Schematic

Ordering Information (Note 5)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DUP3105SOQ-7	Automotive	A26	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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/product_compliance_definitions.html.
5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



A26 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: E = 2017)
M = Month (ex: 9 = September)

Date Code Key

Year	2017	2018	2019	2020	2021	2022	2023
Code	E	F	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

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	350	W	8/20µs, per Figure 1
Peak Pulse Current	I_{PP}	8	A	8/20µs, per Figure 1
ESD Protection – Contact Discharge	$V_{ESD_CONTACT}$	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_AIR}	±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	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Standoff Voltage	V_{RWM}	—	—	32	V	—
Channel Leakage Current (Note 7)	I_{RM}	—	10	100	nA	V_{RWM} = 32V
Clamping Voltage, Positive Transients	V_{CL}	—	—	59	V	I_{PP} = 5A, tp = 8/20µs, Figure 1
		—	—	66		I_{PP} = 8A, tp = 8/20µs, Figure 1
Breakdown Voltage	V_{BR}	35.6	—	—	V	I_R = 1mA
Differential Resistance	R_{DIF}	—	0.4	—	Ω	I_R = 1A, tp = 8/20µs
Channel Input Capacitance	C_T	—	—	30	pF	V_R = 0V, f = 1MHz

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

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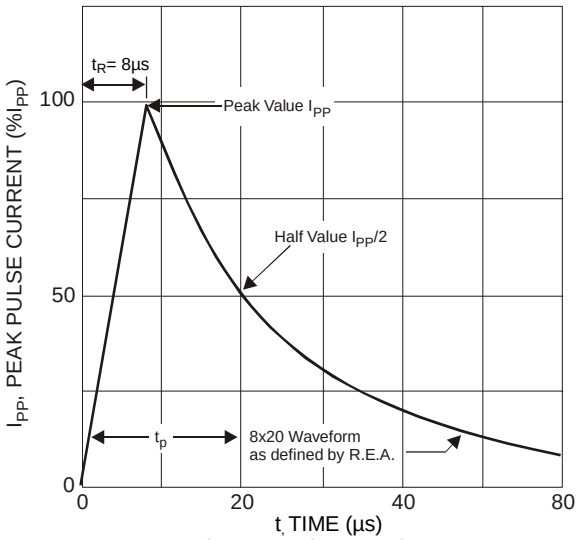

Figure 1 Pulse Waveform

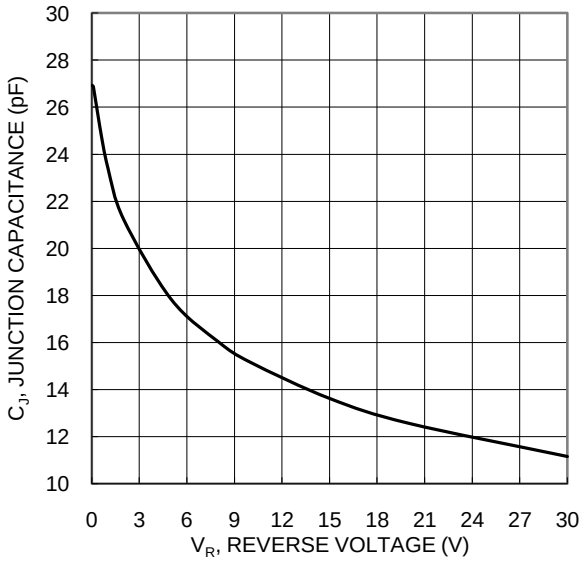

Figure 2 Typical Junction Capacitance

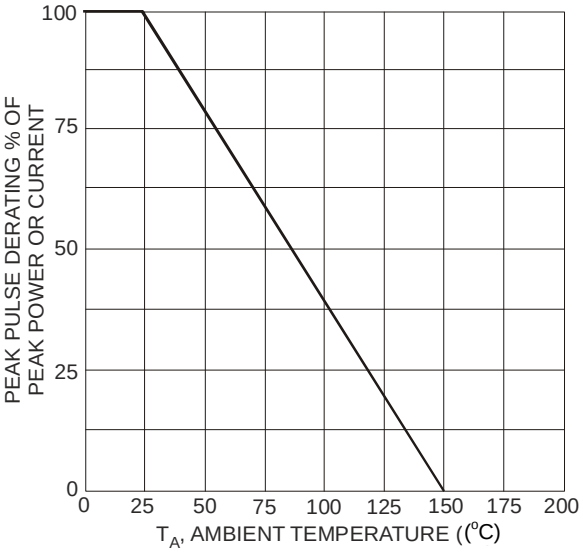

Figure 3 Power Dissipation vs. Ambient Temperature

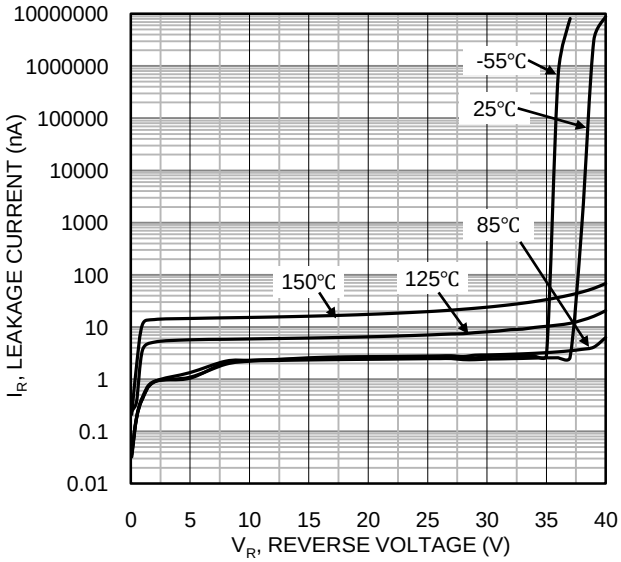

Figure 4 Typical Reverse Characteristics

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Package Outline Dimensions

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

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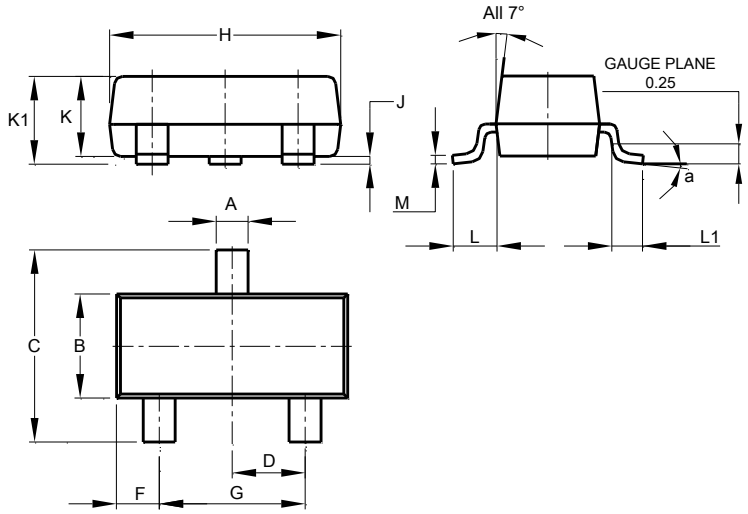
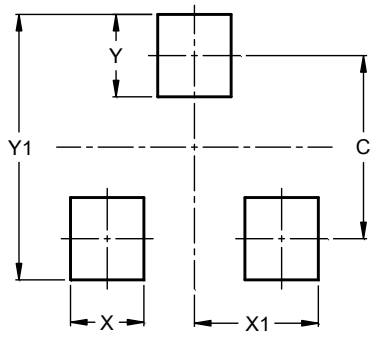


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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