

Product Summary

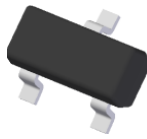
V_{BR} (Min)	I_{PP} (Max)	I_R (Max)
25.7V	8A	100nA

Description and Applications

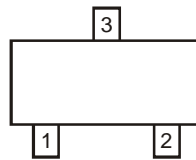
This new generation TVS is designed to meet the stringent requirements of Automotive Applications and to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal to protect LIN and CAN transceiver from ESD, EMI and other harmful transient voltage events for use in:

- Industrial Control Network
- Automotive Networks

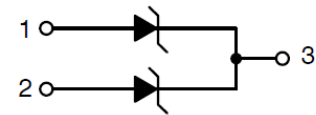
SOT23



Top View



Bottom View



Device Schematic

Features and Benefits

- 350W Peak Power Dissipation per Line (8/20 μ s Waveform)
- Provides ESD Protection per IEC 61000-4-2 Standard: Air \pm 30kV, Contact \pm 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

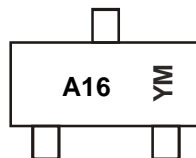
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.009 grams (Approximate)

Ordering Information (Note 5)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
DUP1105SOQ-7	Automotive	A16	7	8	3,000/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



A16 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: F = 2018)
 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

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 μs , per Figure 1
Peak Pulse Current	I_{PP}	8	A	8/20 μs , 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

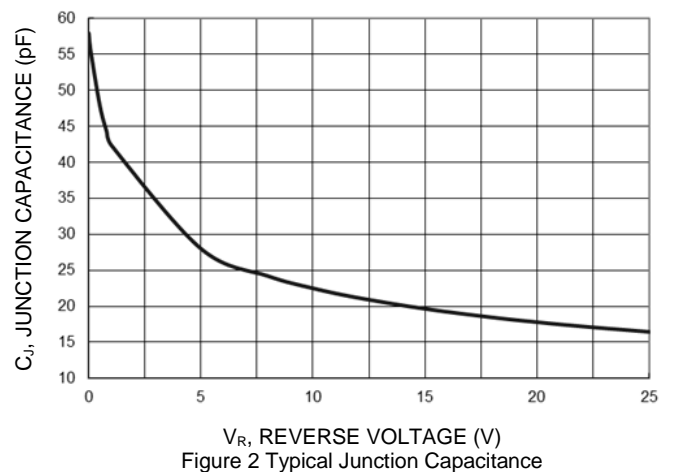
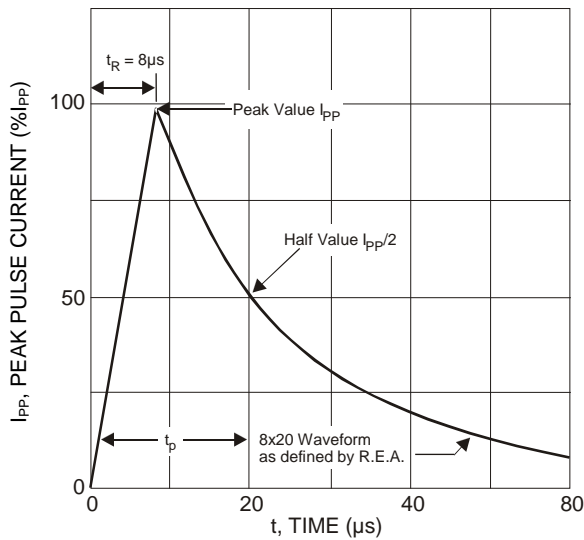
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 6)	P_D	300	mW
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	417	$^\circ\text{C/W}$
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}	—	—	24	V	—
Channel Leakage Current (Note 7)	I_{RM}	—	10	100	nA	$V_{RWM} = 24\text{V}$
Clamping Voltage, Positive Transients	V_{CL}	—	—	40	V	$I_{PP} = 5\text{A}, t_p = 8/20\mu\text{s}$, Figure 1
		—	—	44		$I_{PP} = 8\text{A}, t_p = 8/20\mu\text{s}$, Figure 1
Breakdown Voltage	V_{BR}	25.7	—	32	V	$I_R = 1\text{mA}$
Differential Resistance	R_{DIF}	—	0.4	—	Ω	$I_R = 1\text{A}, t_p = 8/20\mu\text{s}$
Channel Input Capacitance	C_T	—	—	60	pF	$V_R = 0\text{V}, f = 1\text{MHz}$

- Notes:
6. Device mounted on FR-4 PCB pad layout (2oz copper) as shown in Diodes Incorporated's package outline PDFs, 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.



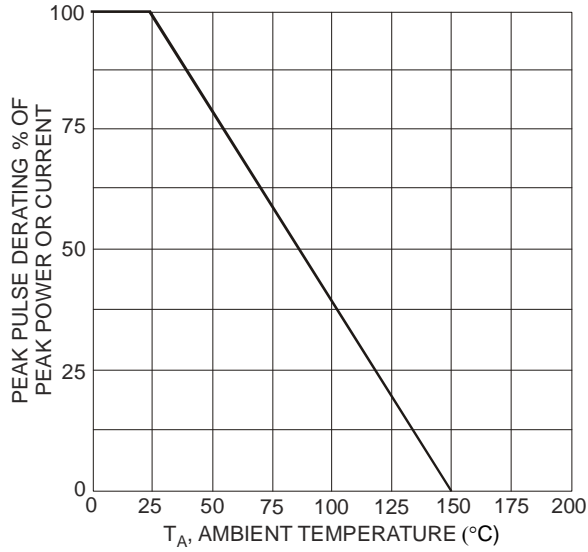


Figure 3 Power Dissipation vs. Ambient Temperature

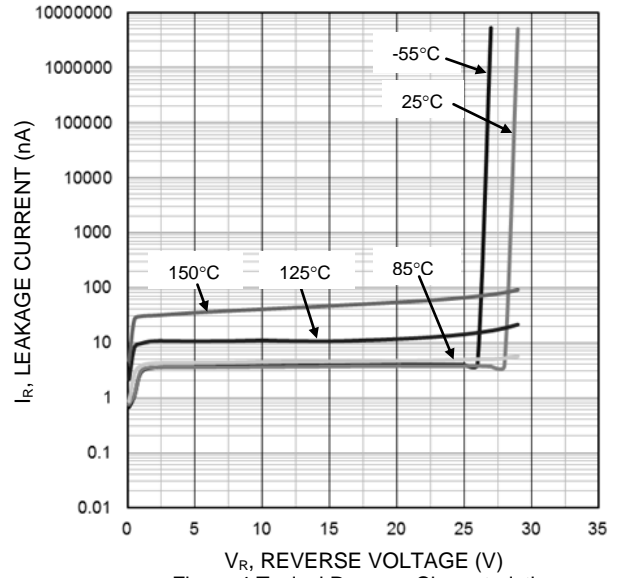
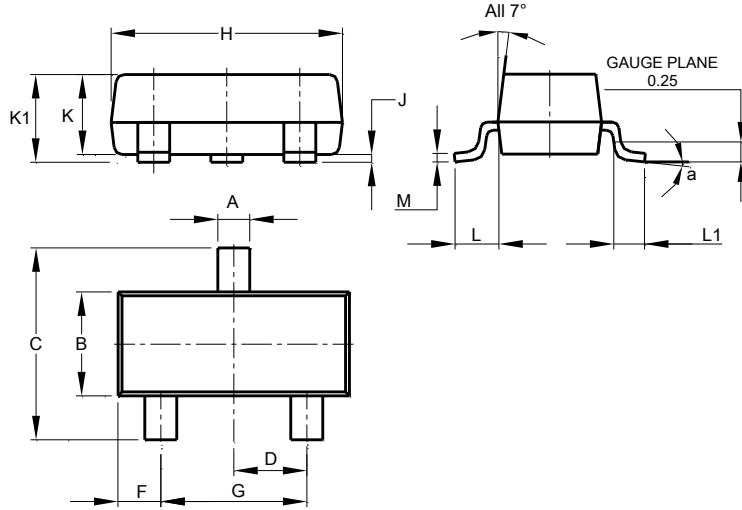


Figure 4 Typical Reverse Characteristics

Package Outline Dimensions

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

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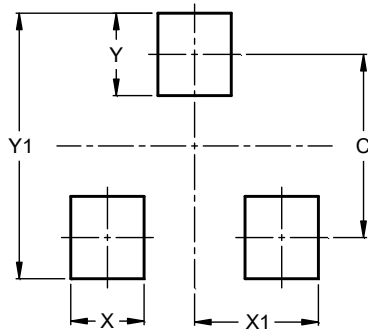


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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