

NUP8100D

Product Preview

Low Capacitance Transient Voltage Suppressor Array

This integrated transient voltage suppressor device (TVS) is designed for applications requiring transient overvoltage protection. It is intended for use in sensitive equipment such as computers, printers, business machines, communication systems, medical equipment, and other applications. Its integrated design provides very effective and reliable protection for eight separate lines using only one package. These devices are ideal for situations where board space is at a premium.

Features

- Low Capacitance
- Protection for the following IEC Standards:
 - IEC61000-4-2 (ESD) 15 kV (air) 8 kV (contact)
 - IEC61000-4-4 (EFT) 40 A (5 / 50 ns)
 - IEC61000-4-5 (lightning) 12 A (8 / 20 μ s)
- Bidirectional Configuration
- Moisture Sensitivity Level 1
- This is a Pb-Free Device*

Benefits

- Provides Protection for ESD Industry Standards: IEC 61000, HBM
- Protects the Line Against Transient Voltage Conditions in Either Direction
- Minimize Power Consumption of the System
- Minimize PCB Board Space

Applications

- Wireless Communication Circuits
- RS-422, RS-432, and RS-485
- Low Voltage ASICs
- Ethernet – 10/100 BaseT

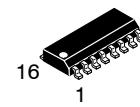
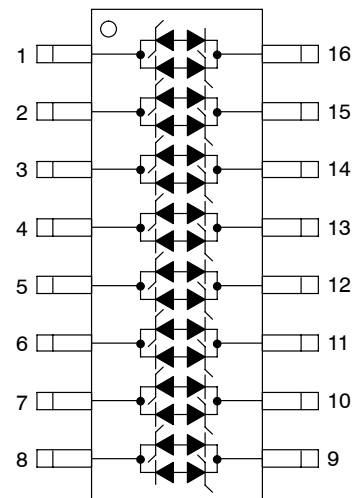
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

This document contains information on a product under development. ON Semiconductor reserves the right to change or discontinue this product without notice.



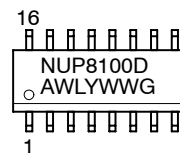
ON Semiconductor®

<http://onsemi.com>



SOIC-16
D SUFFIX
CASE 751B

MARKING DIAGRAM



NUP8100D = Specific Device Code
A = Assembly Location
WL = Wafer Lot
Y = Year
WW = Work Week
G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
NUP8100DT1G	SOIC-16 (Pb-Free)	2500 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

NUP8100D

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
ESD Discharge IEC61000-4-2 Air Discharge Contact Discharge	V_{PP}	15 8.0	kV
Peak Power Dissipation (8 x 20 μ S @ $T_A = 25^\circ\text{C}$)	P_{pk} (Note 1)	300	W
Operating Temperature Range	T_{OP}	-40 to 85	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ\text{C}$
Maximum Lead Temperature for Soldering Purposes (1.8 in from case for 10 seconds)	T_L	260	$^\circ\text{C}$

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. Nonrepetitive current per Figure 1.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Maximum Reverse Working Voltage	V_{RWM}				5.0	V
Breakdown Voltage	V_{BR}	$I_R = 1.0\text{ mA}$	6.0			V
Leakage Current	I_R	$V_{RWM} = 5.0\text{ V}$			20	μA
Clamping Voltage	V_c	$I_{PP} = 12\text{ A}$			26	V
Capacitance	C_{line}	$f = 1\text{ MHz}, V_R = 0\text{ V}$			15	pF

NUP8100D

TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ\text{C}$ unless otherwise specified)

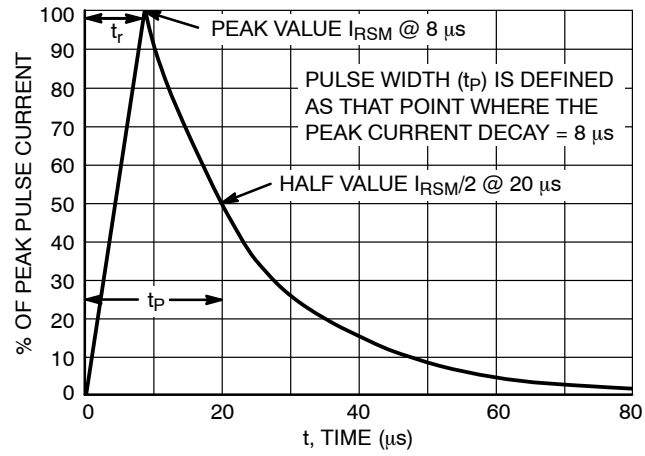
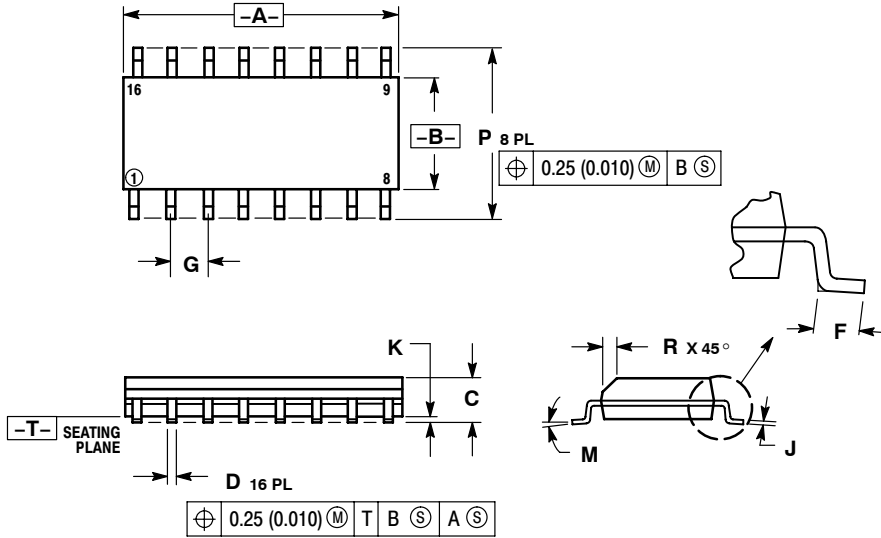


Figure 1. $8 \times 20 \mu\text{s}$ Pulse Waveform

NUP8100D

PACKAGE DIMENSIONS

SOIC-16
CASE 751B
ISSUE J



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.80	10.00	0.386	0.393
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.050 BSC	
J	0.19	0.25	0.008	0.009
K	0.10	0.25	0.004	0.009
M	0°		7°	
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

ON Semiconductor and are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com

Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative