

NUF2101W1T1

Advance Information USB Filter with ESD Protection

This device is designed for applications requiring **Line Termination, EMI Filtering** and **ESD Protection**. It is intended for use in downstream USB 1.1 ports, Cellular phones, Wireless equipment and computer applications. This device offers an integrated solution in a small package (SC-88, Case 419B) reducing PCB space and cost.

Features:

- Provides USB Line Termination, Filtering and ESD Protection
- Single IC Offers Cost Savings by Replacing 4 Resistors, 2 Capacitors, and 5 TVs diodes
- Bi-directional EMI Filtering Prevents Noise from Entering/Leaving the System
- IEC61000-4-2 ESD Protection for USB Port
- ESD Ratings: Machine Model = C
Human Body Model = 3B

Benefits:

- SC-88 Package Minimizes PCB Space
- Integrated Circuit Increases System Reliability versus Discrete Component Implementation
- TVs Devices Provide ESD Protection That is Better than a Discrete Implementation because the Small IC minimizes Parasitic Inductances

Typical Applications:

- USB Hubs
- Computer Motherboards

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Rating	Symbol	Value	Unit
Steady State Power	P_D	225	mW
Maximum Junction Temperature	$T_{J(max)}$	125	$^\circ\text{C}$
Operating Temperature Range	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to +125	$^\circ\text{C}$
Lead Solder Temperature (10 second duration)	T_L	260	$^\circ\text{C}$

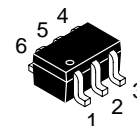
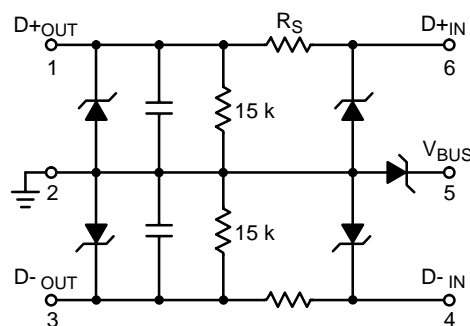
This document contains information on a new product. Specifications and information herein are subject to change without notice.



ON Semiconductor®

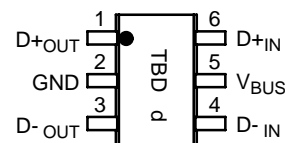
<http://onsemi.com>

SCHEMATIC



SC-88
CASE 419B
PLASTIC

PINOUT AND MARKING DIAGRAM



TBD = Specific Device Code
d = Date Code

ORDERING INFORMATION

Device	Package	Shipping
NUF2101W1T1	SC-88	3000/Tape & Reel

NUF2101W1T1

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Device	Device Marking	V _{RWM} (Volts)	V _{BR} @ 1 mA (Volts)		Max I _R @ V _{RWM} = 5.25 V V _{BUS} to GND (μA)	Max I _R @ V _{RWM} = 3.3 V V _{BUS} Pin (μA)	Typical Line Capacitance (pF) (Notes 2, 3)	Series Resistor R _S (Ω) (Note 1)			Pull-down Resistor R _{pd} (kΩ)		
			Min	Max				Min	Nom	Max	Min	Nom	Max
NUF2101W1T1	TBD	5.25	6.0	8.0	5.0	1.0	50	27	30	33	13.5	15	16.5

1. For other R_S values (i.e. R_S = 30 Ω) contact your local ON Semiconductor sales representative.
2. Measured at 25°C, V_R = 0 V, f = 1 MHz, Pins 2, 3, 4 or 5 to GND with Pin 1 also grounded.
3. For other capacitance values contact your local ON Semiconductor sales representative.

TYPICAL CHARACTERISTICS

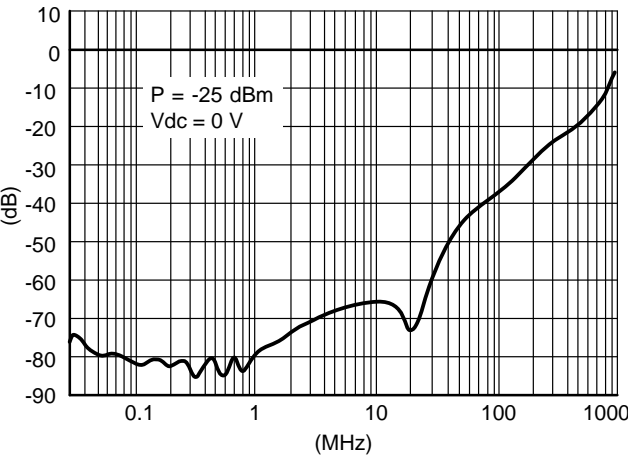


Figure 1. Analog Cross-talk (D+ to D-)

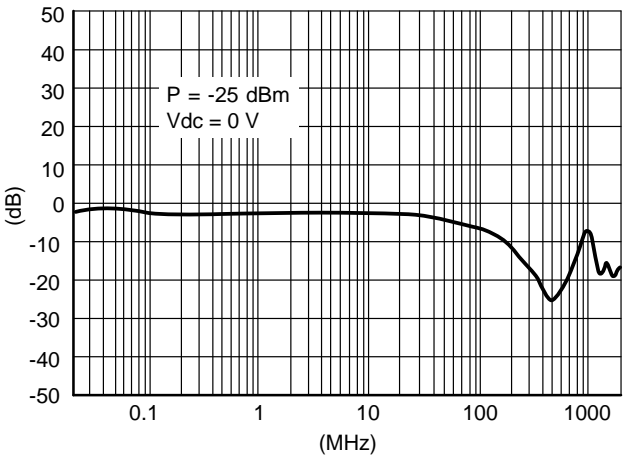
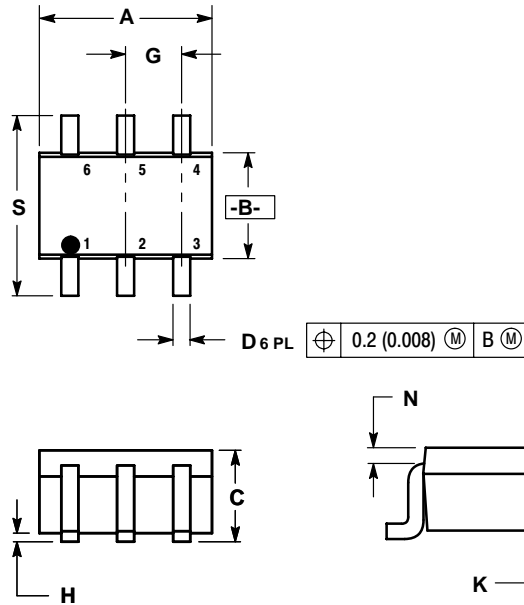


Figure 2. Insertion Loss Characteristics


USB Filter with ESD Protection

SC-88
CASE 419B-02
ISSUE N



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

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.

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: ONlit@hibbertco.com

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

JAPAN: ON Semiconductor, Japan Customer Focus Center
2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051

Phone: 81-3-5773-3850

Email: r14525@onsemi.com

ON Semiconductor Website: <http://onsemi.com>

For additional information, please contact your local
Sales Representative.