

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	$^\circ\text{C}$

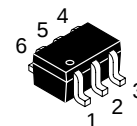
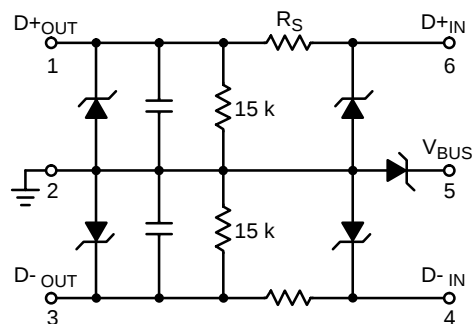
This document contains information on a new product. Specifications and information herein are subject to change without notice.



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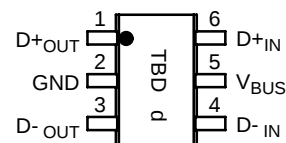
<http://onsemi.com>

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

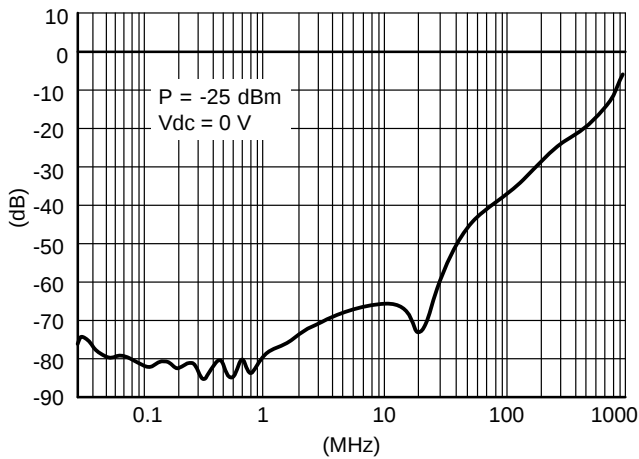


Figure 1. Analog Cross-talk (D+ to D-)

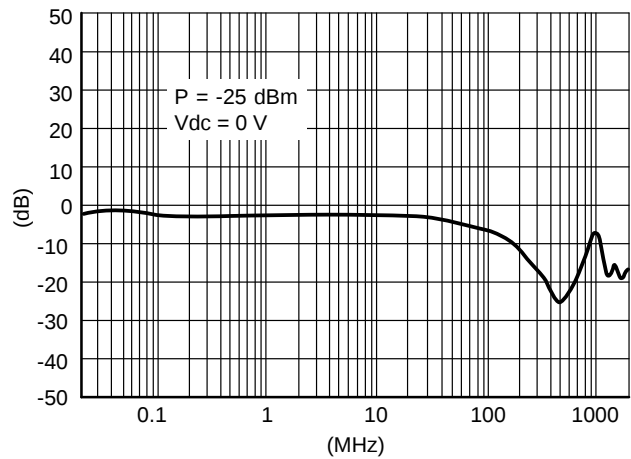
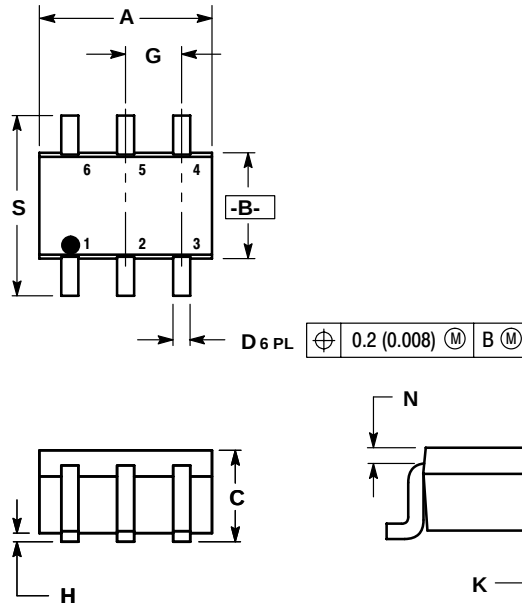


Figure 2. Insertion Loss Characteristics

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

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