

NUF2101MT1

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 (TSOP-6, Case 318G) 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
- 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:

- TSOP-6 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°C)

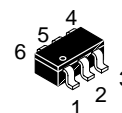
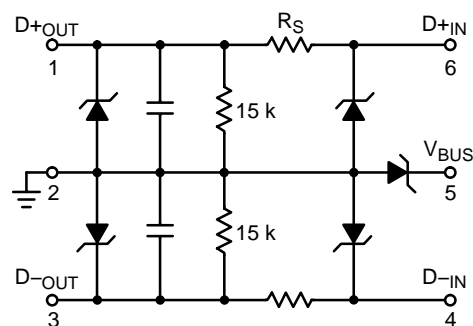
Rating	Symbol	Value	Unit
Steady State Power	P _D	225	mW
Maximum Junction Temperature	T _{J(max)}	125	°C
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +125	°C
Lead Solder Temperature (10 second duration)	T _L	260	°C



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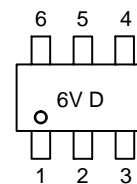
<http://onsemi.com>

SCHEMATIC



TSOP-6
CASE 318G
STYLE 10

MARKING DIAGRAM



6V = Specific Device Code
D = Date Code

ORDERING INFORMATION

Device	Package	Shipping†
NUF2101MT1	TSOP-6	3000/Tape & Reel

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

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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
NUF2101MT1	6V	5.25	6.0	8.0	1.0	0.1	55	26.3	30	33.7	13	15	17

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.

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TYPICAL CHARACTERISTICS

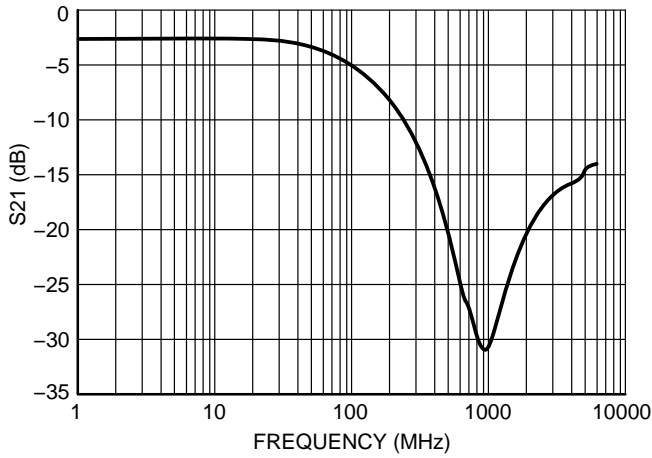


Figure 1. Insertion Loss Characteristics

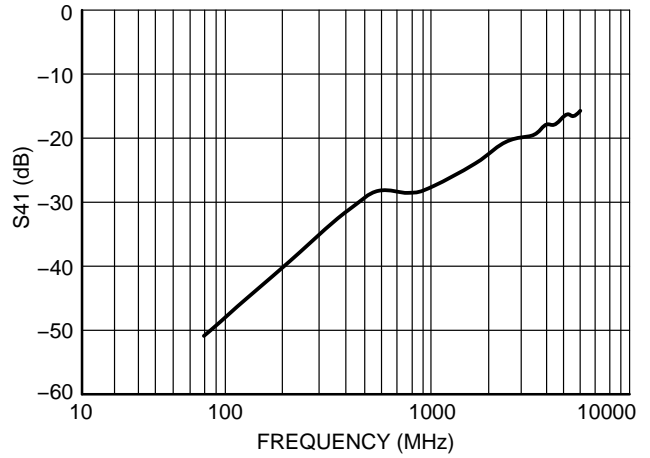


Figure 2. Analog Cross-Talk

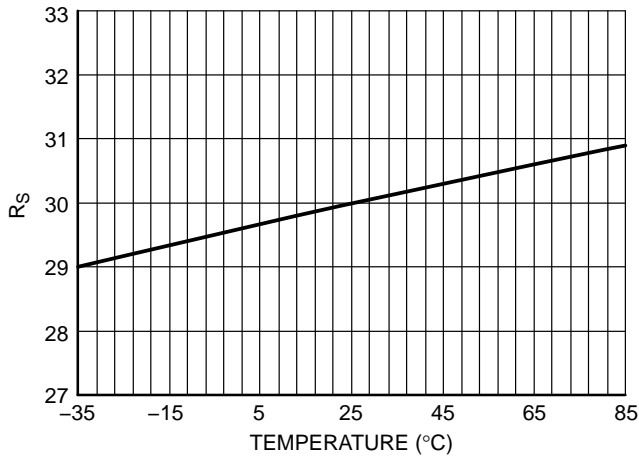


Figure 3. R_S vs. Temperature

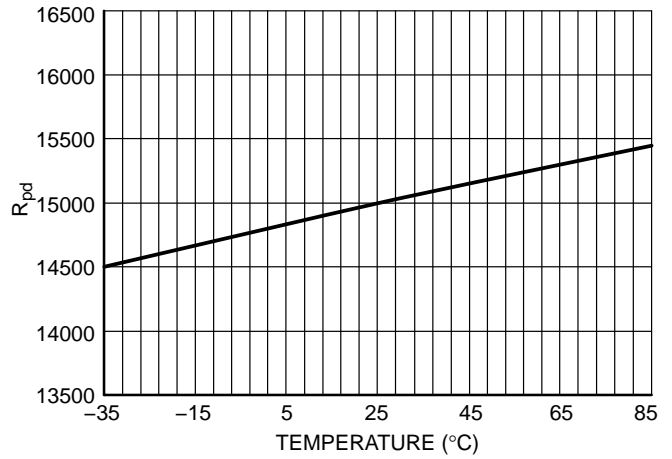


Figure 4. R_{pd} vs. Temperature

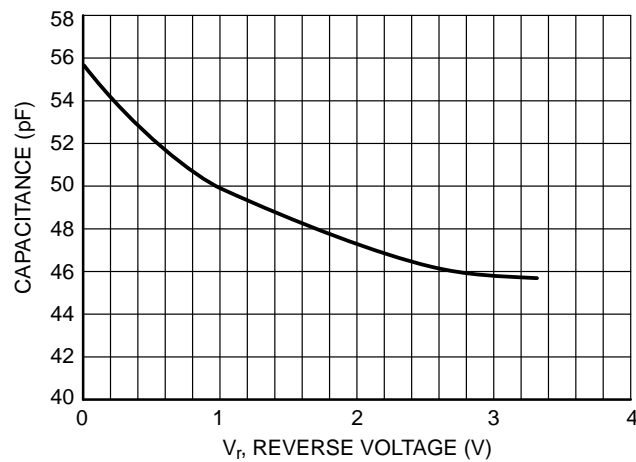
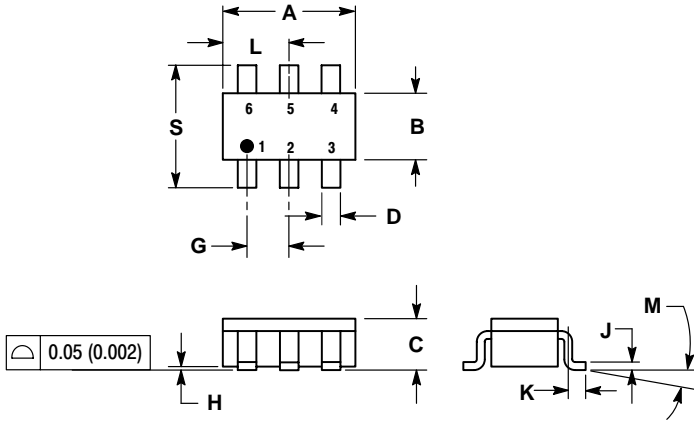


Figure 5. Typical Capacitance

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PACKAGE DIMENSIONS

TSOP-6
CASE 318G-02
ISSUE L



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.90	3.10	0.1142	0.1220
B	1.30	1.70	0.0512	0.0669
C	0.90	1.10	0.0354	0.0433
D	0.25	0.50	0.0098	0.0197
G	0.85	1.05	0.0335	0.0413
H	0.013	0.100	0.0005	0.0040
J	0.10	0.26	0.0040	0.0102
K	0.20	0.60	0.0079	0.0236
L	1.25	1.55	0.0493	0.0610
M	0°	10°	0°	10°
S	2.50	3.00	0.0985	0.1181

STYLE 10:

- PIN 1. D(OUT)+
2. GND
3. D(OUT)-
4. D(IN)-
5. VBUS
6. D(IN)+

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