NUF4001MU

Low Capacitance 4 Line EMI Filter with ESD Protection in UDFN8 Package

This device is a 4 line EMI filter array for wireless applications. Greater than −25 dB attenuation is obtained at frequencies from 800 MHz to 5.0 GHz. The NUF4001MU has a cut−off frequency of 150 MHz and can be used in applications for data rate up to 58 MHz or 116 Mbps. This UDFN package is specifically designed to enhance EMI filtering for low−profile or slim design electronics especially where space and height is a premium. It also offers ESD protection−clamping transients from static discharges. ESD protection is provided across all capacitors.

Features

- EMI Filtering and ESD Protection
- Integration of 20 Discrete Components
- Compliance with IEC61000−4−2 (Level 4)
  - >14 kV (Contact)
  - >15 kV (Air)
- UDFN Package, 1.2 x 1.8 mm
- Moisture Sensitivity Level 1
- ESD Ratings: Machine Model = C
  Human Body Model = 3B
- This is a Pb−Free Device*

Benefits

- Reduces EMI/RFI Emissions on a Data Line
- Low Profile Package; Typical Height of 0.5 mm
- Design−Friendly and Easy−to−Use Pin Configurations, Particularly for Portable Electronics
- Integrated Solution Offers Cost and Space Savings in UDFN Package
- Reduces Parasitic Inductances Which Offer a More “Ideal” Low Pass Filter Response
- Integrated Solution Improves System Reliability

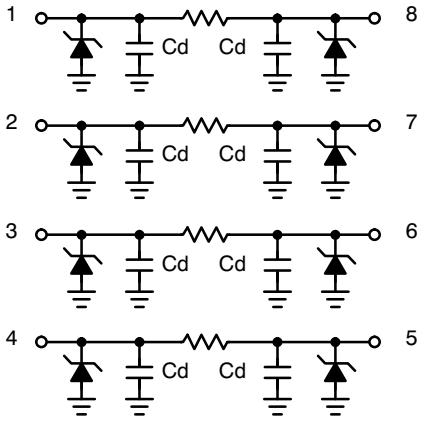
Applications

- EMI Filtering and ESD Protection for Data Lines
- Keypad Interface and Protection for Portable Electronics
- Bottom Connector Interface for Mobile Handsets
- Notebook Computers and Digital Cameras
- LCD Display Interface in Mobile Handsets
- Camera Display Interface in Mobile Handsets

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

ON Semiconductor®

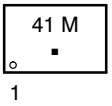
http://onsemi.com



(Top View)

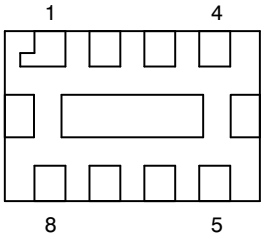
UDFN8
CASE 517AD

MARKING DIAGRAM



41 = Specific Device Code
M = Month Code
▪ = Pb−Free Package

PIN CONNECTIONS



ORDERING INFORMATION

Device	Package	Shipping†
NUF4001MUT2G	UDFN8 (Pb−Free)	3000 / 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.

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
ESD Discharge IEC61000−4−2 Contact Discharge Machine Model Human Body Model	V_{PP}	 14 1.6 16	kV
Operating Temperature Range	T_{OP}	−40 to 85	°C
Storage Temperature Range	T_{STG}	−55 to 150	°C
Maximum Lead Temperature for Soldering Purposes (1.8 in from case for 10 seconds)	T_L	260	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

ELECTRICAL CHARACTERISTICS (T_J = 25°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 mA	6.0	7.0	8.0	V
Leakage Current	I_R	V_{RWM} = 3.3 V			100	nA
Resistance	R_A	I_R = 10 mA	85	100	115	Ω
Capacitance (Notes 1 and 2)	Cd	V_R = 2.5 V, f = 1.0 MHz	10	13	16	pF
Cut−Off Frequency (Note 3)	f_{3dB}	Above this frequency, appreciable attenuation occurs		150		MHz

1. Measured at 25°C.
2. Total Line Capacitance is two times the Diode Capacitance (Cd).
3. 50 Ω source and 50 Ω load termination.

TYPICAL PERFORMANCE CURVES

(T_A= 25°C unless otherwise specified)

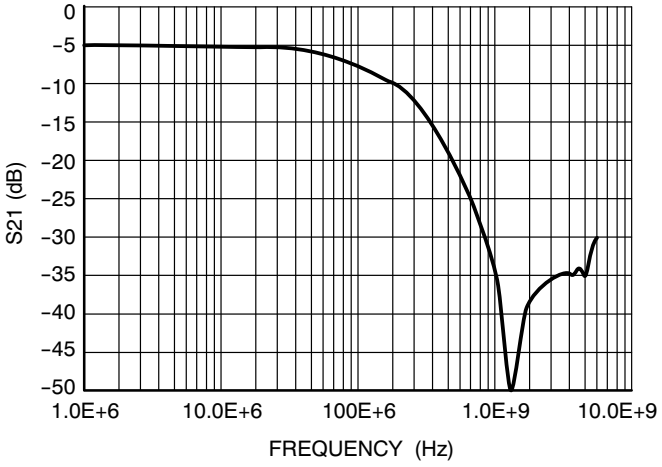


Figure 1. Insertion Loss Characteristic

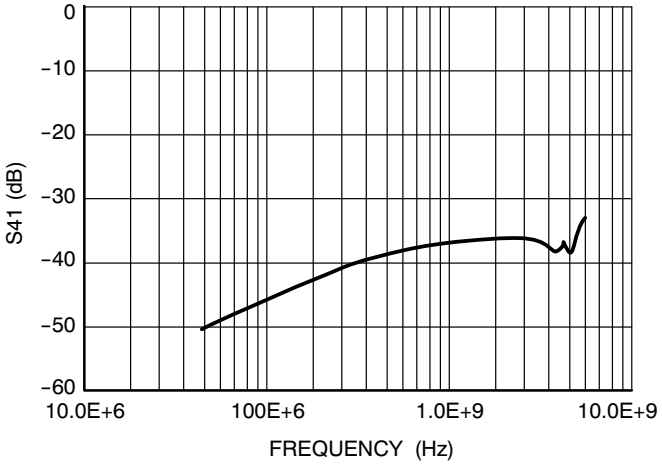


Figure 2. Insertion Loss Characteristic

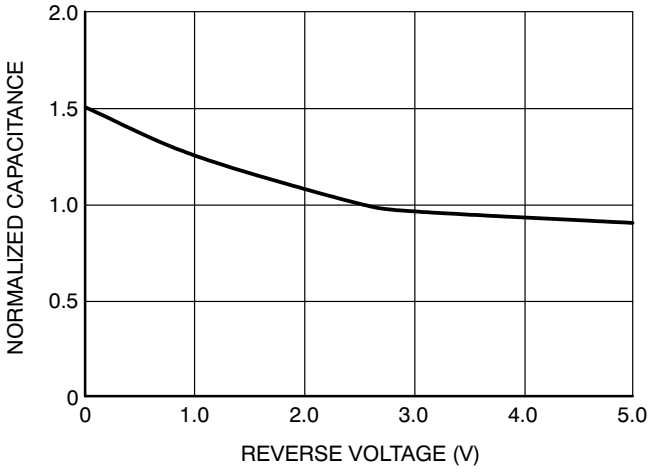


Figure 3. Typical Capacitance vs. Reverse Biased Voltage (Normalized Capacitance Cd at 2.5 V)

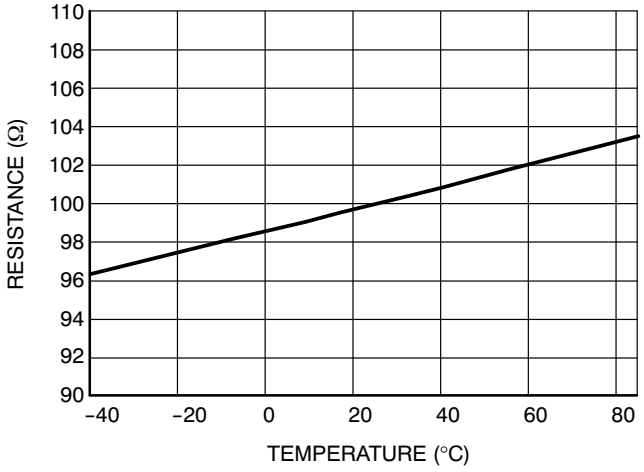
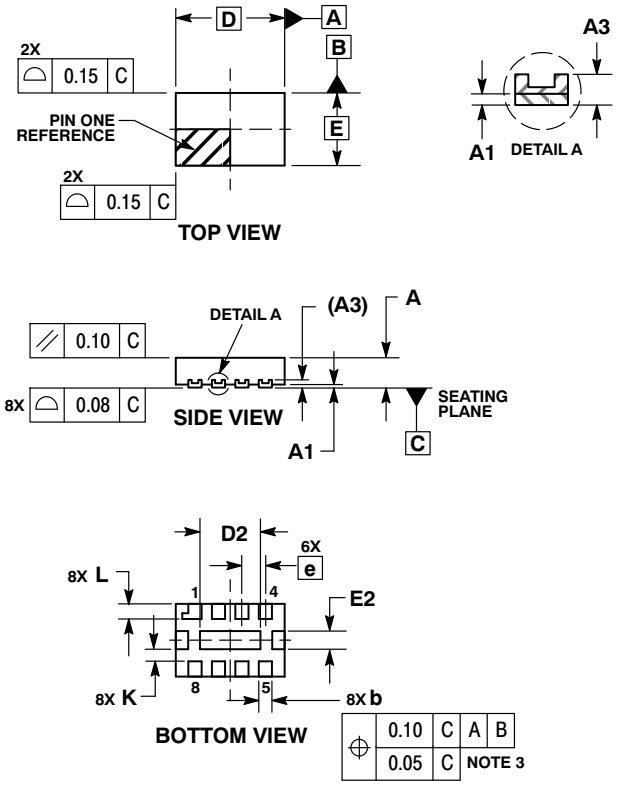


Figure 4. Typical Resistance over Temperature

PACKAGE DIMENSIONS

UDFN8, 1.8x1.2, 0.4P
CASE 517AD-01
ISSUE O



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.20 mm FROM TERMINAL.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

	MILLIMETERS		
DIM	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0.00	0.03	0.05
A3		0.127 REF	
b	0.15	0.20	0.25
D		1.80 BSC	
D2	0.90	1.00	1.10
E		1.20 BSC	
E2	0.20	0.30	0.40
e		0.40 BSC	
K	0.20	---	---
L	0.20	0.25	0.30

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