

NUF8001MU

Low Capacitance 8 Line EMI Filter with ESD Protection in UDFN Package

This device is an 8 line EMI filter array for wireless applications. Greater than -25 dB attenuation is obtained at frequencies from 800 MHz to 5.0 GHz. The NUF8001MU has a cut-off frequency of 160 MHz and can be used in applications for data rate up to 60 MHz or 120 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 40 Discrete Components
- Compliance with IEC61000-4-2 (Level 4): > 12 kV (Contact)
- UDFN Package, 1.2 x 3.5 mm, 0.4 mm Pitch
- 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

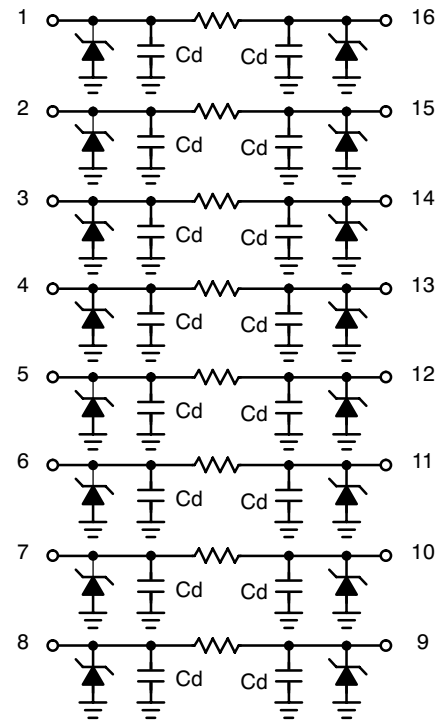
Applications

- 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

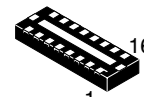


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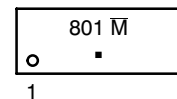


(Top View)



UDFN16
MU SUFFIX
CASE 517AF

MARKING DIAGRAM



801 = Specific Device Code
M = Date Code
▪ = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping†
NUF8001MUT2G	UDFN16 (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.

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MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
ESD Discharge IEC61000-4-2 Contact Discharge Machine Model Human Body Model	V_{PP}	12	kV
		1.6	
		16	
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 ($T_J = 25^\circ\text{C}$ 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	7.0	8.0	V
Leakage Current	I_R	$V_{RWM} = 3.3 \text{ V}$			100	nA
Resistance	R_A	$I_R = 20 \text{ mA}$	85	100	115	Ω
Capacitance (Notes 1 and 2)	Cd		10	12	15	pF
Cut-Off Frequency (Note 3)	f_{3dB}	Above this frequency, appreciable attenuation occurs		160		MHz

1. Measured at 25°C , $V_R = 2.5 \text{ V}$, $f = 1.0 \text{ MHz}$.
2. Total Line Capacitance is 2 times the Diode Capacitance (Cd).
3. 50Ω source and 50Ω load termination.

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

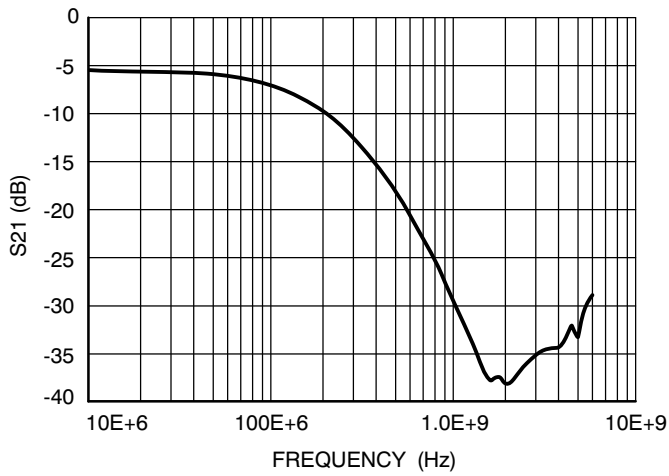


Figure 1. Typical Insertion Loss Characteristic

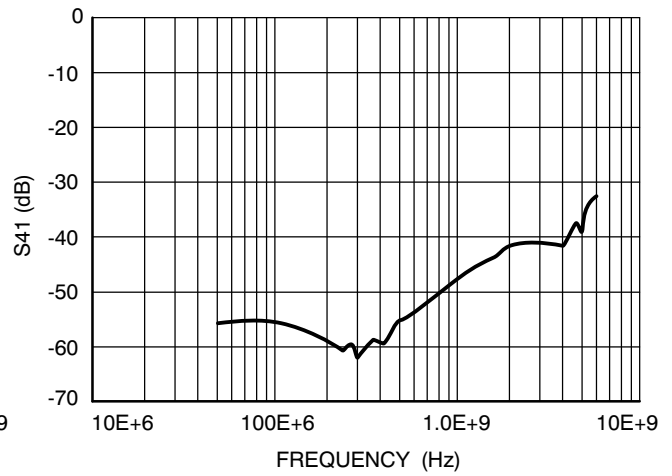
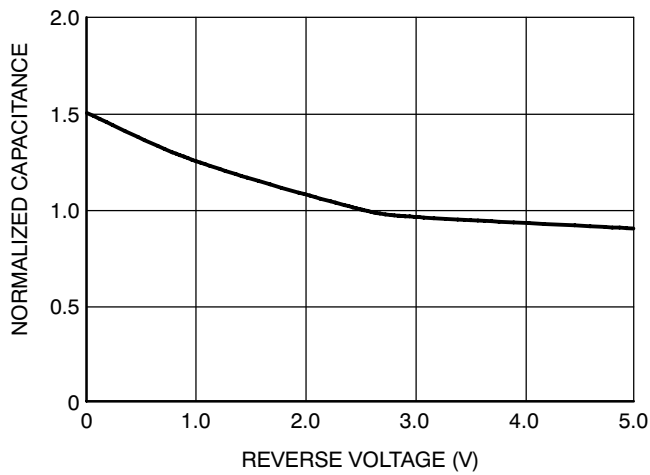


Figure 2. Typical Analog Crosstalk



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

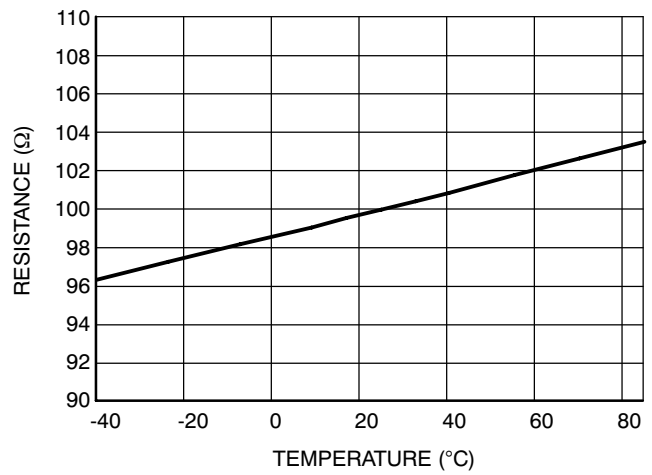
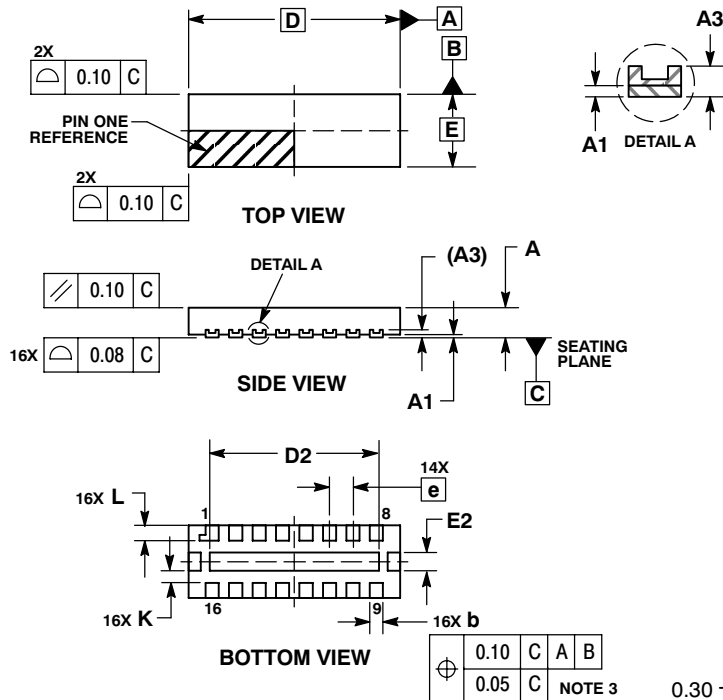


Figure 4. Typical Resistance over Temperature

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PACKAGE DIMENSIONS

UDFN16, 3.5x1.2, 0.4P
CASE 517AF-01
ISSUE A

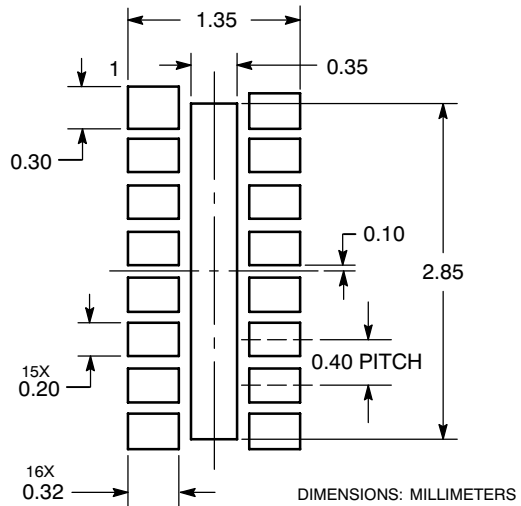


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.25 AND 0.30 mm FROM TERMINAL.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

DIM	MILLIMETERS		
	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	3.50 BSC		
D2	2.70	2.80	2.90
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

SOLDERING FOOTPRINT*



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

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