

# NUF8600MN

## 8 Line EMI Filter with ESD Protection

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 2.2 GHz. 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) > 18 kV (Contact)
- DFN Package, 1.6 x 4.0 mm
- Moisture Sensitivity Level 1
- ESD Ratings: Human Body Model = 3B  
Machine Model = C
- This is a Pb-Free Device\*

### Benefits

- Reduces EMI/RFI Emissions on a Data Line
- Integrated Solution Offers Cost and Space Savings
- 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
- Wireless Phones
- Handheld Products
- Notebook Computers
- LCD Displays

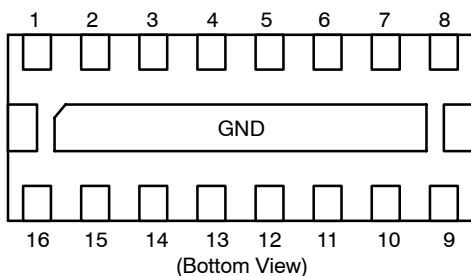
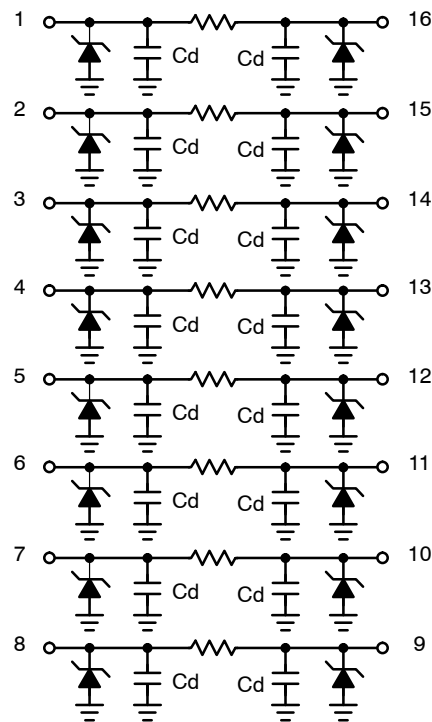


Figure 1. Pin Connections



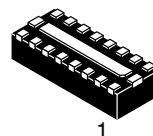
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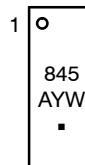


(Top View)

### MARKING DIAGRAM



DFN  
CASE 506AC



845 = Specific Device Code  
A = Assembly Location  
Y = Year  
W = Work Week  
▪ = Pb-Free Package

### ORDERING INFORMATION

Device	Package	Shipping†
NUF8600MNTXG	DFN16 (Pb-Free)	4000 / 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	$V_{PP}$	18	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 ( $T_J = 25^\circ\text{C}$ 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	$R_A$	$I_R = 20 \text{ mA}$	42	50	58	$\Omega$
Capacitance (Notes 1 and 2)	Cd			17	20	pF
Cut-Off Frequency (Note 3)	$f_{3dB}$	Above this frequency, appreciable attenuation occurs		115		MHz

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

# NUF8600MN

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

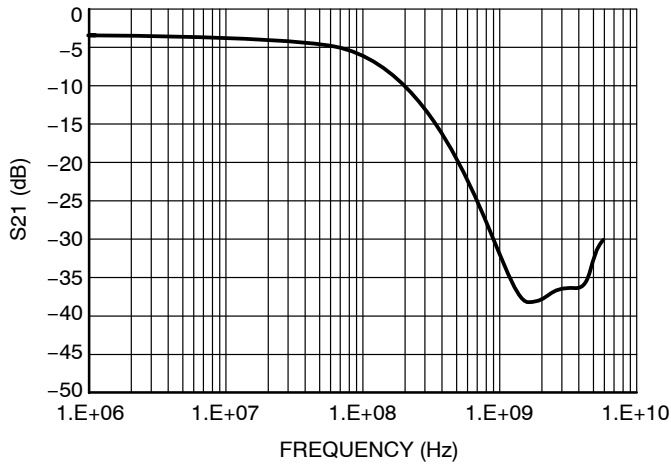


Figure 2. Insertion Loss Characteristic (S21 Measurement)

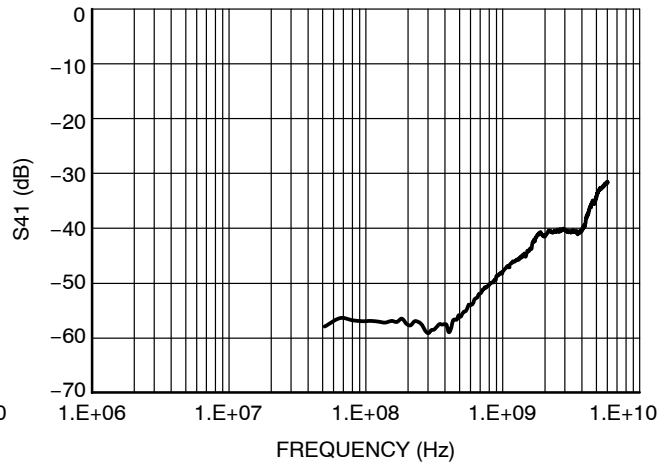


Figure 3. Analog Crosstalk Curve (S41 Measurement)

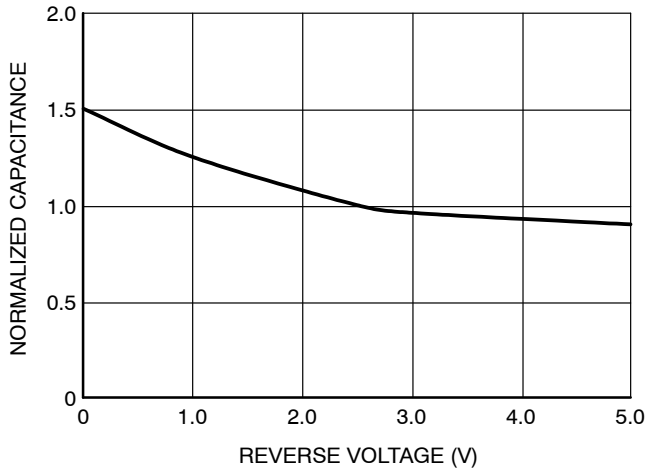


Figure 4. Typical Capacitance vs. Reverse Biased Voltage (Normalized Capacitance  $C_d$  at 2.5 V)

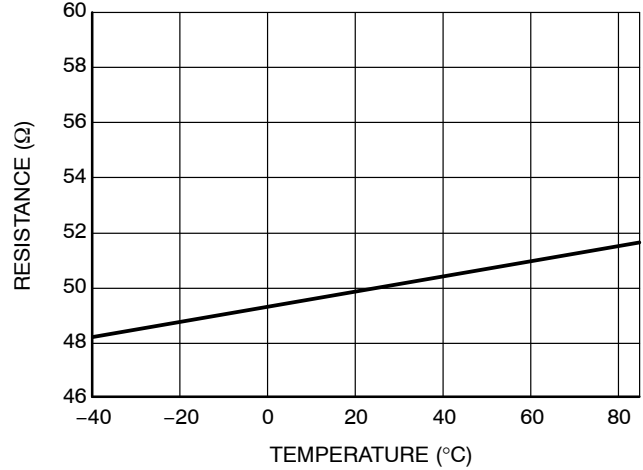


Figure 5. Typical Resistance over Temperature

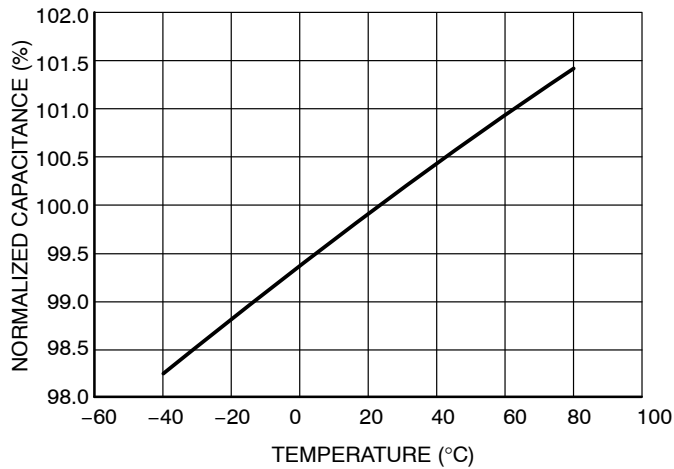
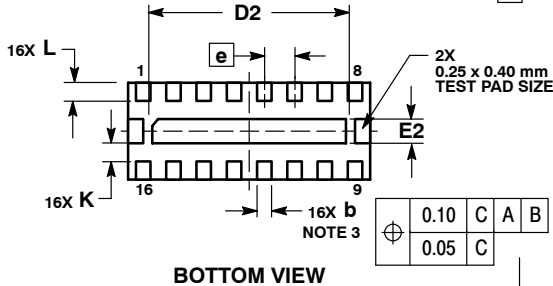
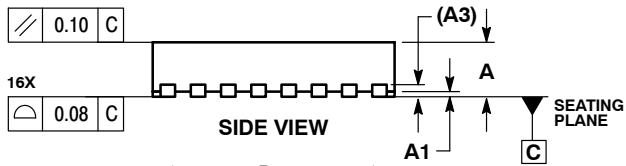
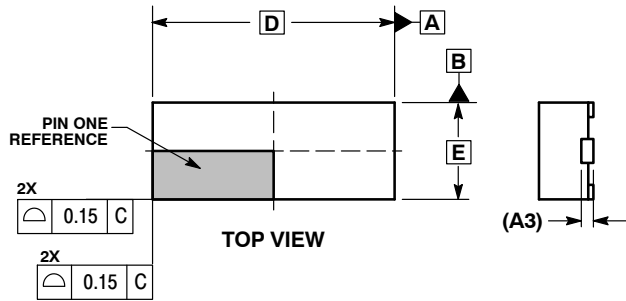


Figure 6. Normalized Capacitance over Temperature (Normalized @  $25^\circ\text{C}$ ,  $V_R = 2.5\text{ V}$ ,  $f = 1\text{ MHz}$ )

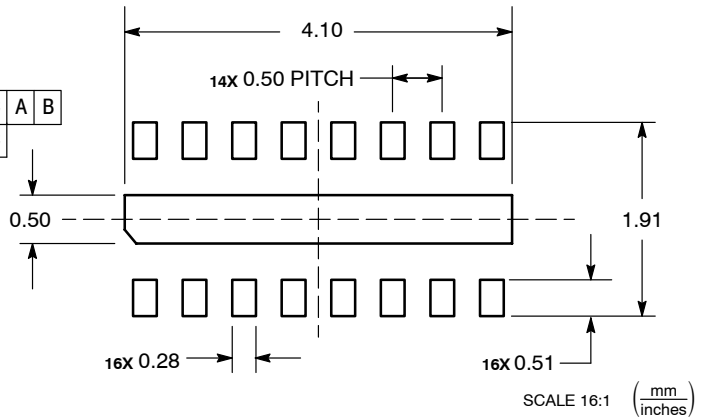
# NUF8600MN

## PACKAGE DIMENSIONS

DFN16  
CASE 506AC-01  
ISSUE B



### SOLDERING FOOTPRINT\*



#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION b APPLIES TO 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.

MILLIMETERS		
DIM	MIN	MAX
A	0.80	1.00
A1	0.00	0.05
A3	0.20 REF	
b	0.18	0.30
D	4.00 BSC	
D2	3.10	3.30
E	1.60 BSC	
E2	0.30	0.50
e	0.50 BSC	
K	0.20	---
L	0.20	0.40

\*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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