

NUF4402MN

Advance Information EMI Filter with ESD Protection

This device is a 4 line EMI filter array for wireless applications. Greater than -30 dB attenuation is obtained at frequencies from 900 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 12 Discrete Components
- Compliance with IEC61000-4-2 (Level 4)
8.0 kV (Contact)
15 kV (Air)
- DFN Package, 1.6 x 1.6 mm
- Moisture Sensitivity Level 1
- ESD Ratings: Machine Model = C
Human Body Model = 3B

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

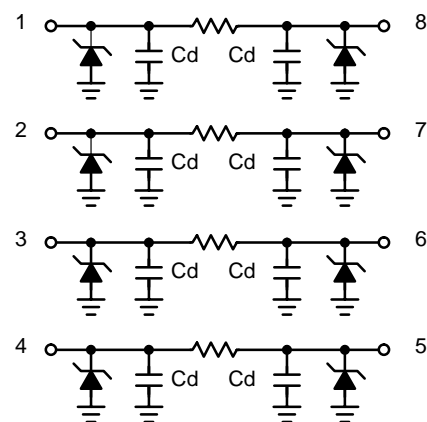
- EMI Filtering and ESD Protection for Data Lines
- Wireless Phones
- Handheld Products
- Notebook Computers
- LCD Displays

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

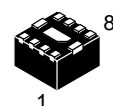


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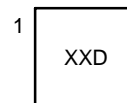


(Top View)



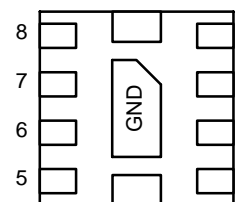
**DFN
CASE TBD
PRELIMINARY**

MARKING DIAGRAM



XX = Specific Device Code
D = Date Code

PIN CONNECTIONS



(Bottom View)

ORDERING INFORMATION

Device	Package	Shipping†
NUF4402MNT1	DFN	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 Air Discharge Contact Discharge Machine Model	V_{PP}	15 8.0 TBD	kV
Steady-State Power per Resistor	P_R		mW
Steady-State Power per Package	P_T		mW
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

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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		V
Leakage Current	I_R	$V_{RWM} = 3.0\text{ V}$			1.0	μA
Resistance	R_A		85	100	115	Ω
Capacitance (Notes 1 and 2)	C_d			12	16	pF
Cut-Off Frequency (Note 3)	f_{3dB}	Above this frequency, appreciable attenuation occurs		110		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 (C_d).
3. $50\ \Omega$ source and $50\ \Omega$ load termination.

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

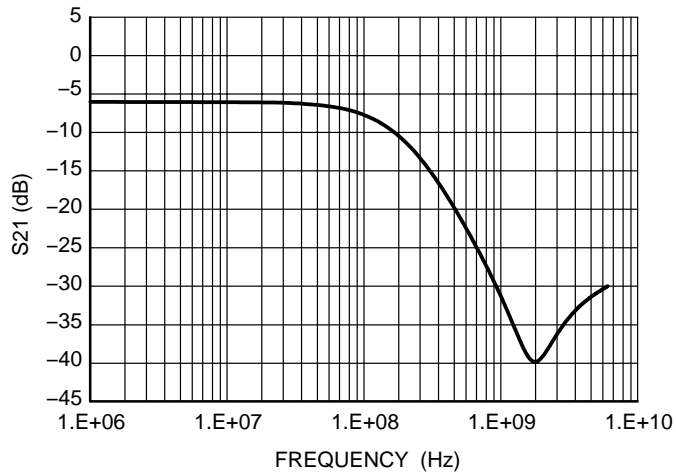
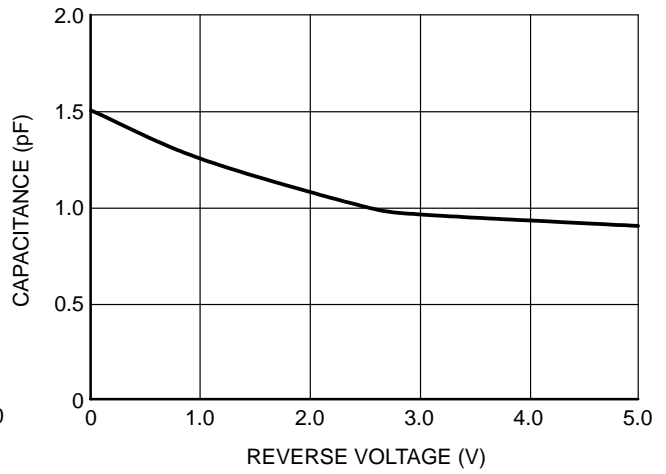


Figure 1. Insertion Loss Characteristic



**Figure 2. Typical Capacitance vs. Reverse Biased Voltage
(Normalized Capacitance C_d at 2.5 V)**

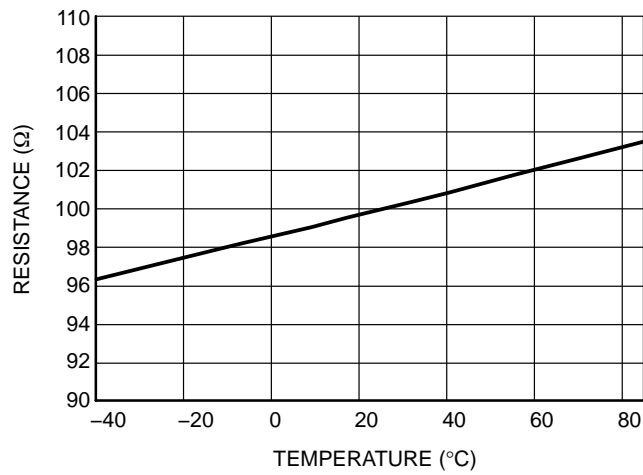
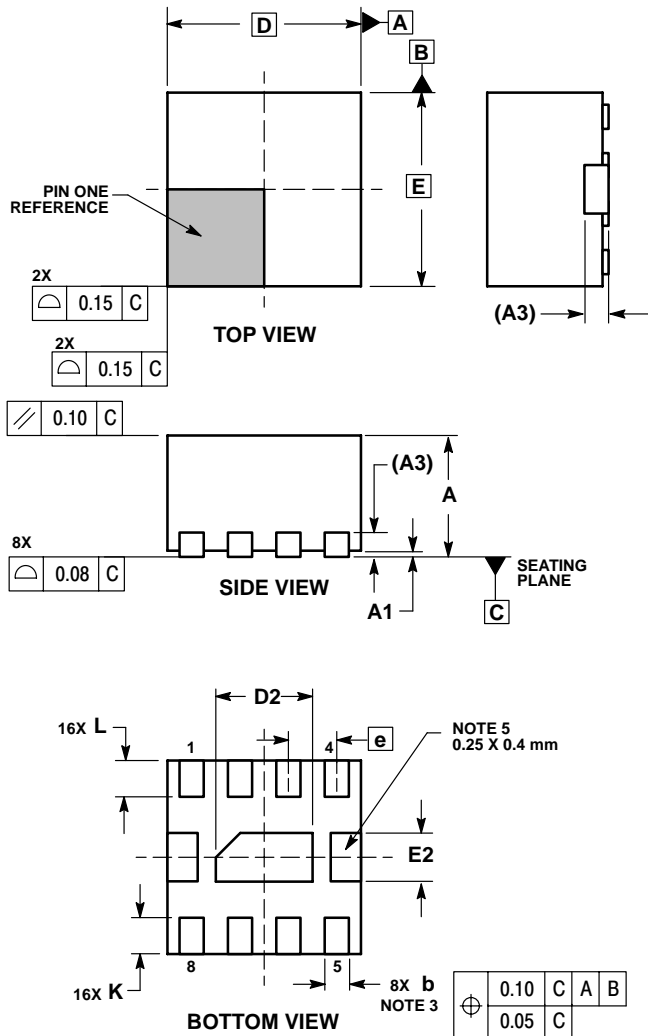


Figure 3. Typical Resistance over Temperature

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PACKAGE DIMENSIONS


DFN8
CASE TBD
ISSUE O



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
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.
5. EXPOSED PADS CONNECTED TO DIE FLAG, USED AS TEST CONTACTS.

MILLIMETERS		
DIM	MIN	MAX
A	0.80	1.00
A1	0.00	0.05
A3	0.20	REF
b	0.15	0.25
D	1.6	BSC
D2	0.70	0.90
E	1.60	BSC
E2	0.30	0.50
e	0.40	BSC
K	0.20	---
L	0.20	0.40

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