NUF6402MN

4 Line 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 800 MHz to 3.0 GHz. It also offers ESD protection clamping transients from static discharges. ESD protection is provided across all capacitors.

Features

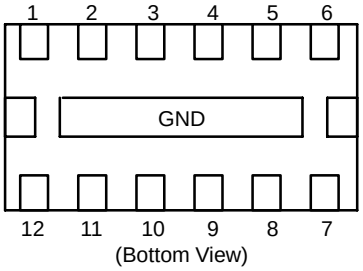
- EMI Filtering and ESD Protection
- Integration of 28 Discrete Components
- DFN Package, 1.35 x 3.0 mm
- Moisture Sensitivity Level 1
- ESD Ratings: IEC61000−4−2 (Level 4)
  Machine Model = C
  Human Body Model = 3B
- This is a Pb−Free Device*

Benefits

- Reduces EMI/RFI Emissions on a Data Line
- Integrated Solution Offers Cost and Space Savings in a DFN Package
- Excellent S21 Characteristics with very Low Parasitic Inductances
- Integrated Solution Improves System Reliability
- Compatible Footprint to BGA or Flip−Chip Package

Applications

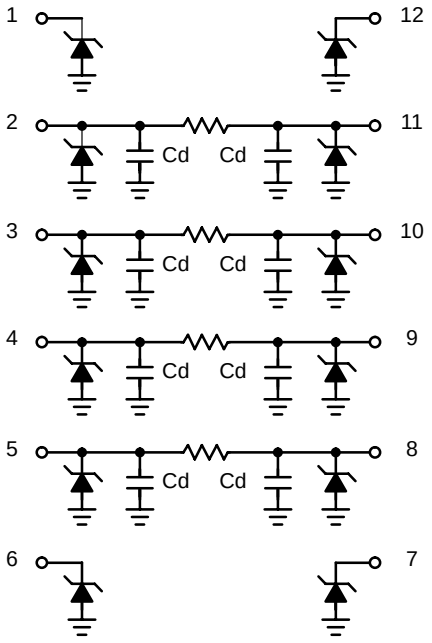
- EMI Filtering and ESD Protection for Data Lines
- Wireless Phones
- PDAs and Handheld Products
- Digital Camera
- LCD Displays



(Bottom View)

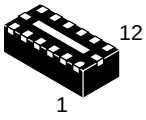
ON Semiconductor®

http://onsemi.com

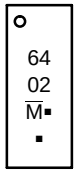


(Top View)

MARKING DIAGRAM



DFN12
CASE 506AD



6402= Specific Device Code
M = Month
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
NUF6402MNT1G	DFN12 (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.

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

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
ESD Discharge IEC61000−4−2 Contact Discharge	V_{PP}	8.0	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

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°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} = 3.0 V		0.1	1.0	μA
Resistance	R_A	I_R = 20 mA	85	100	115	Ω
Capacitance (Notes 1 and 2)	Cd	V_R = 2.5 V, f = 1.0 MHz		17	20	pF
Cut−Off Frequency (Note 3)	f_{3dB}	Above this frequency, appreciable attenuation occurs		95		MHz

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

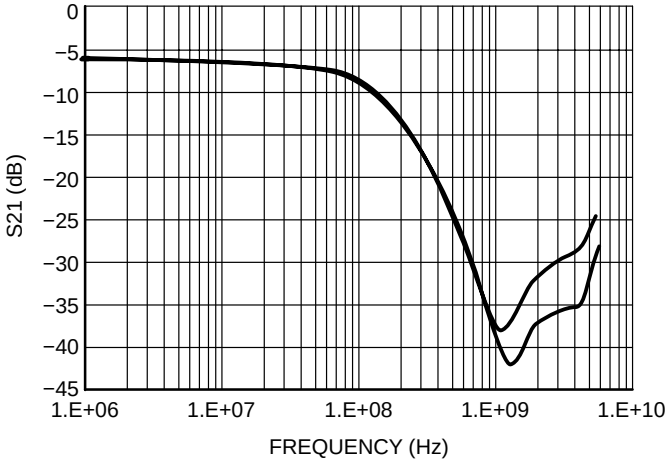


Figure 4. Insertion Loss Characteristic

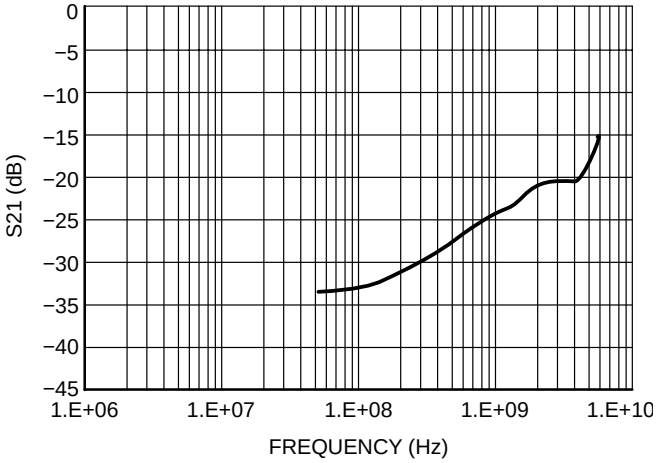


Figure 1. Analog Crosstalk Curve

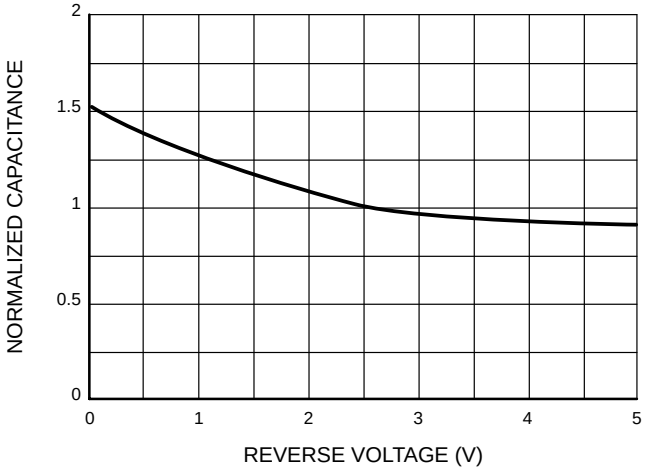


Figure 2. Typical Capacitance vs. Reverse Biased Voltage (Normalized Capacitance, Cd @ 2.5 V)

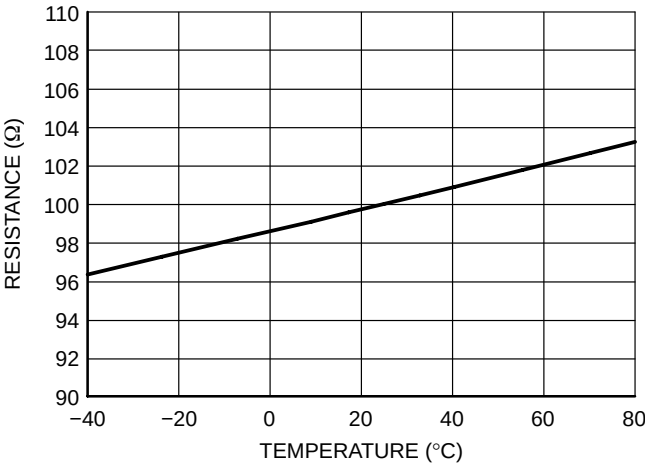
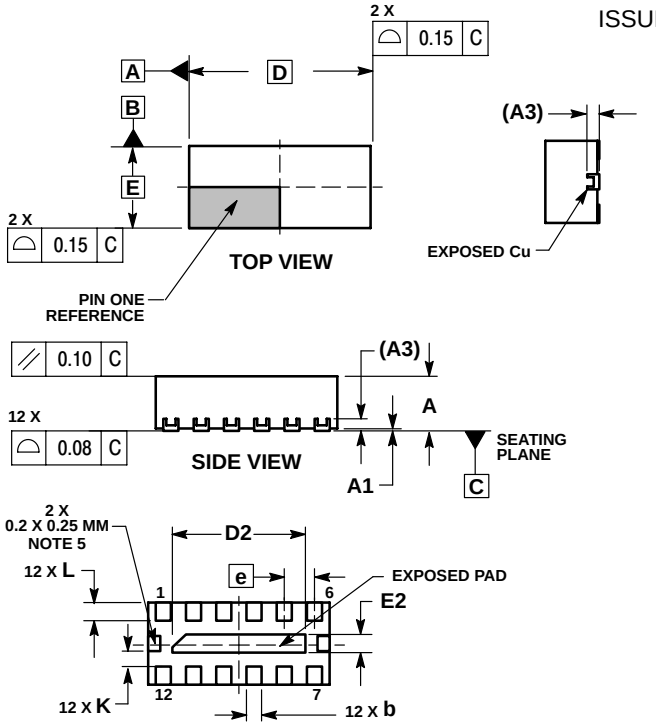


Figure 3. Typical Resistance over Temperature

PACKAGE DIMENSIONS

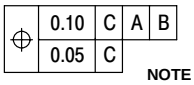
DFN12 3.0*1.35*0.85
CASE 506AD−01
ISSUE F



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

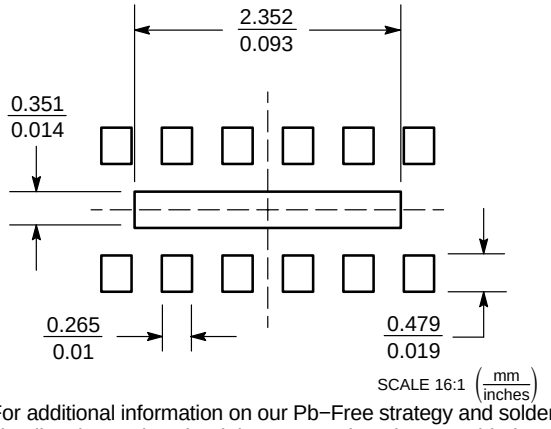
	MILLIMETERS	
DIM	MIN	MAX
A	0.80	1.00
A1	0.00	0.05
A3	0.20 REF	
b	0.18	0.30
D	3.00 BSC	
D2	2.10	2.30
E	1.35 BSC	
E2	0.20	0.40
e	0.50 BSC	
K	0.20	−−−
L	0.20	0.40

BOTTOM VIEW



NOTE 3

SOLDERING FOOTPRINT*



SCALE 16:1 (mm / inches)

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082−1312 USA
Phone: 480−829−7710 or 800−344−3860 Toll Free USA/Canada
Fax: 480−829−7709 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2−9−1 Kamimeguro, Meguro−ku, Tokyo, Japan 153−0051
Phone: 81−3−5773−3850

ON Semiconductor Website: http://onsemi.com

Order Literature: http://www.onsemi.com/litorder

For additional information, please contact your local Sales Representative.