NUF6001MU

6 Line EMI Filter with ESD Protection in UDFN Package

This device is a 6 line EMI filter array for wireless applications. Greater than −30 dB attenuation is obtained at frequencies from 800 MHz to 3.0 GHz. The NUF6001MU has a cut−off frequency of 120 MHz and can be used in applications for data rate up to 50 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 30 Discrete Components
- UDFN Package, 1.2 x 2.5 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
- 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
- Excellent S21 Characteristics with very Low Parasitic Inductances
- 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.

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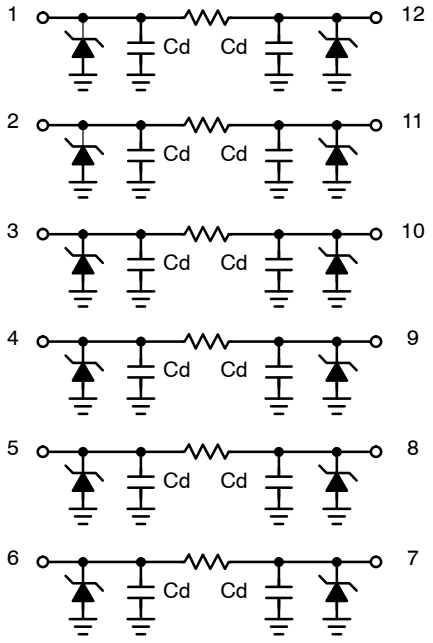
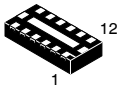
http://onsemi.com

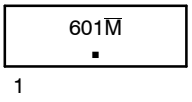


(Top View)



UDFN12
MU SUFFIX
CASE 517AE

MARKING DIAGRAM



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

ORDERING INFORMATION

Device	Package	Shipping†
NUF6001MUT2G	UDFN12 (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 (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
ESD IEC61000−4−2 (Contact Discharge) HBM MM		18 16 1.6	kV
DC Power per Resistor	P_R	100	mW
DC Power per Package	P_T	600	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°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		10	100	nA
Resistance	R_A	I_R = 20 mA	85	100	115	Ω
Capacitance (Notes 1 and 2)	C_d	V_R = 2.5 V, f = 1.0 MHz		17	22	pF
Cut−Off Frequency (Note 3)	f_{3dB}	Above this frequency, appreciable attenuation occurs		120		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.

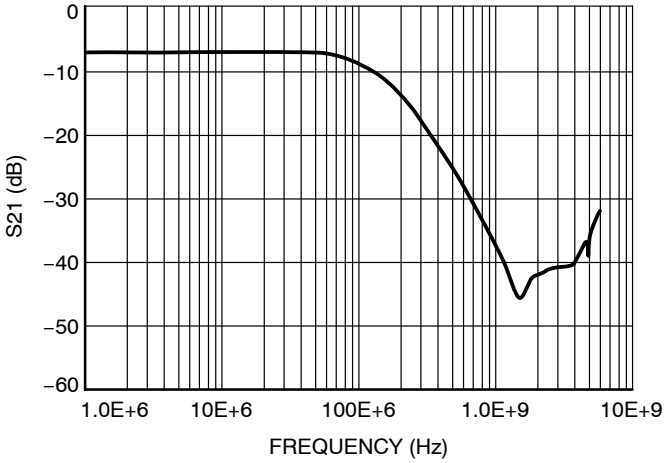


Figure 1. Typical Insertion Loss Curve

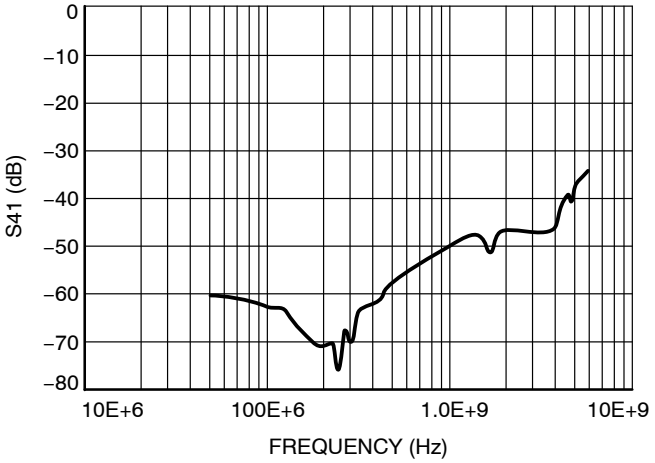


Figure 2. Typical Analog Crosstalk

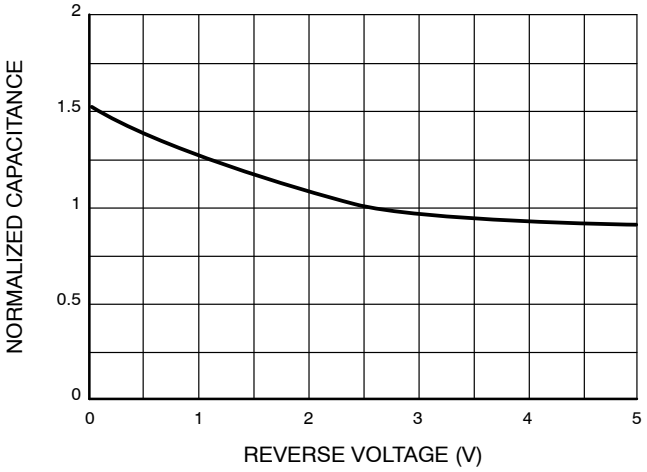


Figure 3. Typical Capacitance vs. Reverse Biased Voltage (Normalized Capacitance, Cd @ 2.5 V)

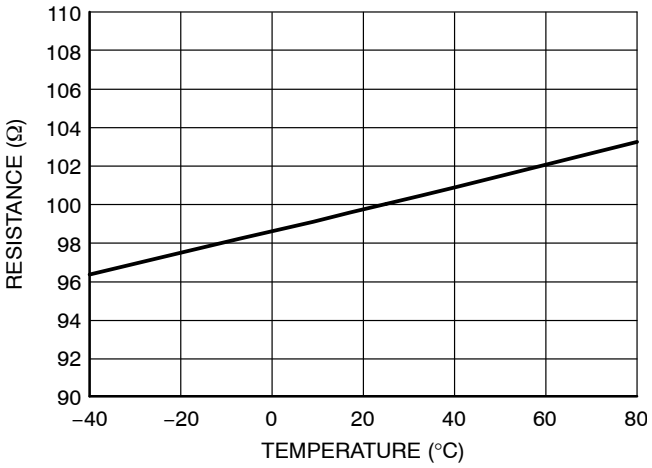
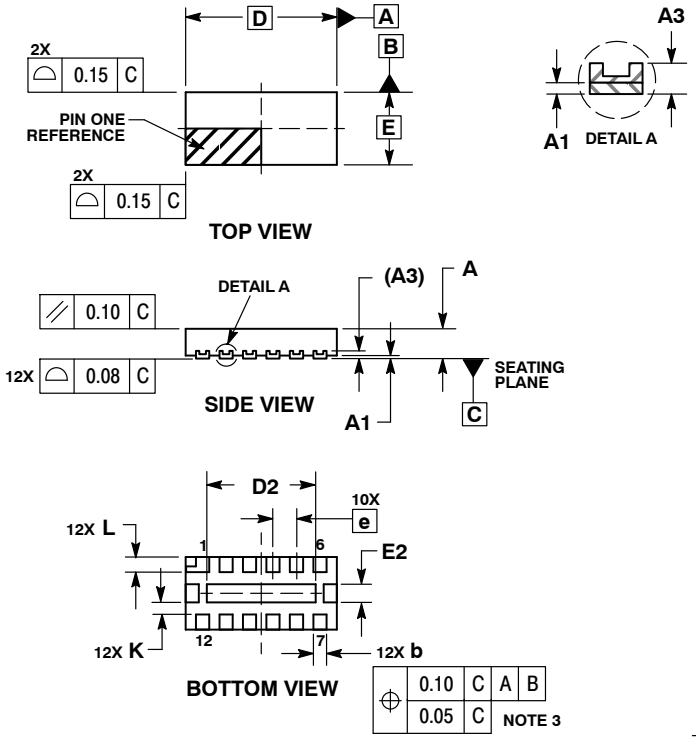


Figure 4. Typical Resistance over Temperature

PACKAGE DIMENSIONS

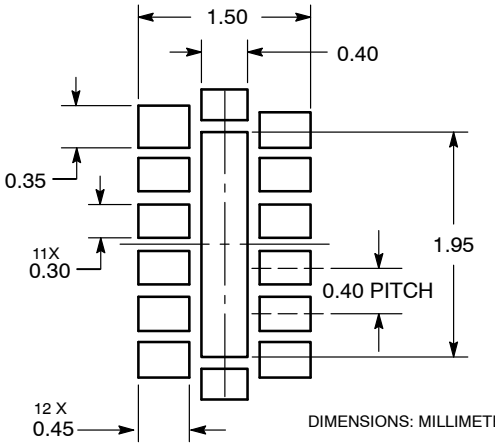
UDFN12, 2.5x1.2, 0.4P
CASE 517AE−01
ISSUE O



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 0.25 AND 0.30 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		2.50 BSC	
D2	1.70	1.80	1.90
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.

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
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Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5773−3850

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For additional information, please contact your local Sales Representative

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