

# NUF2450

## 2 Line EMI Filter with ESD Protection

This device is a 2 line EMI filter array for audio applications. Greater than -30 dB attenuation is obtained at frequencies from 800 MHz to 5.0 GHz. The NUF2450MU has a cut-off frequency of 20 MHz and minimal line resistance, making it ideal for applications requiring low bandpass attenuation. 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 10 Discrete Components
- Compliance with IEC61000-4-2 (Level 4)  
20 kV (Contact)
- UDFN Package, 1.2 x 1.8 mm
- 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 Audio Lines
- 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
- Excellent ESD Performance with Large GND Pad

### Applications

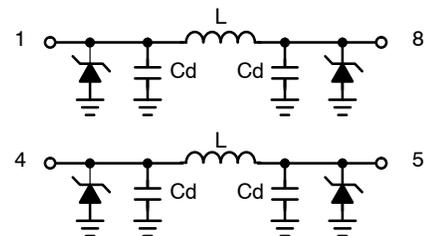
- Headsets, MP3 Players, and PDAs
- Portable DVDs
- Hands-Free Interface

\*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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(Top View)



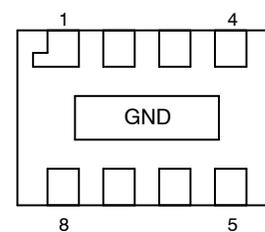
UDFN8  
CASE 517AD

### MARKING DIAGRAM



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

### PIN CONNECTIONS



(Bottom View)

### ORDERING INFORMATION

Device	Package	Shipping†
NUF2450MUT2G	UDFN8 (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.

# NUF2450

## MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
ESD Discharge IEC61000-4-2 Contact Discharge Machine Model Human Body Model	$V_{PP}$	20	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 s)	$T_L$	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
Inductance	L		-	2.3	-	nH
Series Resistance	$R_S$		0.9	1.3	1.7	$\Omega$
Capacitance (Note 1)	$C_{line}$	$V_R = 0 \text{ V}, f = 1.0 \text{ MHz}$	190	240	290	pF
Cut-Off Frequency (Note 2)	$f_{3dB}$	Above this frequency, Appreciable Attenuation Occurs	-	20	-	MHz

1. Measured at  $25^\circ\text{C}$ .
2.  $50 \Omega$  source and  $50 \Omega$  load termination.

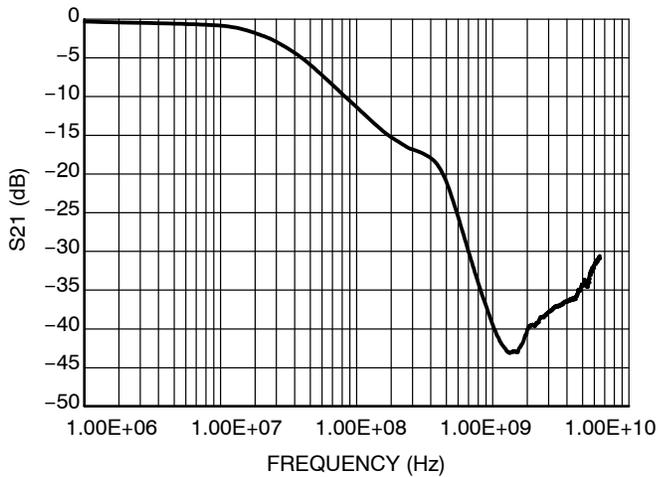


Figure 1. Typical Insertion Loss Characteristics (S21 Measurement)

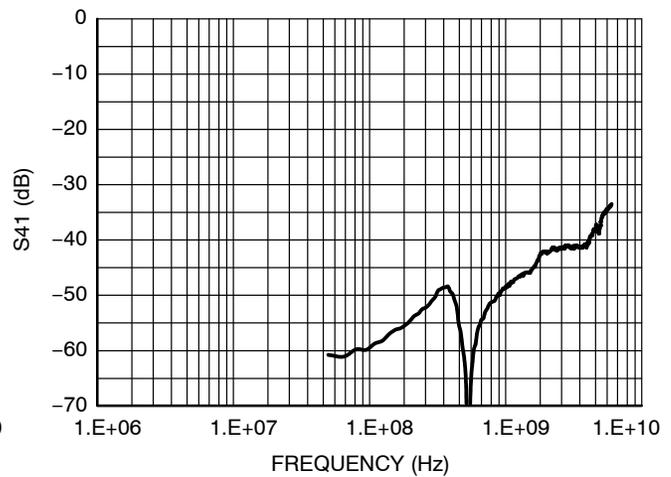
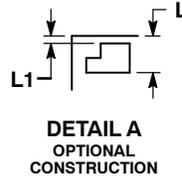
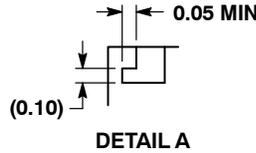
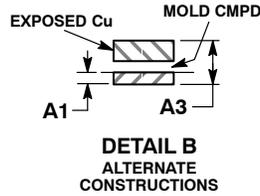
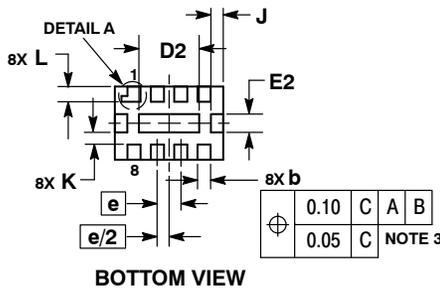
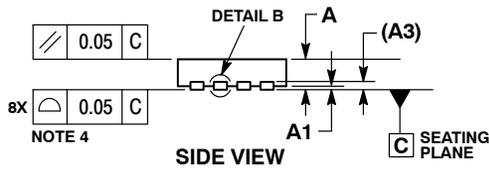
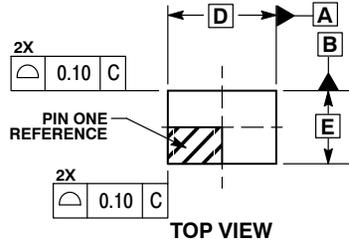


Figure 2. Analog Crosstalk Curve (S41 Measurement)

# NUF2450

## PACKAGE DIMENSIONS

UDFN8, 1.8x1.2, 0.4P  
CASE 517AD  
ISSUE C

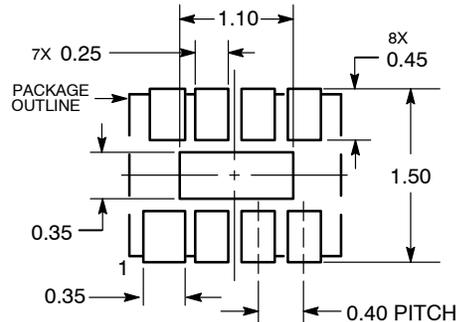


NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 mm FROM TERMINAL.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

MILLIMETERS		
DIM	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A3	0.13	REF
b	0.15	0.25
D	1.80	BSC
E	1.20	BSC
e	0.40	BSC
D2	0.90	1.10
E2	0.20	0.30
J	0.19	REF
K	0.20	---
L	0.20	0.30
L1	---	0.10

### SOLDERING FOOTPRINT\*



DIMENSIONS: MILLIMETERS

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