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# NUF2070MN

## 2 Line Audio EMI Filter with ESD Protection

NUF2070MN is a 2 line LC EMI filter array designed for audio applications. It offers greater than  $-22.5$  dB attenuation at frequencies from 800 MHz to 5.0 GHz. This device also offers ESD protection—clamping transients from static discharges and ESD protection is provided across all capacitors.

### Features

- Provides EMI Filtering and ESD Protection
- Integration of 10 Discretes
- Compliance with IEC61000-4-2 (Level 4) 10 kV (Contact)
- DFN8, 2x2 mm Package
- Moisture Sensitivity Level 1
- ESD Ratings: Machine Model = C  
Human Body Model = 3B
- Excellent Line Efficiency with Low Line Resistance  $< 3.5 \Omega$
- This is a Pb-Free Device\*

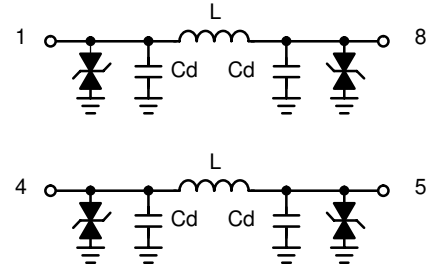
### Applications

- Wireless Phones
- MP3s
- PDAs
- Digital Cameras
- Portable DVDs

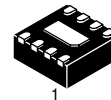


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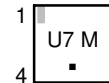


(Top View)

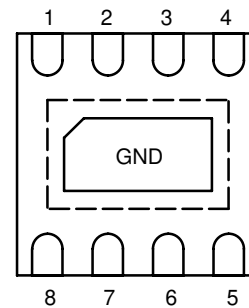


**DFN8  
CASE 506AA  
PLASTIC**

### MARKING DIAGRAM



U7 = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package



(Bottom View)

### ORDERING INFORMATION

Device	Package	Shipping†
NUF2070MNT1G	DFN8 (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 Specification 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.

# NUF2070MN

## MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
ESD Discharge IEC61000-4-2 Contact Discharge	$V_{PP}$	10	kV
Steady-State Power per Resistor	$P_R$	180	mW
Steady-State Power per Package	$P_T$	360	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 s)	$T_L$	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	Test Conditions	Symbol	Min	Typ	Max	Unit
Maximum Reverse Working Voltage	$I_Z = 10 \mu\text{A}$	$V_{RWM}$	-	-	12	V
Breakdown Voltage	$I_R = 1.0 \text{ mA}$	$V_{BR}$	13.7	15.7	17.7	V
Leakage Current	$V_{RWM} = 12 \text{ V}$	$I_R$	-	1.0	100	nA
Inductance		$L$	-	10	-	nH
Series Resistance	$I_F = 50 \text{ mA}$	$R_S$	-	2.4	3.5	$\Omega$
Capacitance (Note 1, 3)		$C_d$	-	64	-	pF
Cut-Off Frequency (Note 2)	Above this frequency, appreciable attenuation occurs	$f_{3dB}$	-	50	-	MHz

1. Measured at  $25^\circ\text{C}$ ,  $V_R = 0 \text{ V}$ ,  $f = 1.0 \text{ MHz}$ .
2.  $50 \Omega$  source and  $50 \Omega$  load termination.
3. Total line capacitance is 2 times the diode capacitance ( $C_d$ ).

# NUF2070MN

## TYPICAL PERFORMANCE CURVES

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

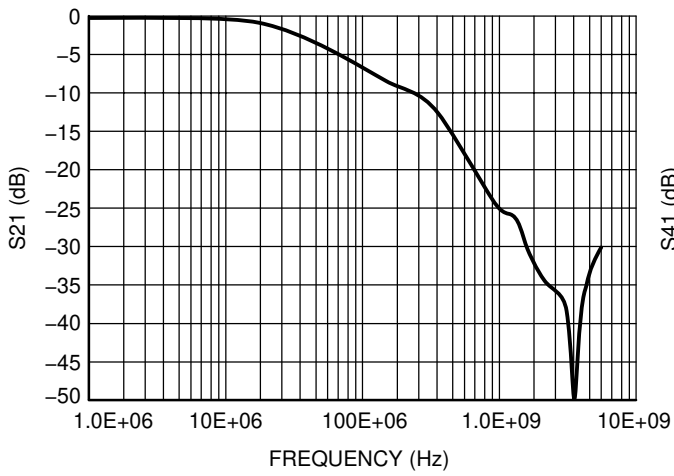


Figure 1. Insertion Loss Characteristics

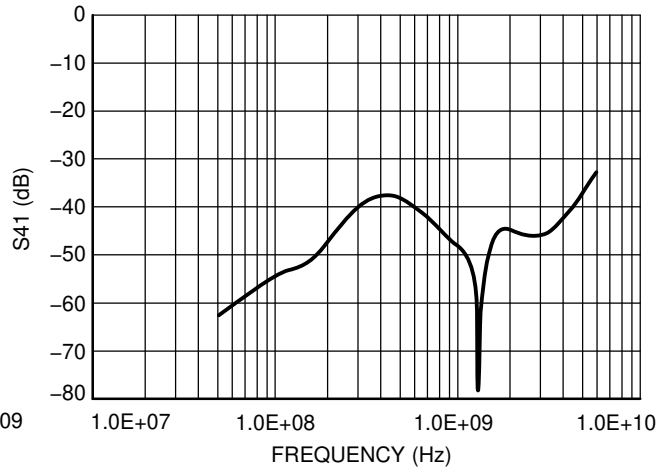


Figure 2. Analog Cross Talk

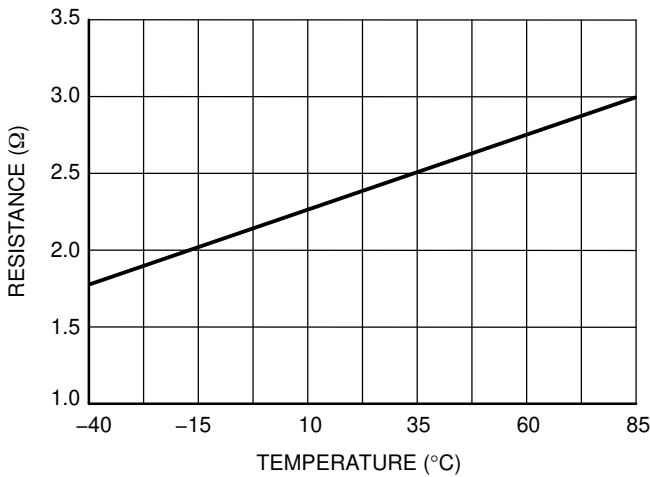


Figure 3. Typical Resistance over Temperature

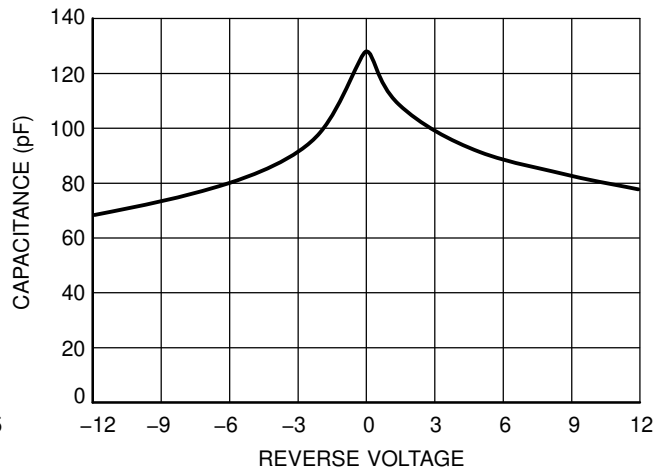


Figure 4. Typical Line Capacitance vs. Reverse Voltage

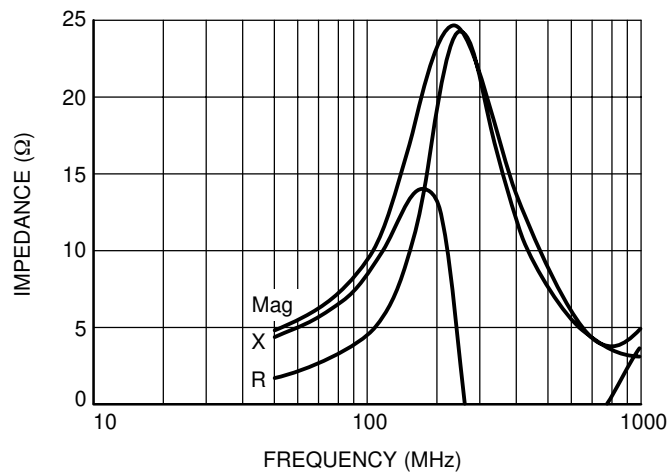
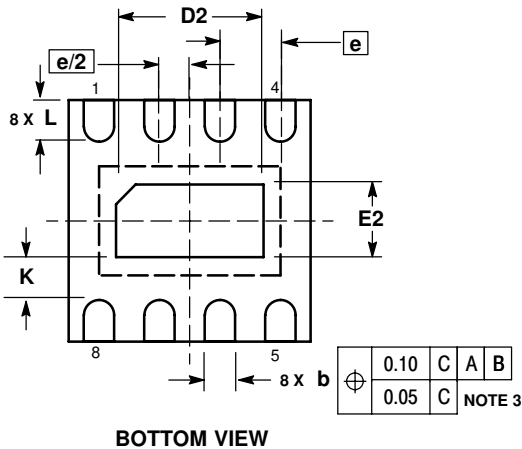
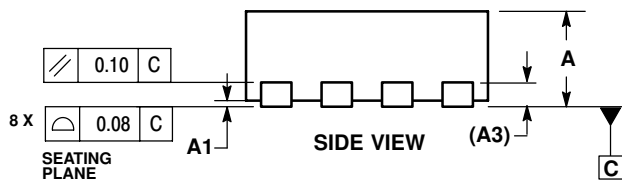
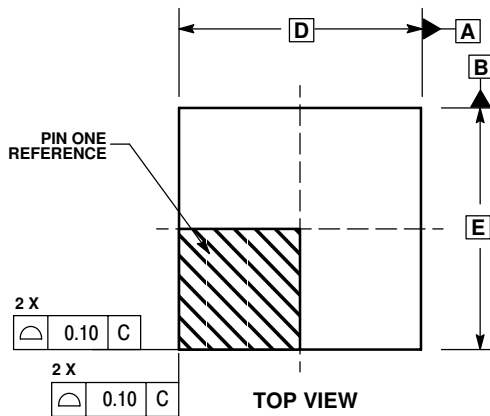


Figure 5. Typical Impedance vs. Frequency

# NUF2070MN

## PACKAGE DIMENSIONS

DFN8  
CASE 506AA-01  
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 0.25 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	0.20	0.30
D	2.00	BSC
D2	1.10	1.30
E	2.00	BSC
E2	0.70	0.90
e	0.50	BSC
K	0.20	---
L	0.25	0.35

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