# 2 Line Audio EMI Filter with ESD Protection

# NUF2114

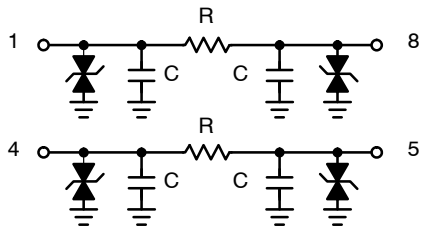
This device is a 2 line audio EMI filter array designed for speaker applications. It offers greater than −30 dB attenuation at frequencies from 900 MHz to 3.0 GHz. This device also offers ESD protection-clamping transients from static discharges and ESD protection is provided across all capacitors.

### Features

- Provides EMI Filtering and ESD Protection
- Integration of 10 Discretes
- Compliance with IEC61000-4-2 (Level 4)
  30 kV (Contact)
- DFN8, 2x2 mm Package
- Moisture Sensitivity Level 1
- ESD Ratings: Machine Model = C
  Human Body Model = 3B
- Matching Series Impedances for Speaker Applications
- This is a Pb-Free Device

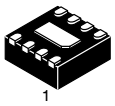
### Applications

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




(Top View)

### MARKING DIAGRAM

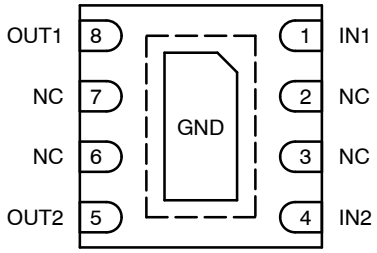



**DFN8**
**CASE 506AA**


U4 = Specific Device Code
M = Date Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

### PIN CONNECTIONS




(Bottom View)

### ORDERING INFORMATION

| Device | Package | Shipping† |
|---|---|---|
| NUF2114MNT1G | 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 **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

## MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| ESD Discharge IEC61000-4-2 Contact Discharge | $V_{PP}$ | 30 | kV |
| Steady-State Power per Resistor @ 25 °C | $P_R$ | 180 | mW |
| Steady-State Power per Package @ 25 °C | $P_T$ | 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 |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

## ELECTRICAL CHARACTERISTICS ($T_J$ = 25°C unless otherwise noted)

| Parameter | Test Conditions | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Maximum Reverse Working Voltage | | $V_{RWM}$ | – | – | 12 | V |
| Breakdown Voltage | $I_R$ = 1.0 mA | $V_{BR}$ | 13.7 | 15.7 | 17.7 | V |
| Leakage Current | $V_{RWM}$ = 12 V | $I_R$ | – | – | 0.1 | μA |
| Resistance | $I_F$ = 40 mA | R | 8.1 | 9.0 | 9.9 | Ω |
| Capacitance per Diode (Notes 1, 3) | | $C_d$ | 51 | 60 | 66 | pF |
| Cut−Off Frequency (Note 2) | Above this frequency, appreciable attenuation occurs | $f_{3dB}$ | | 50 | | MHz |

1. Measured at 25 °C, $V_R$ = 0 V, f = 1.0 MHz.
2. 50 Ω source and 50 Ω load termination.
3. Total line capacitance is 2 times the diode capacitance ($C_d$).

## TYPICAL PERFORMANCE CURVES

($T_A$ = 25 °C UNLESS OTHERWISE SPECIFIED)

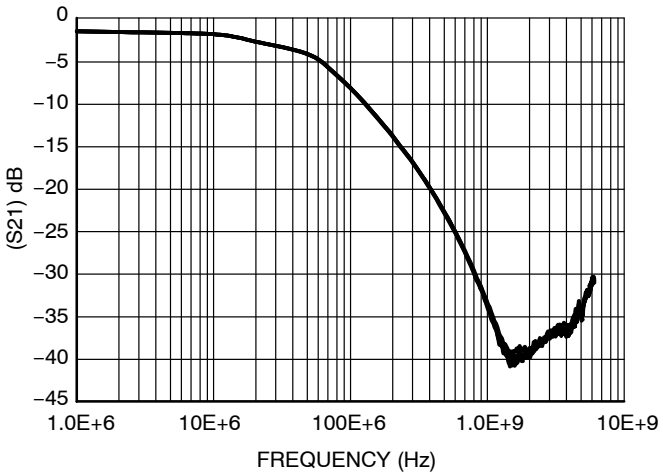



**Figure 1. Insertion Loss Characteristics**

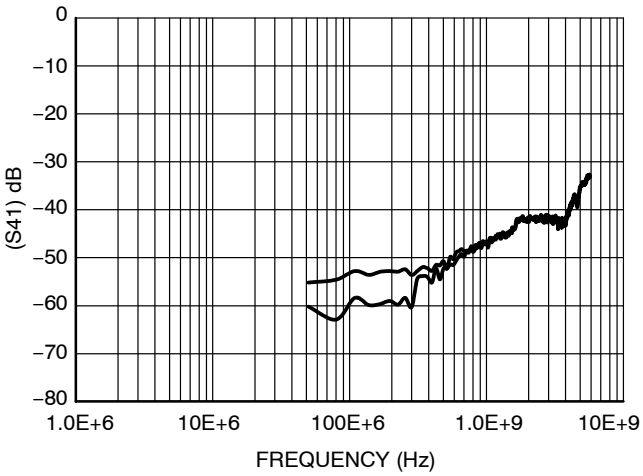



**Figure 2. Analog Cross−Talk**

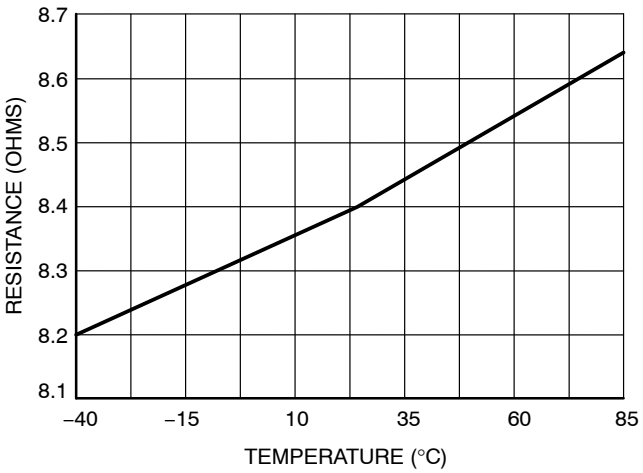



**Figure 3. Typical Resistance over Temperature**

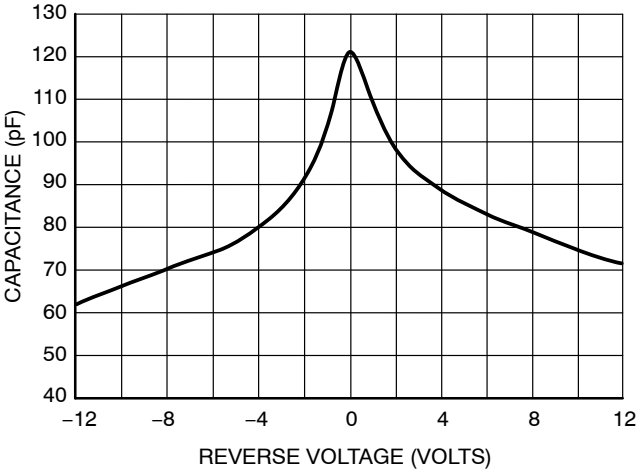
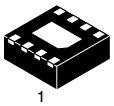



**Figure 4. Typical Line Capacitance vs. Reverse Bias Voltage**

**REVISION HISTORY**

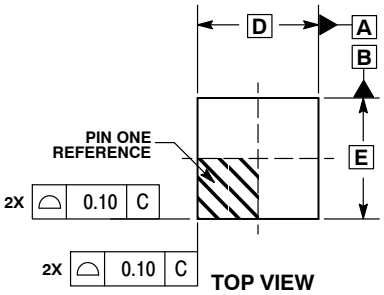
| Revision | Description of Changes | Date |
|---|---|---|
| 1 | Rebranded the Data Sheet to **onsemi** format. | 6/12/2025 |

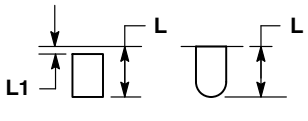


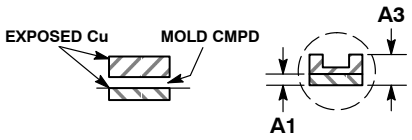
**SCALE 4:1**

**DFN8 2x2, 0.5P**
CASE 506AA
ISSUE F

DATE 04 MAY 2016

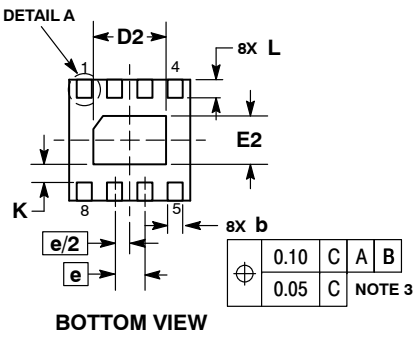


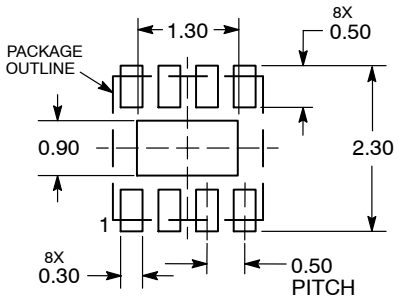




NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994 .
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.20 MM FROM TERMINAL TIP.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

| | 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 | 0.30 REF | |
| L | 0.25 | 0.35 |
| L1 | --- | 0.10 |




## RECOMMENDED SOLDERING FOOTPRINT*




DIMENSIONS: MILLIMETERS

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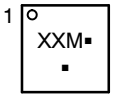
## GENERIC MARKING DIAGRAM*




XX = Specific Device Code
M = Date Code
▪ = Pb−Free Device

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

| | | | |
|---|---|---|---|
| **DOCUMENT NUMBER:** | **98AON18658D** | Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped “CONTROLLED COPY” in red. | |
| **DESCRIPTION:** | **DFN8, 2.0X2.0, 0.5MM PITCH** | | **PAGE 1 OF 1** |

## ADDITIONAL INFORMATION

**TECHNICAL PUBLICATIONS**:
**Technical Library:** www.onsemi.com/design/resources/technical−documentation
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