NUF6106FCT1

6 Channel EMI Pi-Filter Array with ESD Protection

This device is a 6 channel EMI filter array for data lines. Greater than −20 dB attenuation is obtained at frequencies from 800 MHz to 2.2 GHz. It also offers ESD protection − clamping transients from static discharges to protect delicate data line circuitry.

Features
- EMI Filtering and ESD Protection for Data Lines
- Integration of 30 Discretes Offers Cost and Space Savings
- Exceeds IEC61000−4−2 (Level 4) Specifications
- Low Profile Flip−Chip Packaging
- MSL 1

Typical Applications
- EMI Filtering and ESD Protection for Data Lines
- Cell Phones
- Handheld Portables
- Notebook Computers
- MP3 Players

MAXIMUM RATINGS ($T_A = 25°C$)

Rating	Symbol	Value	Unit
ESD Discharge IEC61000−4−2, − Contact Discharge Human Body Model Machine Model	V_{PP}	8.0 16 1.6	kV
DC Power per Resistor	P_R	100	mW
DC Power per Package	P_T	600	mW
Junction Temperature	T_J	150	°C
Operating Temperature Range	T_{op}	−40 to +85	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

ON Semiconductor®

http://onsemi.com

CIRCUIT DESCRIPTION
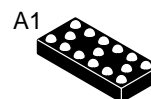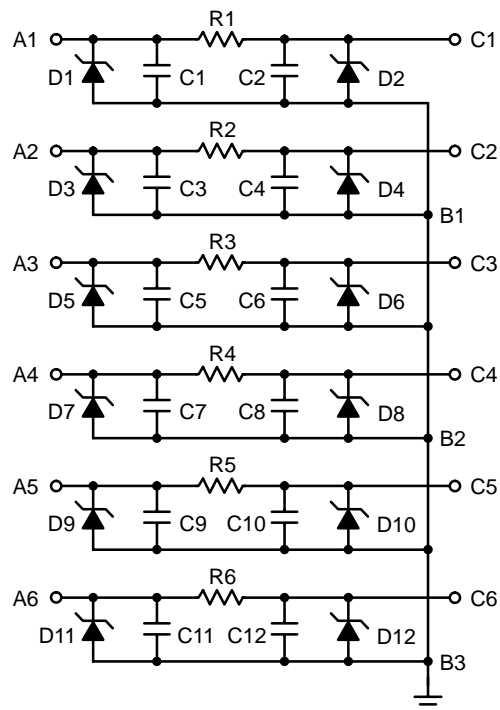
**FLIP−CHIP
CASE 499D
PLASTIC**

DEVICE MARKING

ON
NUF6106YYWW
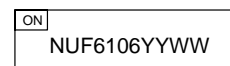
NUF6106= Specific Device Code
YY   = Year
WW   = Work Week

ORDERING INFORMATION

Device	Package	Shipping[†]
NUF6106FCT1	Flip−Chip	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.

NUF6106FCT1

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Symbol	Characteristic	Min	Typ	Max	Unit
V_{BR}	I_Z = 10 mA	6.0	7.0	8.0	V
I_R	V_{RM} = 3.3 V per line	–	–	0.1	μA
$R_{I/O}$	I_R = 20 mA	80	100	120	Ω
C_{line}	V_R = 2.5 V, f = 1 MHz (Note 1)	–	21	23	pF

1. Measured from Input/Output Pins to Ground

TYPICAL PERFORMANCE CURVES

(T_A = 25°C unless otherwise specified)
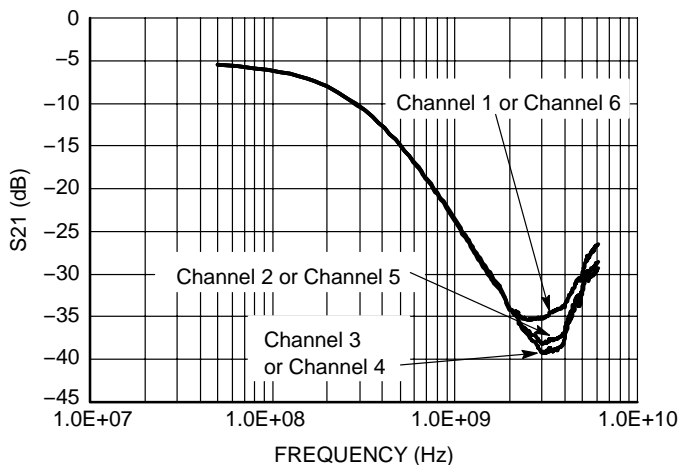
Figure 1. Insertion Loss Characteristics (S21 Measurement)
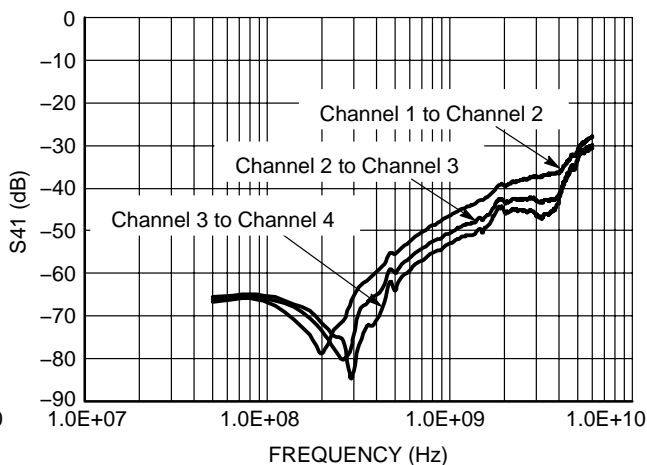
Figure 2. Analog Crosstalk Curve (S41 Measurement)
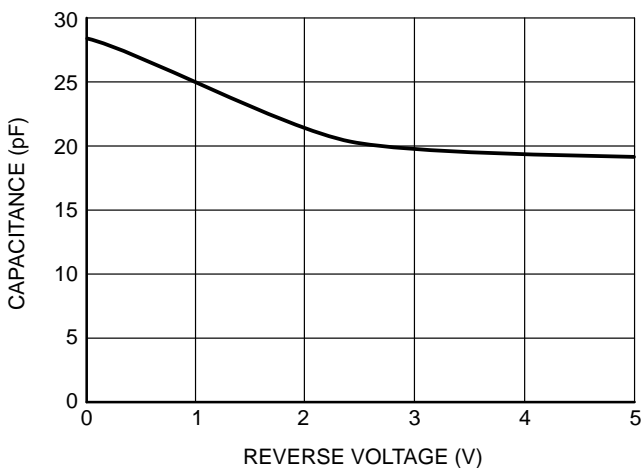
Figure 3. Typical Line Capacitance vs. Reverse Bias Voltage
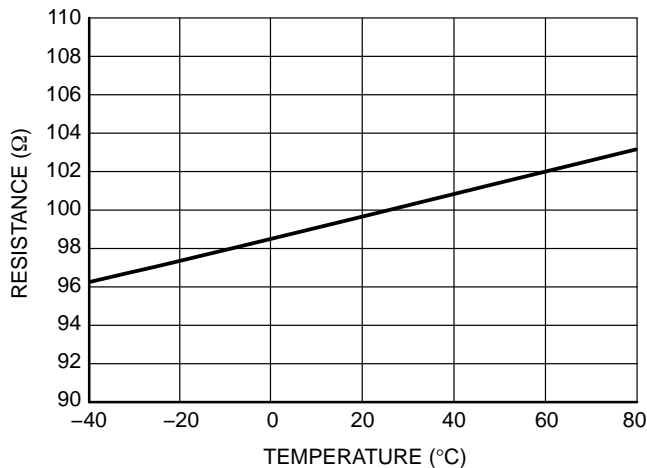
Figure 4. Typical Resistance Over Temperature

NUF6106FCT1

Printed Circuit Board Recommendations

Parameter	500 μm Pitch 300 μm Solder Ball
PCB Pad Size	250 μm +25 −0
Pad Shape	Round
Pad Type	NSMD
Solder Mask Opening	350 μm ±25
Solder Stencil Thickness	125 μm
Stencil Aperture	250 x 250 μm sq.
Solder Flux Ratio	50/50
Solder Paste Type	No Clean Type 3 or Finer
Trace Finish	OSP Cu
Trace Width	150 μm Max

Copper   Solder Mask

NSMD   SMD
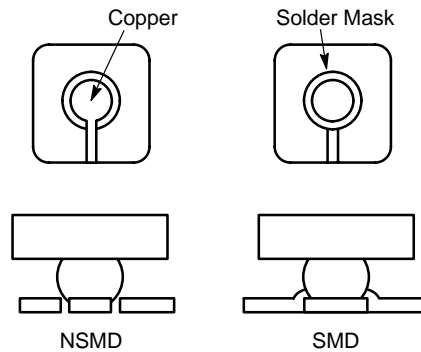
Figure 5. Solder Mask versus Non−Solder Mask Definition

Controlled Atmosphere

225°C Min
235°C Max

183 °C

2 to 5 °C/s

140 to 160 °C

1 to 5 °C/s

1 to 2 min   30−100 sec

TIME (minutes)

TEMPERATURE (°C)
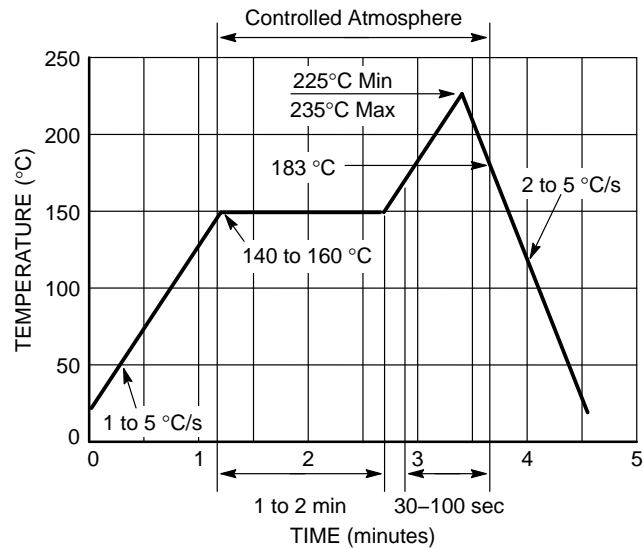
Figure 6. Solder Reflow Profile

15 PIN FLIPCHIP CSP
CASE 499D–01
ISSUE O

DATE 18 OCT 2002

SCALE 4:1

4 X

⌴ 0.10 C

TERMINAL A1 LOCATOR

D ▲ A | B

E

∥ 0.10 C

A1

A2 | A | C

⌴ 0.05 C

SEATING PLANE

D1

e /2 | e

15 X ⌀ b

⊕ | ⌀ 0.05 | C | A | B
⌀ 0.03 | C

C
B
A

1 2 3 4 5 6

E1

e1
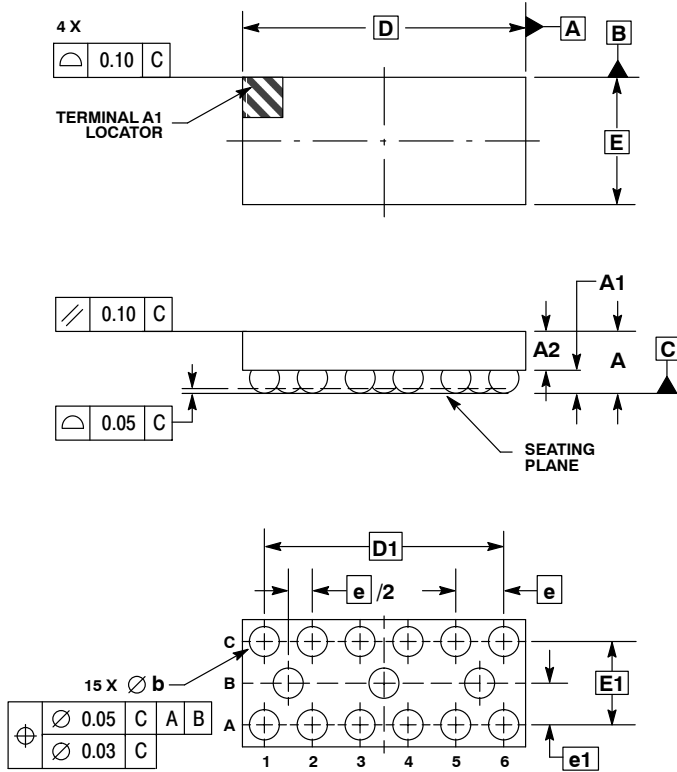
NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETER.
3. COPLANARITY APPLIES TO SPHERICAL CROWNS OF SOLDER BALLS.

DIM	MILLIMETERS	
	MIN	MAX
A	–––	0.700
A1	0.210	0.270
A2	0.380	0.430
D	2.960 BSC	
E	1.330 BSC	
b	0.290	0.340
e	0.500 BSC	
e1	0.435 BSC	
D1	2.500 BSC	
E1	0.870 BSC	

GENERIC DEVICE MARKING

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DESCRIPTION:	15 PIN FLIPCHIP CSP	PAGE 1 OF 1

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical–documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at
www.onsemi.com/support/sales

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