

# NUF6105FCT1

## 6 Channel EMI Pi-Filter Array with ESD Protection

This device is a 6 channel EMI filter array for data lines. Greater than -35 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<sub>A</sub> = 25°C)

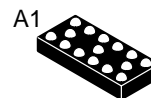
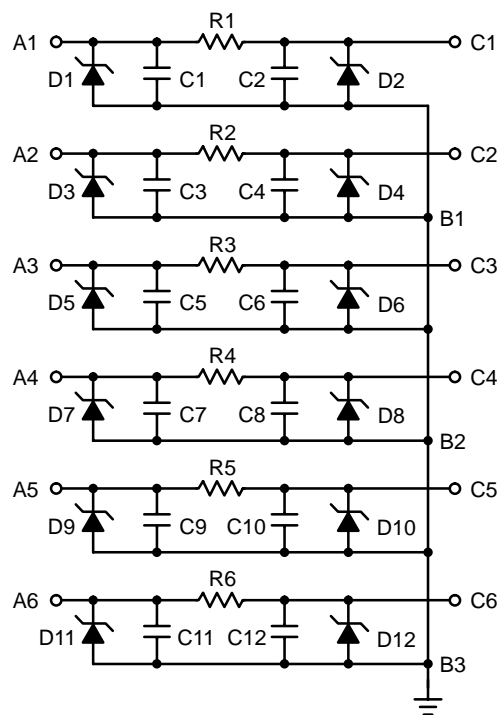
Rating	Symbol	Value	Unit
ESD Discharge IEC61000-4-2, - Air Discharge - Contact Discharge Human Body Model	V <sub>PP</sub>	30 30 16	kV
DC Power per Resistor	P <sub>R</sub>	100	mW
DC Power per Package	P <sub>T</sub>	600	mW
Junction Temperature	T <sub>J</sub>	150	°C
Operating Temperature Range	T <sub>Op</sub>	-40 to +85	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C



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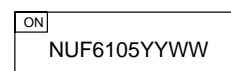
<http://onsemi.com>

### CIRCUIT DESCRIPTION



FLIP CHIP  
CASE 499D  
PLASTIC

### DEVICE MARKING



NUF4105= Specific Device Code  
YY = Year  
WW = Work Week

### ORDERING INFORMATION

Device	Package	Shipping
NUF6105FCT1	Flip Chip	3000/Tape & Reel

# NUF6105FCT1

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Characteristic	Min	Typ	Max	Unit
$V_{BR}$	$I_Z = 10 \text{ mA}$	6.0	7.0	8.0	V
$I_R$	$V_{RM} = 3.3 \text{ V per line}$	-	-	0.1	$\mu\text{A}$
$R_{I/O}$	$I_R = 20 \text{ mA}$	80	100	120	$\Omega$
$C_{line}$	$V_R = 2.5 \text{ V}, f = 1 \text{ MHz}$ (Note 1)	-	53	-	pF

1. Measured from Input/Output Pins to Ground

## TYPICAL PERFORMANCE CURVES

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

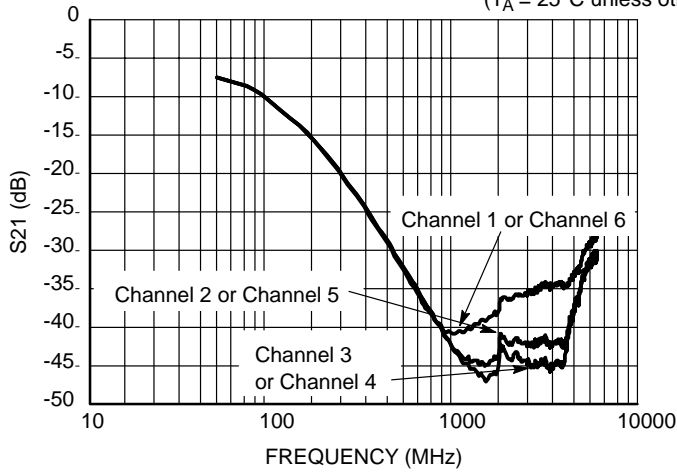


Figure 1. Insertion Loss Curve (S21 Measurement)

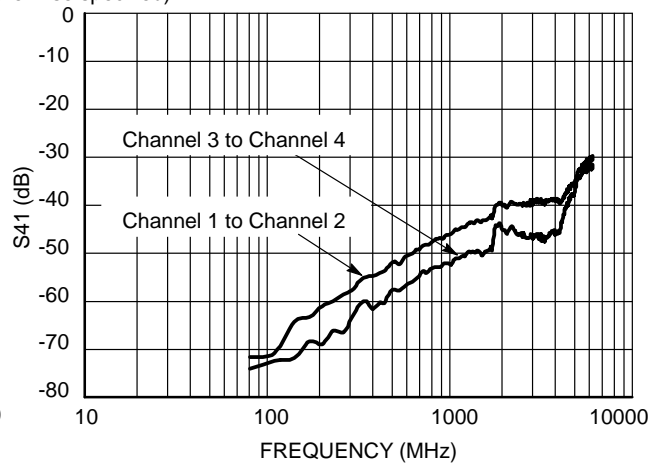


Figure 2. Analog Crosstalk Curve (S41 Measurement)

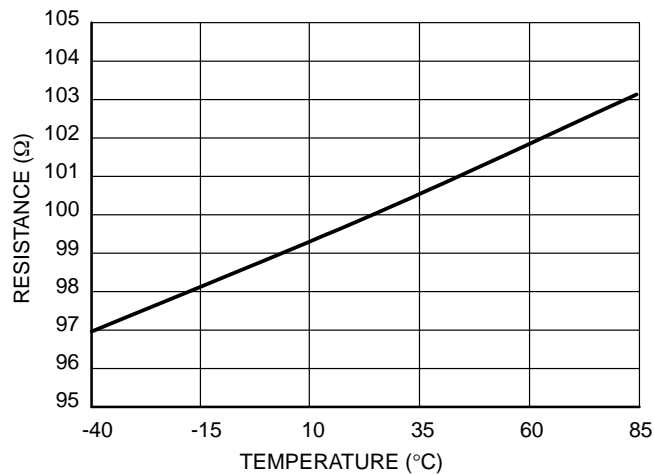


Figure 3. Resistance Over Temperature

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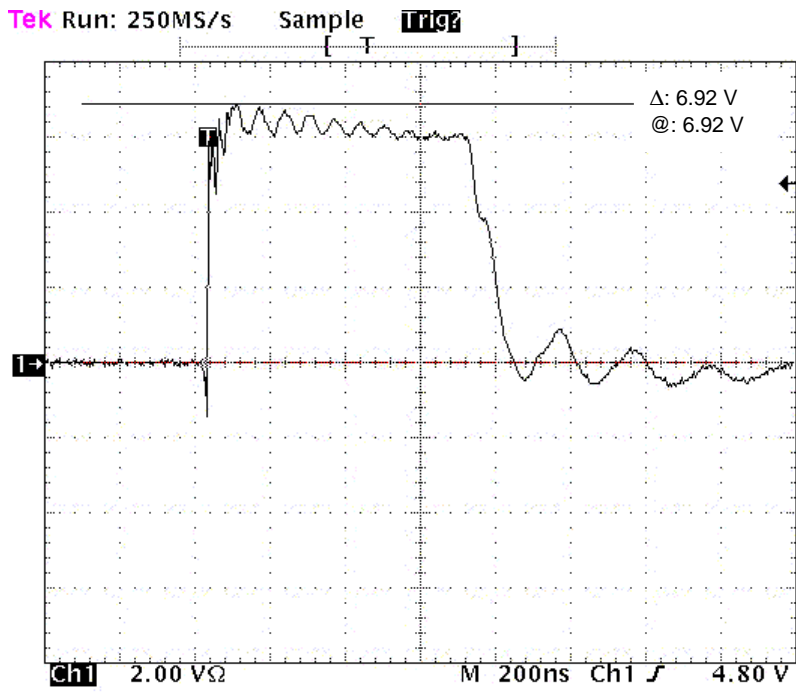


Figure 4. ESD Scope Trace Human Body Model (-8 kV)

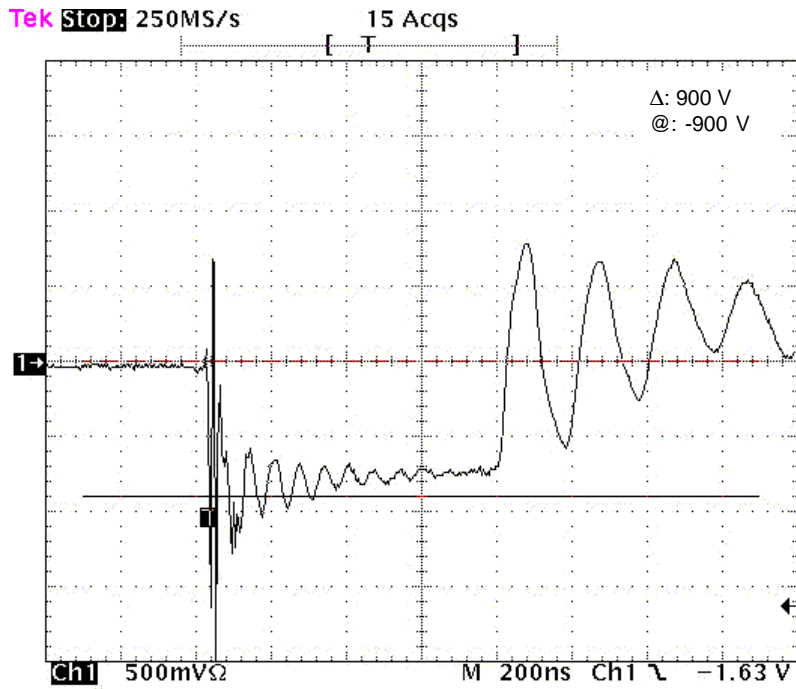


Figure 5. ESD Scope Trace Human Body Model (+8 kV)

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## Printed Circuit Board Recommendations

Parameter	500 $\mu\text{m}$ Pitch 300 $\mu\text{m}$ Solder Ball
PCB Pad Size	250 $\mu\text{m}$ +25 -0
Pad Shape	Round
Pad Type	NSMD
Solder Mask Opening	350 $\mu\text{m}$ $\pm$ 25
Solder Stencil Thickness	125 $\mu\text{m}$
Stencil Aperture	250 x 250 $\mu\text{m}$ sq.
Solder Flux Ratio	50/50
Solder Paste Type	No Clean Type 3 or Finer
Trace Finish	OSP Cu
Trace Width	150 $\mu\text{m}$ Max

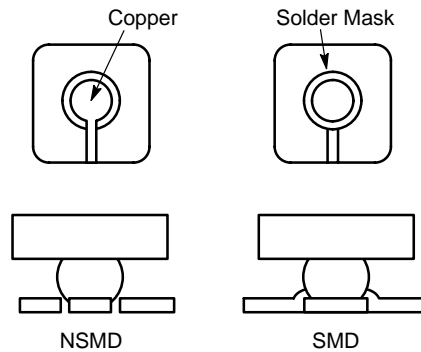


Figure 6. Solder Mask versus Non-Solder Mask Definition

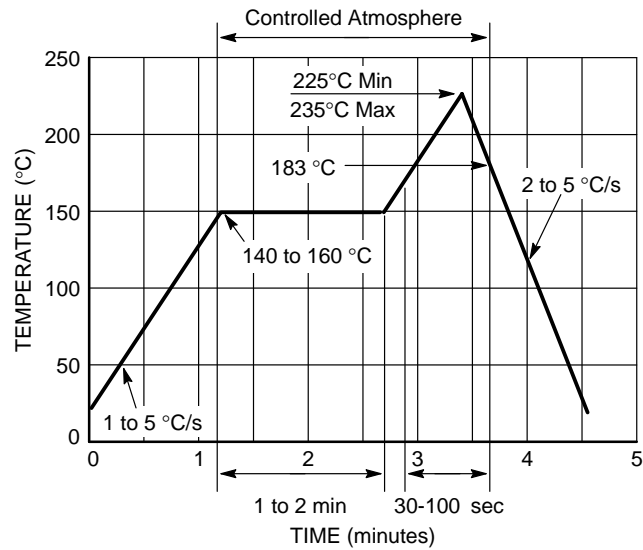
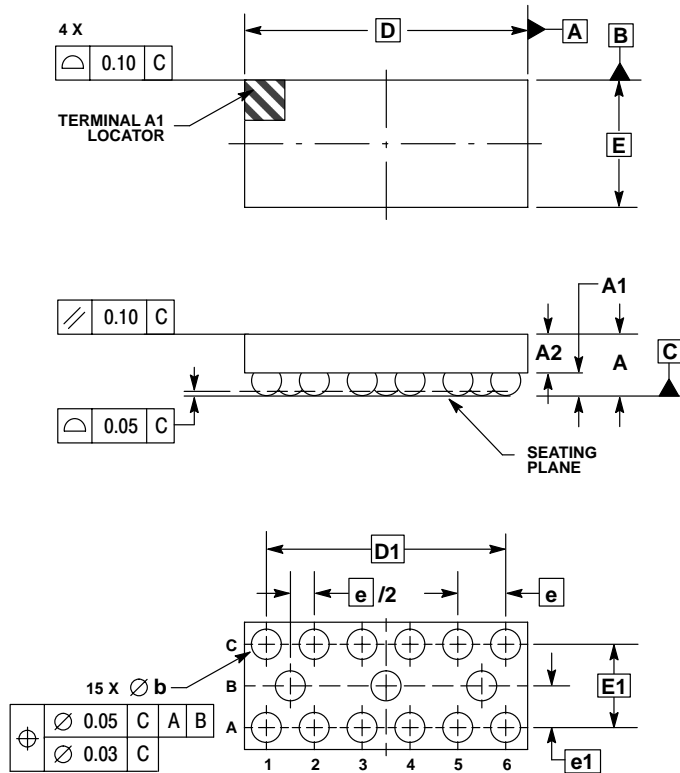


Figure 7. Solder Reflow Profile

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## PACKAGE DIMENSIONS

15 PIN FLIPCHIP CSP  
CASE 499D-01  
ISSUE O



- 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	

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