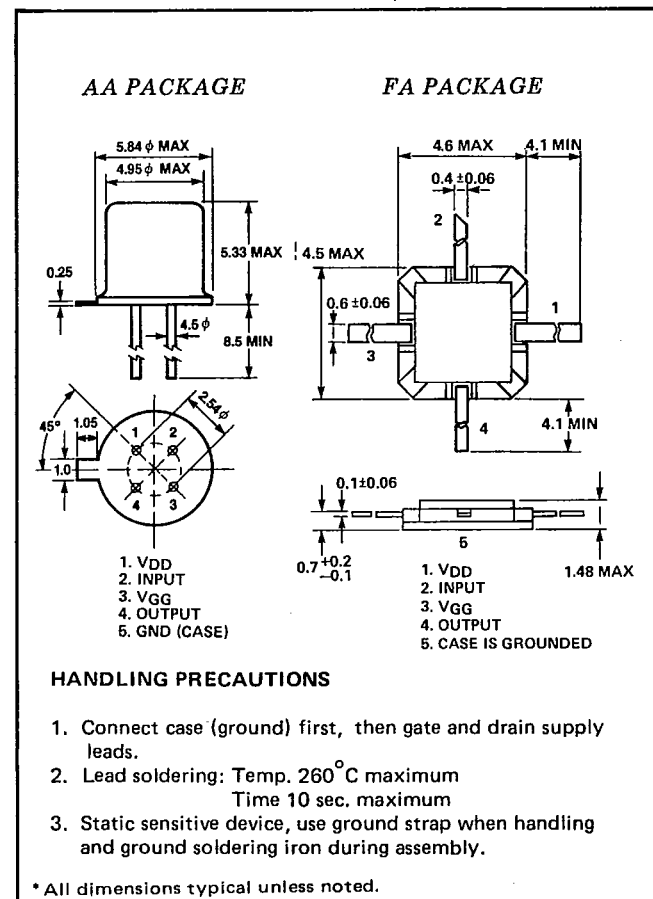


NEC**GaAs MONOLITHIC AMPLIFIER****NEPA1001****PRELIMINARY DATA SHEET****FEATURES**

- **BROAD BANDWIDTH PERFORMANCE:**
50MHz ~ 3GHz
- **LOW NOISE FIGURE:**
4dB TYP at 1GHz
- **HIGH OUTPUT POWER:**
P_{1dB} = +9dBm TYP at 1GHz
- **INPUT/OUTPUT MATCHED TO 50Ω**
- **CASCADABLE FOR MULTISTAGE APPLICATIONS**

DESCRIPTION AND APPLICATIONS

The NEPA1001AA, FA is the first in a new series of GaAs Monolithic Microwave Integrated Circuits (MMIC's). It features wideband performance, low noise, and high output power, and is fabricated on a single GaAs chip. Its high isolation, 40dB typical, and low input/output return loss enables cascadable operation with no external matching or isolation required. Applications include VHF/UHF gain stages and wideband IF gain blocks. The NEPA1001 is available in the 12 package (TO-72) AA version, and in the flat package FA version.

PHYSICAL DIMENSIONS (Units in mm).**ELECTRICAL CHARACTERISTICS**

SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
G _L	Linear Gain, f = 0.1~2.0GHz f = 2.0~3.0GHz	dB dB	12 10		
ΔG _L	Gain Flatness, f = 0.1~2.0GHz f = 2.0~3.0GHz	dB dB	±1.0 ±1.5		
NF	Noise Figure, f = 0.1~2.0GHz V _{DD} = +5VDC f = 2.0~3.0GHz V _{GG} = -5VDC	dB dB		4 4.3	4.5 5.0
P _{1dB}	Output Power, 1dB Gain Compression, f = 0.1~3.0GHz*	dBm	+7	+9	
ISO	Isolation, f = 0.1~3.0 GHz. (NEPA1001FA)	dB	35	40	
RL _{in}	Input Return Loss, f = 0.1~1.0GHz* f = 1.0~2.0GHz f = 2.0~3.0GHz	dB dB dB	6 10 6	10 14 10	
RL _{out}	Output Return Loss, f = 0.1~3.0GHz*	dB	10	16	
I _{DD}	Drain Current, V _{DD} = +5V, V _{GG} = -5V	mA	40	60	80
I _{GG}	Gate Current, V _{DD} = +5V, V _{GG} = -5V	mA		4	5

* Bias Condition (V_{DD} = +5V, V_{GG} = -5V)T_a = 25°C for all data unless noted.

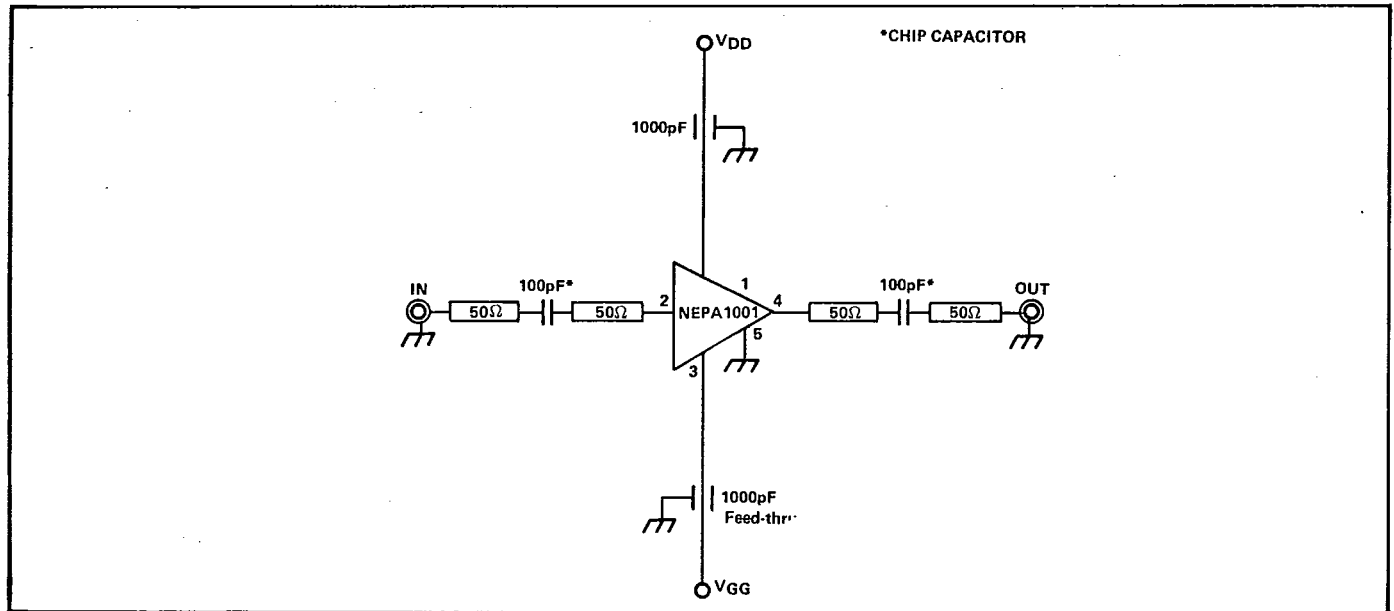
GaAs MONOLITHIC AMPLIFIER

ABSOLUTE MAXIMUM RATINGS

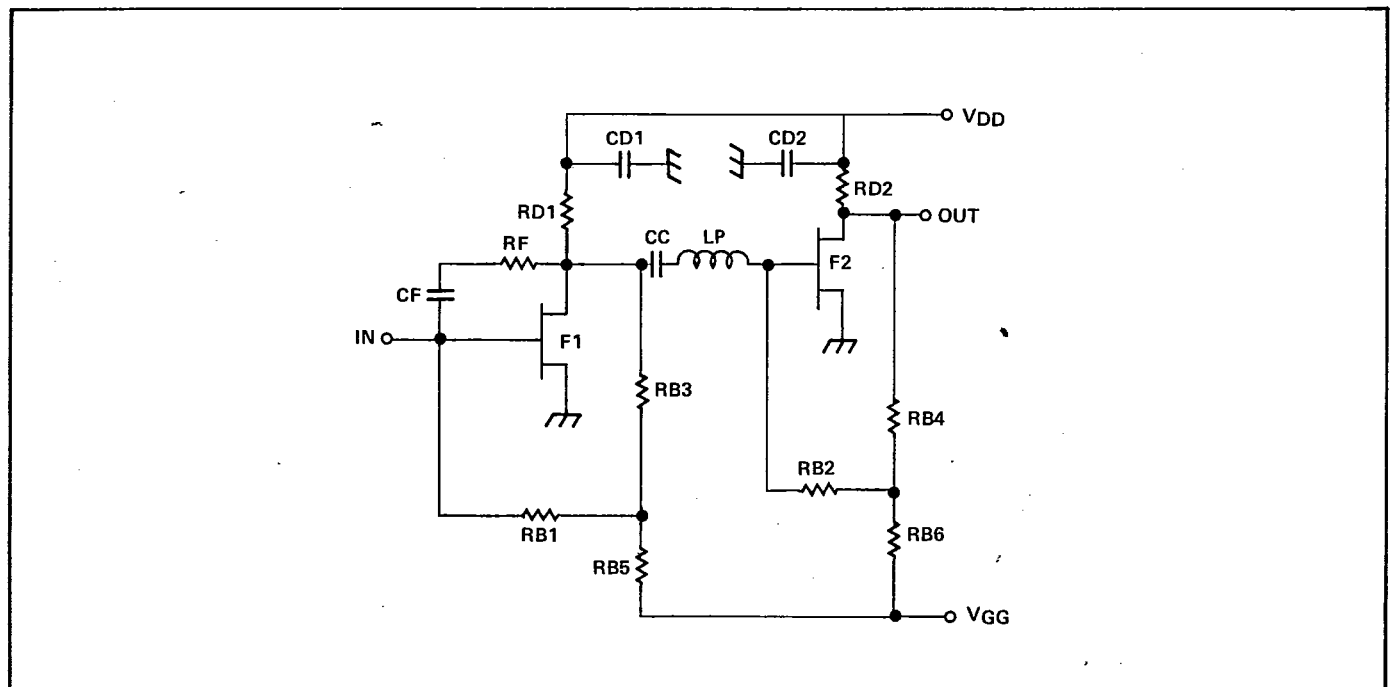
SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{DD}	Drain Voltage	V	+6
V _{GG}	Gate Voltage	V	-6
P _{in}	Input Power	dBm	+17
V _{in}	Input Voltage Range	V	-3.0~+0.6
P _T	Power Dissipation	mW	400
T _c	Operating Case Temperature	°C	-50~+70
T _{stg}	Storage Temperature	°C	-65~+175

T_a = 25° for all data unless noted.

TEST CIRCUIT DIAGRAM

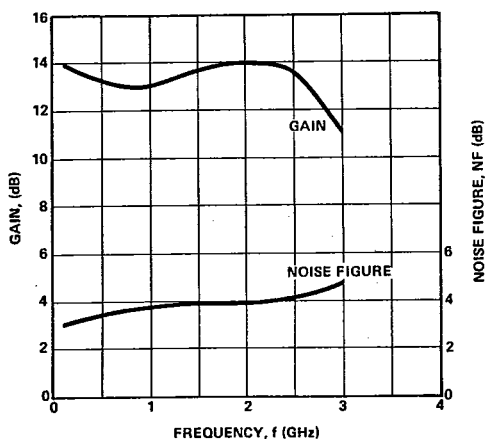


SCHEMATIC DIAGRAM

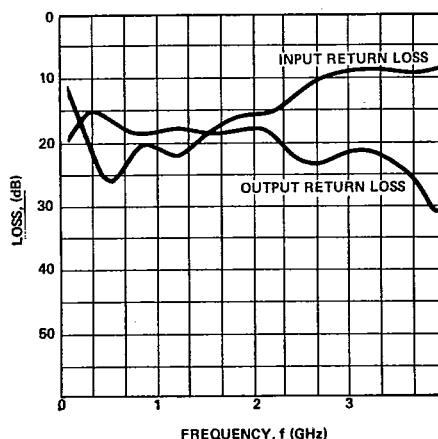


PERFORMANCE CHARACTERISTICS

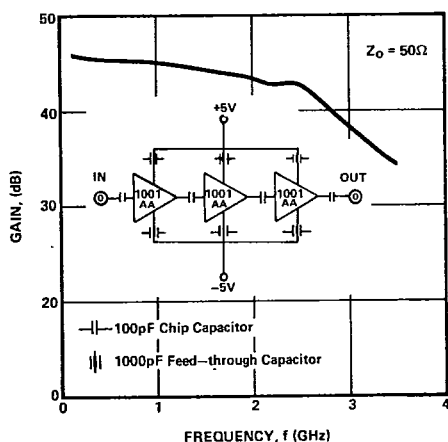
TYPICAL GAIN AND NOISE FIGURE VS. FREQUENCY FOR THE NEPA1001AA, FA



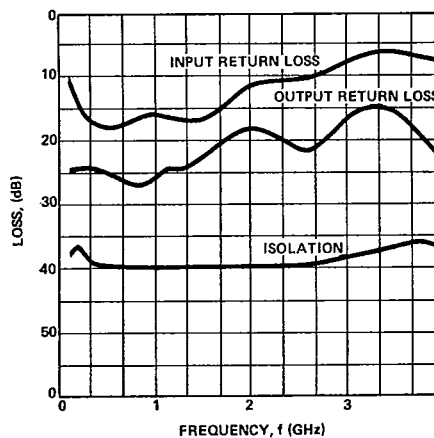
TYPICAL INPUT RETURN LOSS AND OUTPUT RETURN LOSS VS. FREQUENCY FOR THE NEPA1001AA



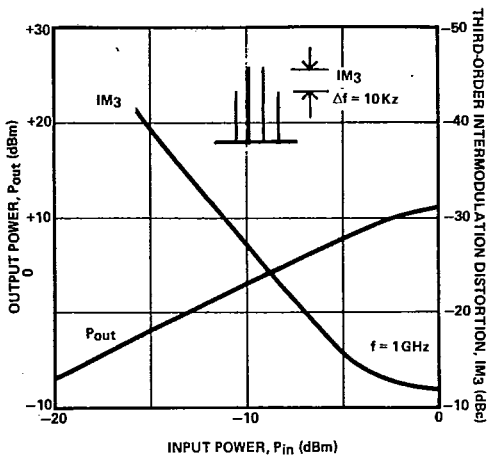
TYPICAL THREE STAGE CASCADED LINEAR GAIN VS. FREQUENCY FOR THE NEPA1001AA



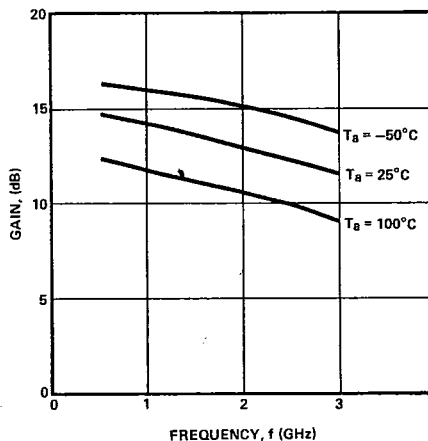
TYPICAL INPUT RETURN LOSS, OUTPUT RETURN LOSS AND ISOLATION VS. FREQUENCY FOR THE NEPA1001FA



TYPICAL OUTPUT POWER AND THIRD ORDER INTERMODULATION DISTORTION VS. INPUT POWER FOR THE NEPA1001AA, FA



TYPICAL LINEAR GAIN VS FREQUENCY FOR THE NEPA1001AA



Bias Condition: $V_{DD} = +5V$, $V_{GG} = -5V$, for all performance data.

$T_a = 25^\circ$ for all data unless noted.