

High Directivity

Monolithic Amplifier

0.5-2.5 GHz

Product Features

- 2.8V & 5V operation
- Micro-miniature size .120"X.120"
- Internal DC blocking at RF input and output
- High directivity, 17 dB typ.
- Low noise figure
- Output power, up to +11.4 dBm typ.
- Excellent repeatability
- Low cost
- Aqueous washable

Typical Applications

- Buffer amplifier
- Cellular
- PCN
- Communications satellite
- Defense



MNA-3+
MNA-3

CASE STYLE: DQ849
PRICE: \$1.60 ea. QTY. (30)

*+ RoHS compliant in accordance
with EU Directive (2002/95/EC)*

The +Suffix identifies RoHS Compliance. See our web site
for RoHS Compliance methodologies and qualifications.

General Description

MNA-3 and MNA-3+ are wideband amplifiers offering high dynamic range. They have repeatable performance from lot to lot. They are enclosed in a 3x3 mm MCLP plastic package. MNA-3 and MNA-3+ are fabricated using GaAs MESFET technology. Expected MTBF at 85°C case temperature is 120,000 years at 2.8V; 60,000 years at 5V.

Function	Pin Number	Description
RF IN	2	RF input pin
RF-OUT	5	RF output pin
DC	7, with 1000 pF bypass to ground; connect pin 8 via 33 ohms to pin 7 externally	Bias pins
GND	3,4 and paddle in center of bottom	Connections to ground
OPTIONAL	1,6	No internal connection; recommended use: per PCB Layout PL-078

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RF/IF MICROWAVE COMPONENTS

REV. K
M108520
MNA-3
070522
Page 1 of 4

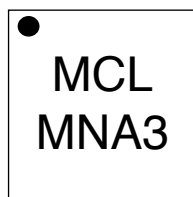
Electrical Specifications at 25°C

Parameter		Min.	Typ.		Max.	Units
Frequency Range		0.5			2.5	GHz
at DC Volts		5.0	5.0	2.8	5.0	V
Gain	f=0.5 GHz f=1.0 GHz f=1.5 GHz f=2.0 GHz f=2.5 GHz	13.0	14.6	14.2		dB
			16.2	15.2		
			16.1	15.0		
			15.0	14.0		
			11.8	11.0		
Input Return Loss	f=0.75-2.5 GHz		10	10		dB
Output Return Loss	f=0.75-2.5 GHz		14	14		dB
Output Power @ 1 dB compression	f=0.5 GHz f=2.5GHz		11.4 9.5	9.7 8.0		dBm
Output IP3	f=1 GHz f=2 GHz		19.6 18.0	21.3 19.9		dBm
Noise Figure	f=1 GHz		4.9	4.8		dB
Directivity (Isolation - Gain)	f=0.5-2.5 GHz		17			
DC Current			30	28	40	mA
Thermal Resistance, junction-to-case			78			°C/W

Absolute Maximum Ratings

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Voltage	7V at pin 7 10V at pins 2 & 5
Power Dissipation	500mW
Input Power	10dBm

Note: Permanent damage may occur if any of these limits are exceeded.
These ratings are not intended for continuous normal operation.

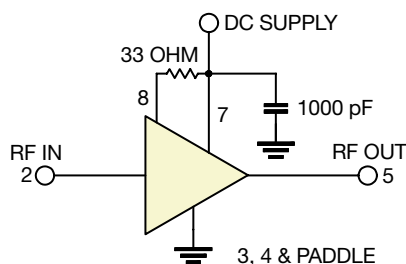
Product Marking**Additional Detailed Technical Information**

Additional information is available on our web site. To access this information enter the model number on our web site home page.

Performance data, graphs, s-parameter data set (.zip file)**Case Style: DQ849**

MNA-3+: Plastic package, exposed paddle, lead finish: tin/silver/nickel

MNA-3: Plastic package, exposed paddle, lead finish: tin/lead

Tape & Reel: F66**Suggested Layout for PCB Design: PL-078****Evaluation Board: TB-186+****Environmental Ratings: ENV08T1****Recommended Application Circuit**

Monolithic MMIC Amplifier

ESD Rating

Human Body Model (HBM): Class 1A (250v to < 500v) in accordance with ANSI/ESD STM 5.1 - 2001

Charged Device Model (CDM): Class III (500 to 1000v) in accordance with JESD22-C101A

MSL Rating

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020C

No.	Test Required	Condition	Standard	Quantity
1	Visual Inspection	Low Power Microscope Magnification 40x	MIP-IN-0003 (MCT spec)	45 units
2	Electrical Test	Room Temperature	SCD (MCL spec)	45 units
3	SAM Analysis	Less than 10% growth in term of delamination	J-Std-020C (Jedec Standard)	45 units
4	Moisture Sensitivity Level 1	Bake at 125°C for 24 hours Soak at 85°C/85%RH for 168 hours Reflow 3 cycles at 260°C peak	J-Std-020C (Jedec Standard)	45 units

MSL Test Flow Chart

