

# Surface Mount Monolithic Amplifiers

## MNA+ SERIES MNA SERIES

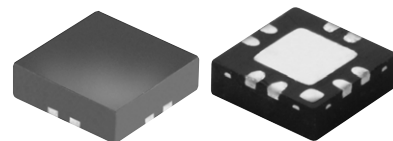
### High Directivity, 50Ω, 0.5 to 5.9 GHz

#### Features

- 3V & 5V operation
- micro-miniature size .120"x.120"
- no external biasing circuit required
- high directivity, 20 dB typ.
- wide bandwidth, 0.5 to 5.9 GHz
- low noise figure, 2.9 dB typ. MNA-6(+)
- output power, up to +19 dBm typ.
- excellent repeatability
- low cost

#### Applications

- buffer amplifier
- cellular
- PCN



CASE STYLE:DQ849

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

See our web site for RoHS Compliance methodologies and qualifications.

### Electrical Specifications at T<sub>AMB</sub>=25°C

MODEL NO.	FREQ. (GHz) f <sub>L</sub> - f <sub>U</sub>	DC VOLTS (V)	GAIN, dB Typical							MAXIMUM POWER (dBm)		DYNAMIC RANGE			VSWR* (:1) Typ.		DIRECTIVITY (dB) (Isolation-Gain) Typ.	DC OPERATING CURRENT @ Pin 3 (mA)		THERMAL RESISTANCE θ <sub>JC</sub> Typ. °C/W	CASE STYLE	CONNECTION	PRICE \$ Qty. (30)
			over frequency, GHz							Output (1 dB Comp.) Typ. f <sub>L</sub> f <sub>U</sub>	NF (dB) Typ. at 1 GHz	IP3 (dBm) Typ. at 1 GHz	IP3 (dBm) Typ. at 2 GHz	In	Out	Typ.		Typ.	Max.				
			0.5	1.0	1.5	2.0	2.5	Min. at 2 GHz	17.7														
MNA-2(+)	0.5-2.5	5.0 2.8	10.6	12.8	12.8	12.3	11.9	10.3	—	17.7	14.9	5.4	26.5	28.0	1.5	1.6	20	76	95	78	DQ849	nt	1.90
MNA-3(+)	0.5-2.5	5.0 2.8	14.6	16.2	16.1	15.0	11.8	13.0	—	11.4	9.5	4.9	19.6	21.3	1.9	1.5	17	30	40	78	DQ849	nt	1.60
MNA-4(+)	0.5-2.5	5.0 2.8	15.6	16.6	16.4	15.8	13.3	14.0	—	19.0	17.0	4.8	28.4	29.0	1.5	1.7	20	75	90	78	DQ849	nt	1.90
MNA-5(+)	0.5-2.5	5.0 2.8	18.5	22.8	21.9	20.6	18.0	17.0	—	12.2	8.0	3.5	19.4	21.0	1.6	1.9	17	28	40	78	DQ849	nt	1.60
MNA-6(+)	0.5-2.5	5.0 2.8	19.4	23.5	23.6	23.0	20.2	21.5	—	18.0	15.8	2.9	27.1	28.0	1.5	1.6	17	81	95	78	DQ849	nt	2.25
MNA-7(+)	1.5-5.9	5.0 2.8	15.9	17.2	17.4	17.2	10.8	15.0	—	15.6	15.9	6.9	28.4	28.6	2.0	1.5	20	73	96	78	DQ849	nt	2.25
			13.7	15.4	15.8	16.7	9.8	—	—	12.7	13.1	6.9	24.1	23.8	2.0	1.5	24	65	—				

\* VSWR above .75 GHz

#### Maximum Ratings

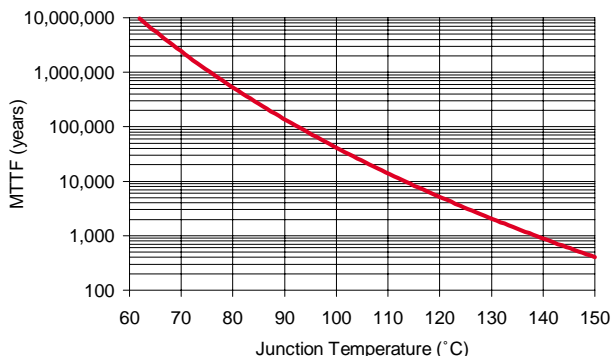
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Voltage	7V at pin 7 <sup>†</sup> 10V at pins 2&5
Power	500mW
Input Power (no damage)	10 dBm

<sup>†</sup>Refer to pin configuration for DC

#### Pin Configuration

PORT	(nt)
RF IN	2
RF OUT	5
DC	7, with 1000 pF bypass to ground; connect pin 8 via 33 ohms to pin 7 externally
GND EXT.	3,4 and paddle in center of bottom
OPTIONAL	1,6 No internal connection; recommended use: per PCB Layout (see next sheet)
DEMO BOARD	TB-186

MTTF vs. Junction Temp. (MNA)



designers kit available

KIT No.	No. of Units in KIT	Description	Price \$ per KIT
K1-MNA	40	10 of each: MNA-2(+),MNA-3(+),MNA-5(+),MNA-6(+)	69.95
K2-MNA	60	10 of each: MNA-2(+),MNA-3(+),MNA-4(+),MNA-5(+),MNA-6(+),MNA-7(+)	99.95



Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified

INTERNET <http://www.minicircuits.com>

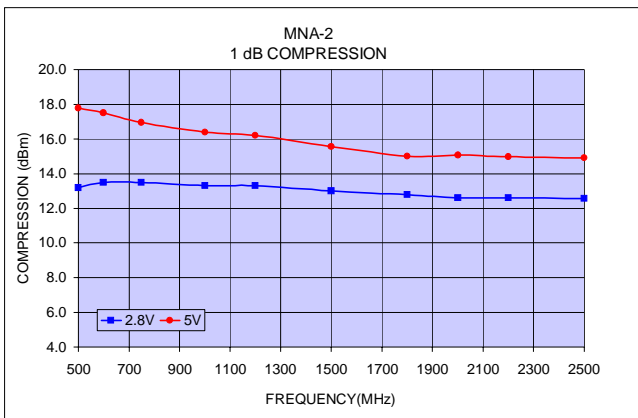
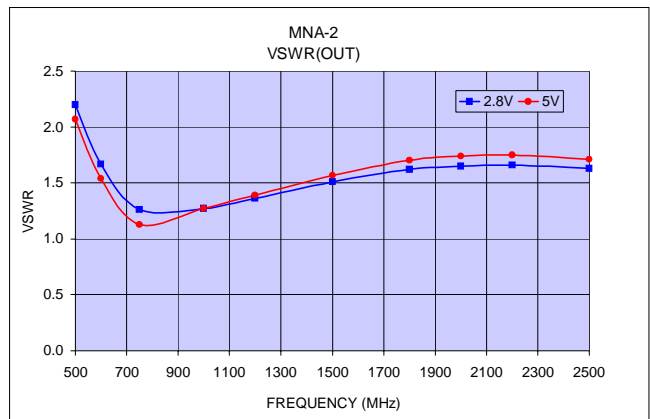
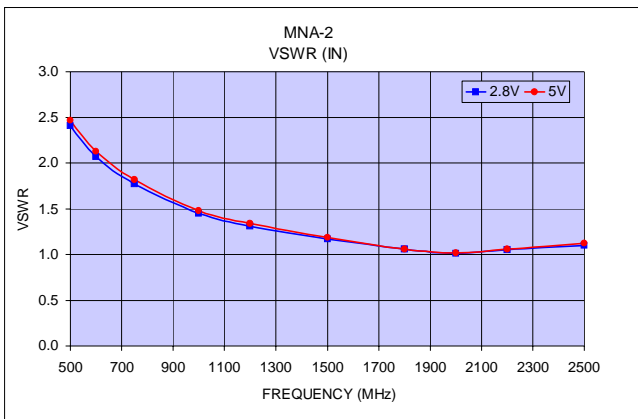
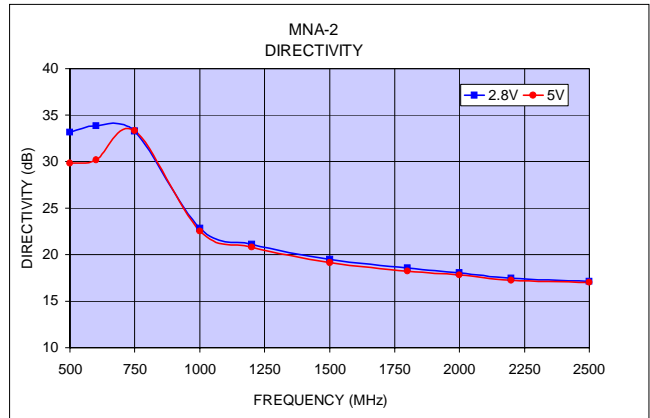
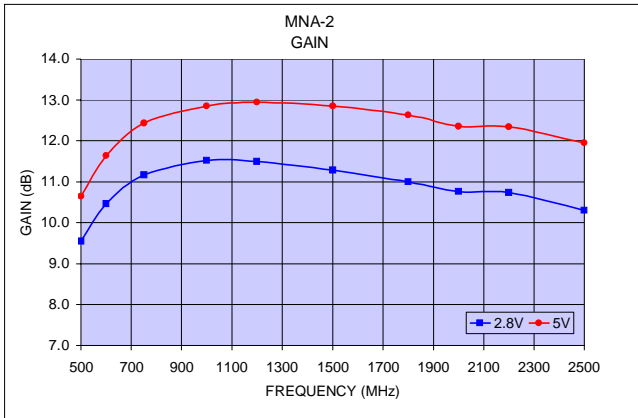
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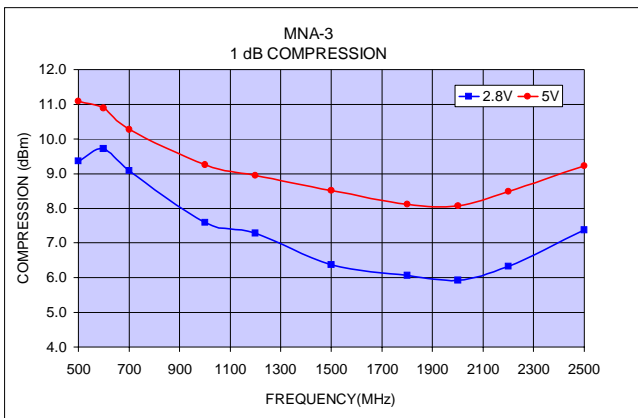
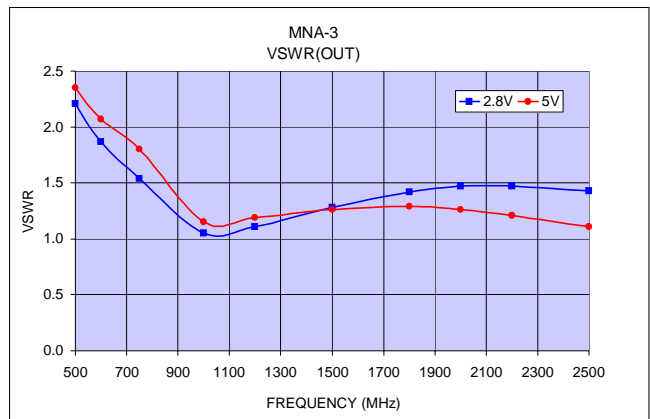
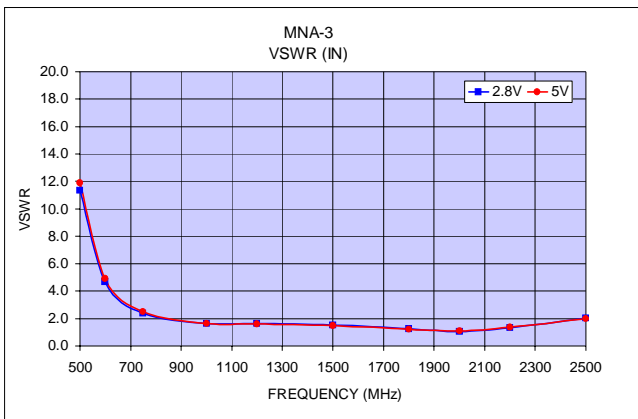
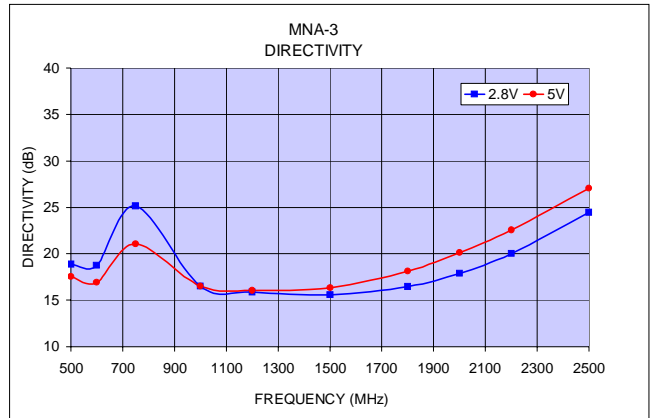
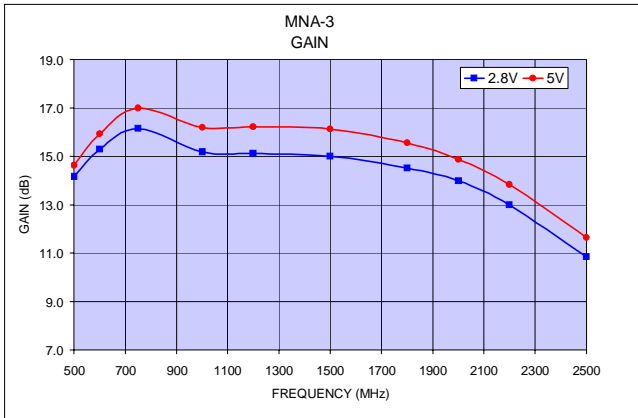
# MNA-2 Performance Curves

# MNA+ SERIES MNA SERIES



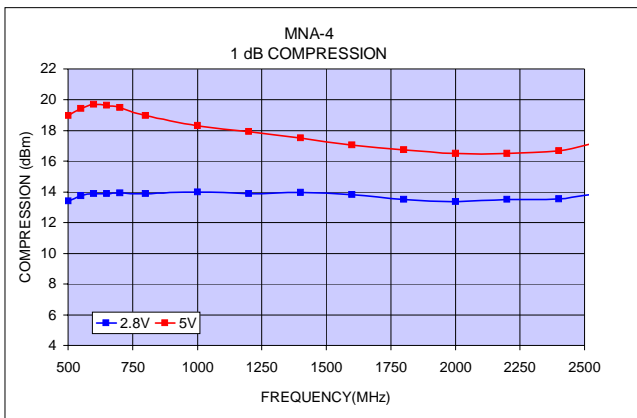
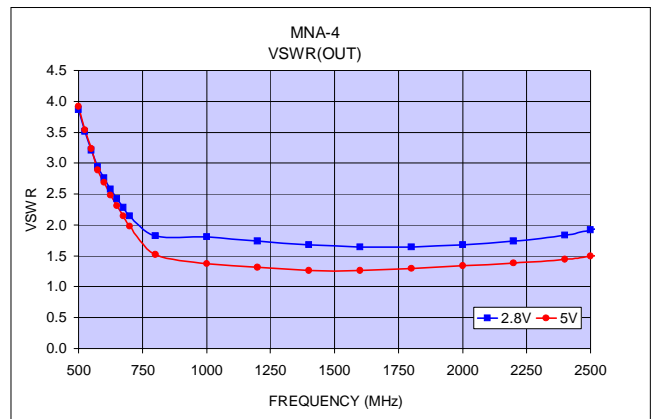
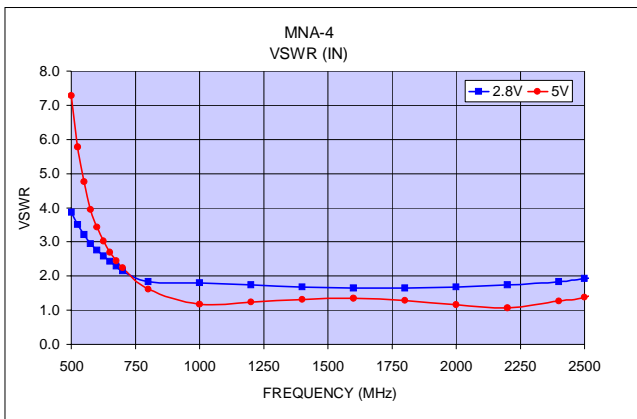
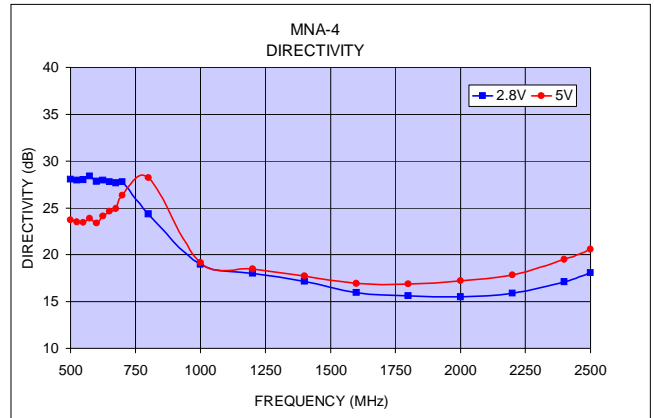
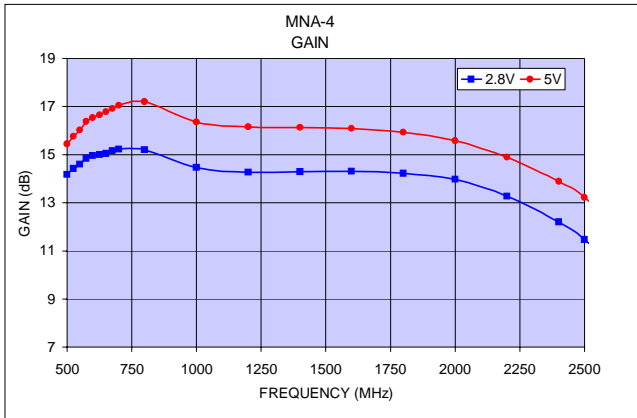
# MNA-3 Performance Curves

# MNA+ SERIES MNA SERIES



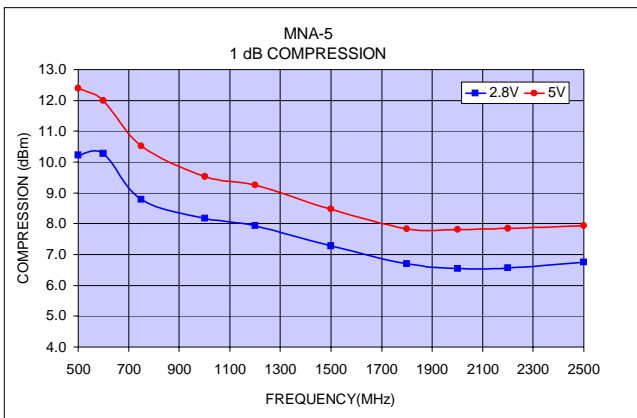
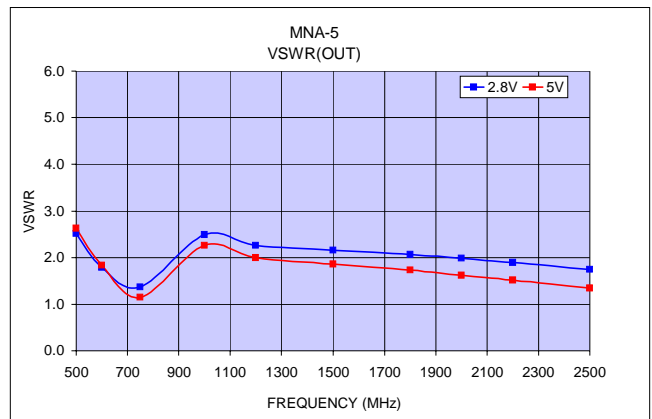
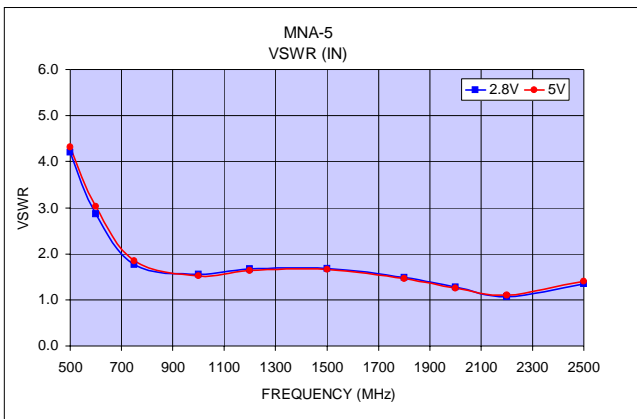
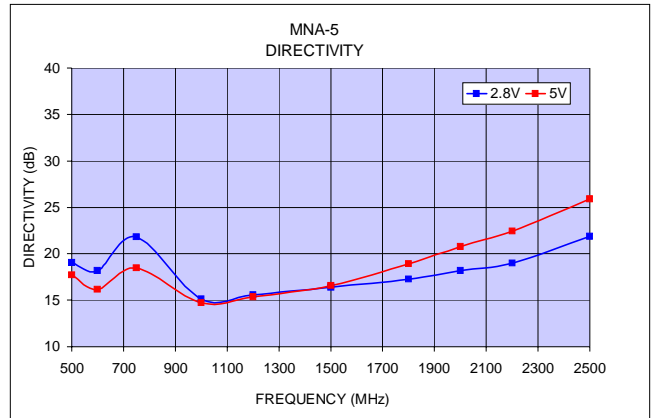
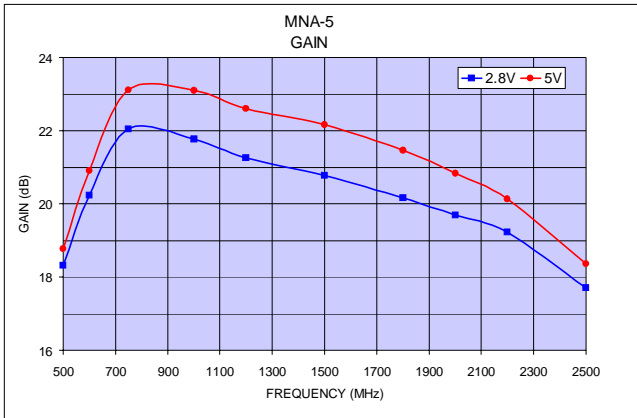
# MNA-4 Performance Curves

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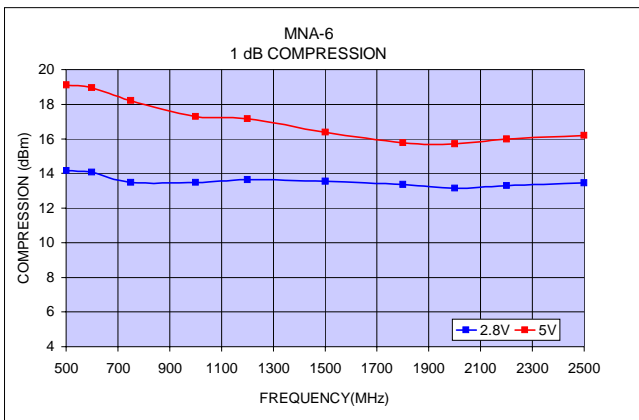
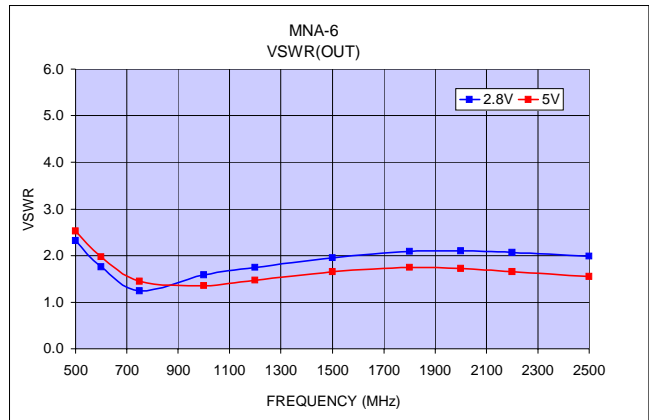
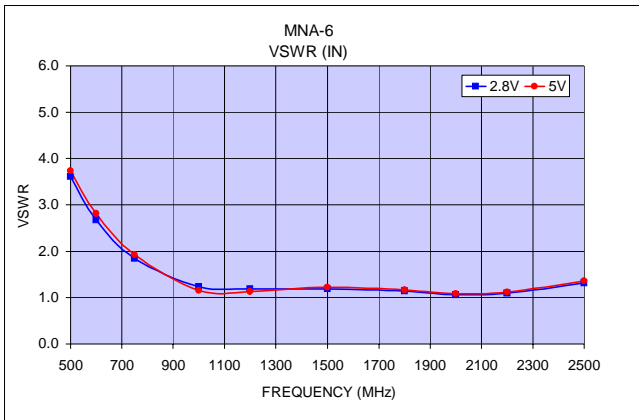
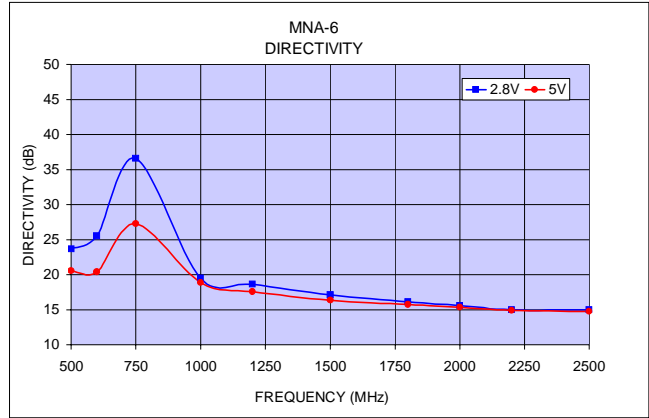
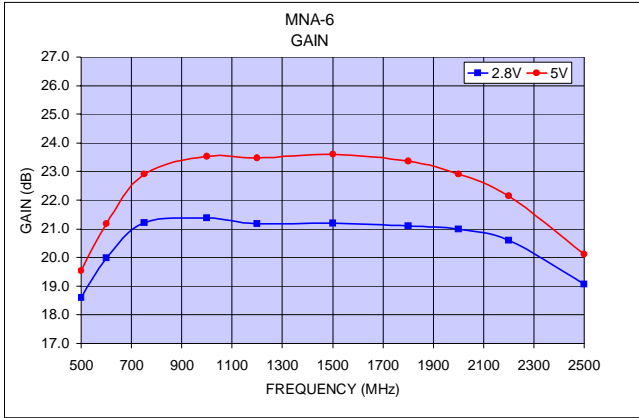
# MNA-5 Performance Curves

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# MNA-6 Performance Curves

# MNA+ SERIES MNA SERIES



# MNA-7 Performance Curves

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