

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
- internal DC blocking at RF input & output
- 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



CASE STYLE:DQ849

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

See our web site for RoHS Compliance methodologies and qualifications.

Applications

- buffer amplifier
- cellular
- PCN
- communications satellite
- defense

Electrical Specifications at T_{AMB}=25°C

MODEL NO.	FREQ. (GHz) f _L - f _U	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 _{JC} Typ. °C/W	CASE STYLE	CONNECTION	PRICE \$ Qty. (30)
			over frequency, GHz							Output (1 dB Comp.) Typ. f _L f _U	NF (dB) Typ. at 1 GHz	IP3 (dBm) Typ. at 1 GHz	IP3 (dBm) Typ. at 2 GHz	Typ. Max.			Typ. Max.					
			0.5	1.0	1.5	2.0	2.5	Min. at 2 GHz														
MNA-2(+)	0.5-2.5	5.0 2.8	10.6 9.6	12.8 11.5	12.8 11.2	12.3 10.7	11.9 10.2	10.3 —	17.7 12.9	14.9 12.4	5.4 5.4	26.5 23.2	28.0 24.2	1.5 1.5	1.6 1.6	20 20	76 60	95 —	78	DQ849	nt	1.90
MNA-3(+)	0.5-2.5	5.0 2.8	14.6 14.2	16.2 15.2	16.1 15.0	15.0 14.0	11.8 11.0	13.0 —	11.4 9.7	9.5 8.0	4.9 4.8	19.6 18.0	21.3 19.9	1.9 1.9	1.5 1.5	17 17	30 28	40 —	78	DQ849	nt	1.60
MNA-4(+)	0.5-2.5	5.0 2.8	15.6 14.3	16.6 14.6	16.4 14.5	15.8 14.1	13.3 11.7	14.0 —	19.0 13.4	17.0 13.7	4.8 4.8	28.4 23.9	29.0 24.9	1.5 1.5	1.7 1.7	20 20	75 67	90 —	78	DQ849	nt	1.90
MNA-5(+)	0.5-2.5	5.0 2.8	18.5 18.0	22.8 21.4	21.9 20.5	20.6 19.4	18.0 17.4	17.0 —	12.2 10.1	8.0 6.5	3.5 3.5	19.4 18.0	21.0 20.0	1.6 1.6	1.9 1.9	17 17	28 26	40 —	78	DQ849	nt	1.60
MNA-6(+)	0.5-2.5	5.0 2.8	19.4 18.6	23.5 21.5	23.6 21.2	23.0 21.0	20.2 19.0	21.5 —	18.0 14.1	15.8 13.2	2.9 2.9	27.1 23.4	28.0 25.0	1.5 1.5	1.6 1.9	17 17	81 65	95 —	78	DQ849	nt	2.25
MNA-7(+)	1.5-5.9	5.0 2.8	15.9 13.7	17.2 15.4	17.4 15.8	17.2 16.7	10.8 9.8	15.0 —	15.6 12.7	15.9 13.1	6.9 6.9	28.4 24.1	28.6 23.8	2.0 2.0	1.5 1.5	20 24	73 65	96 —	78	DQ849	nt	2.25

* VSWR above .75 GHz., MNA-7(+) above 2.5 GHz.
Thermal resistance is from junction to heat slug (mounting paddle)

Maximum Ratings

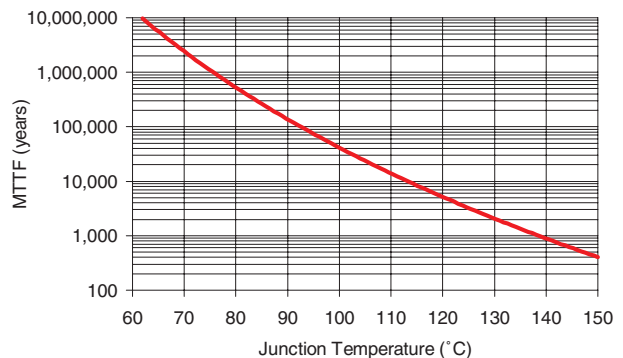
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Voltage	7V at pin 7 [†] 10V at pins 2&5
Power	500mW
Input Power (no damage)	10 dBm

[†]Refer to pin configuration for DC

Pin Configuration

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



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Mini-Circuits ISO 9001 & ISO 14001 Certified

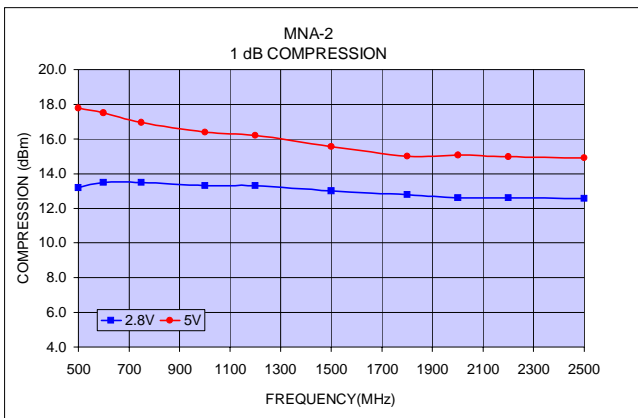
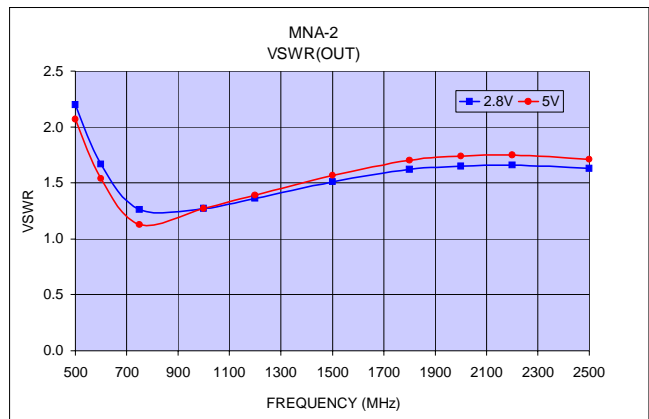
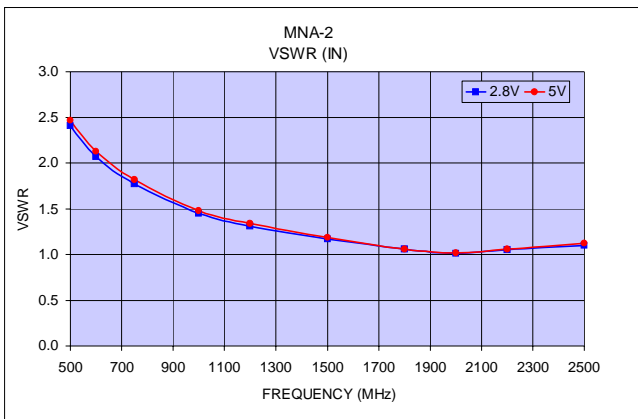
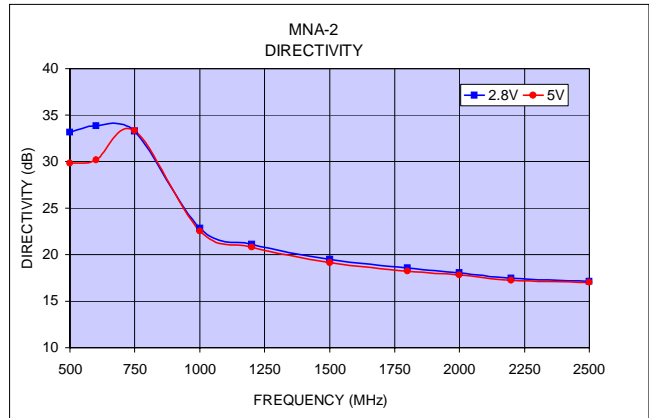
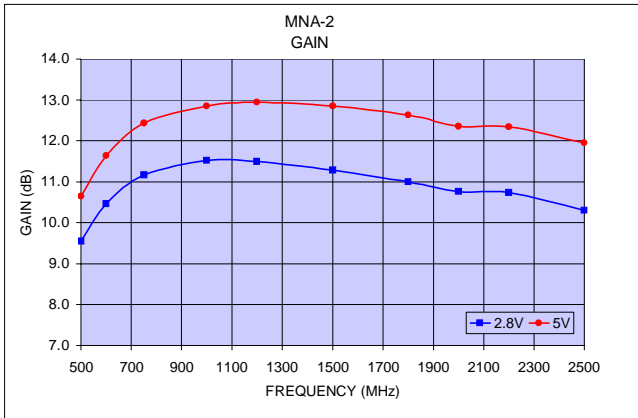
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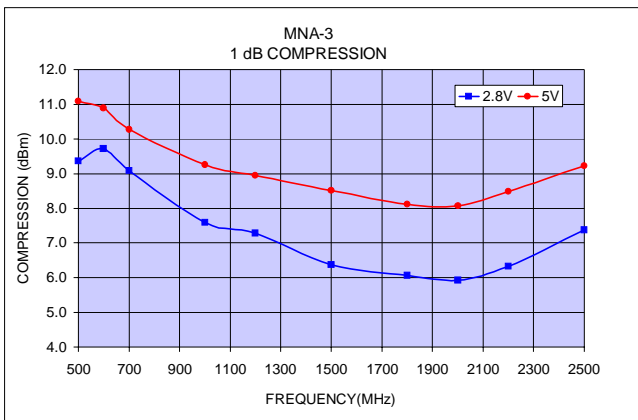
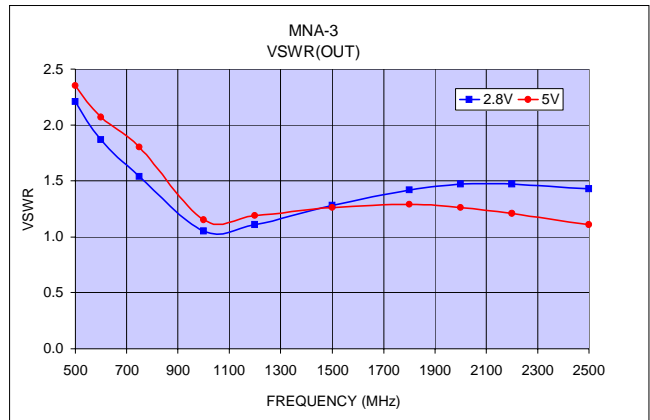
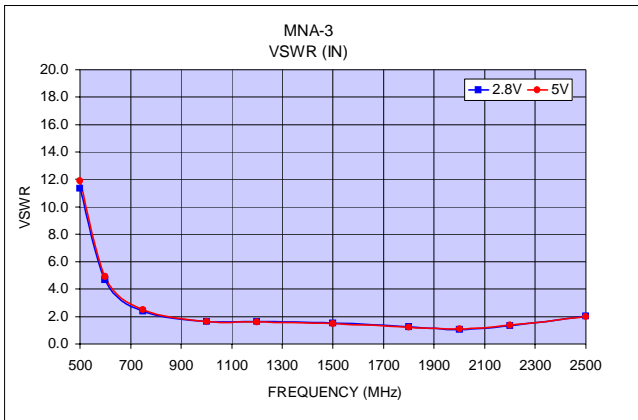
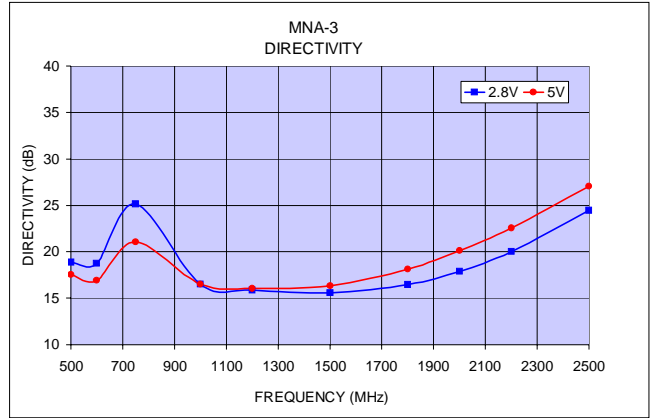
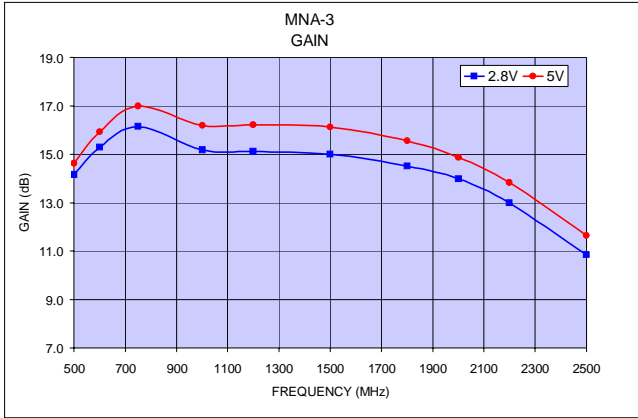
MNA-2 Performance Curves

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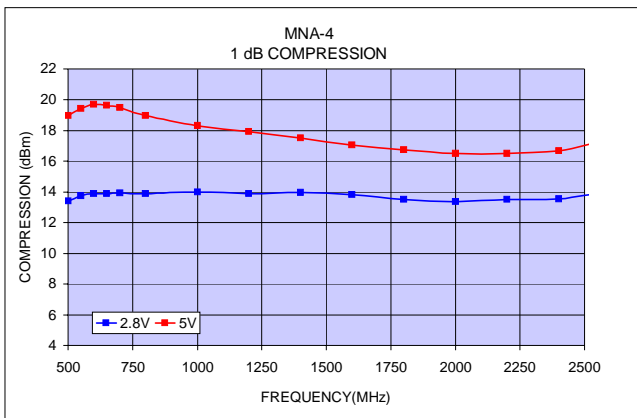
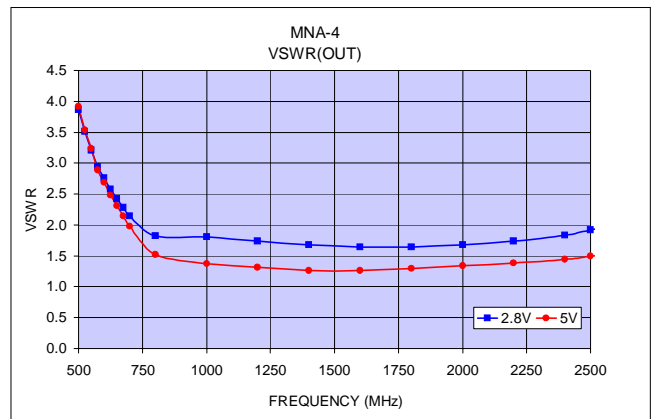
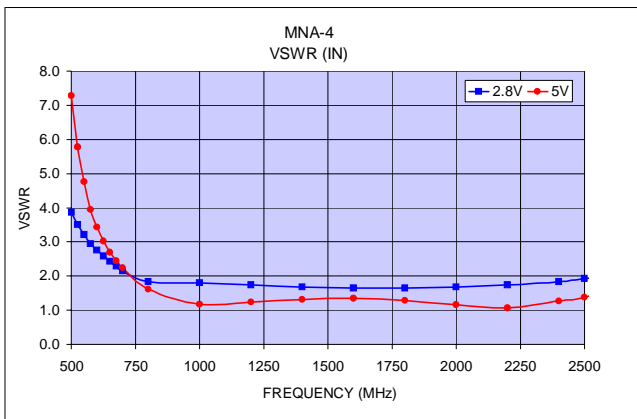
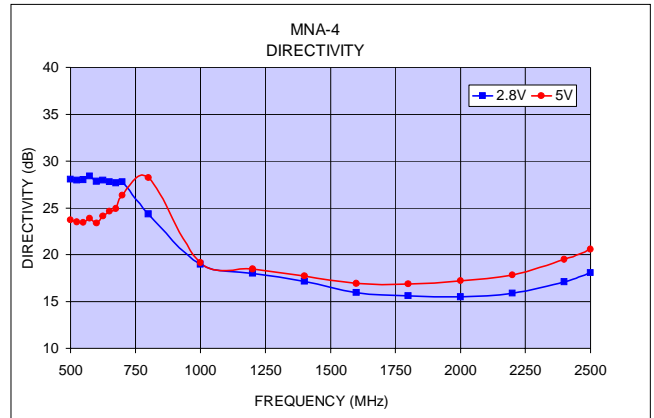
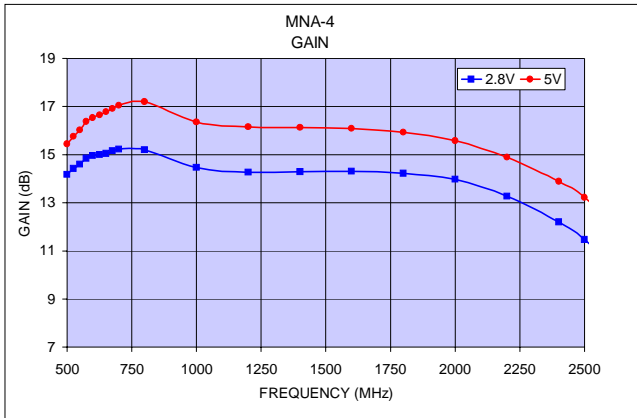
MNA-3 Performance Curves

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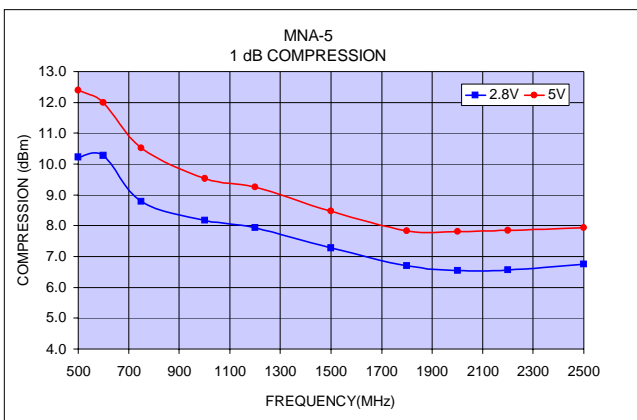
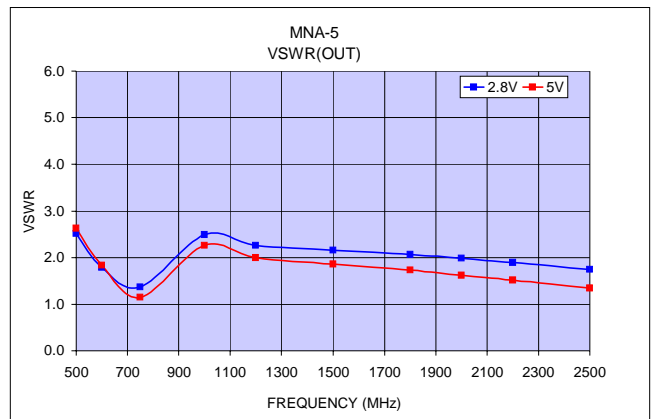
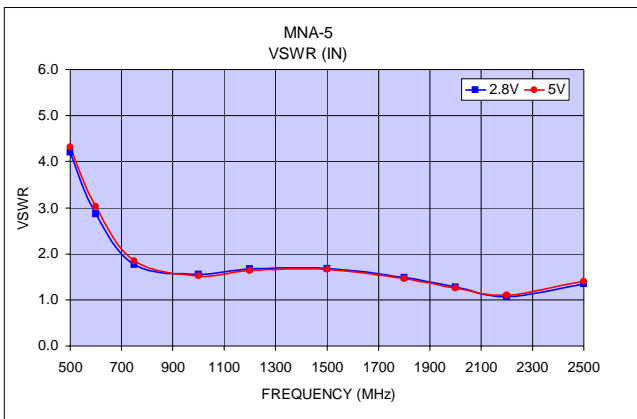
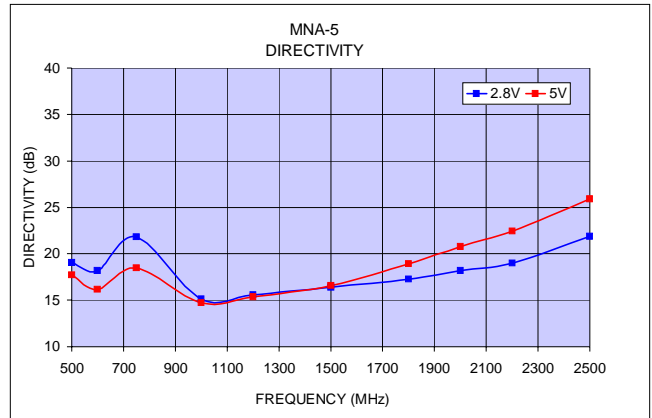
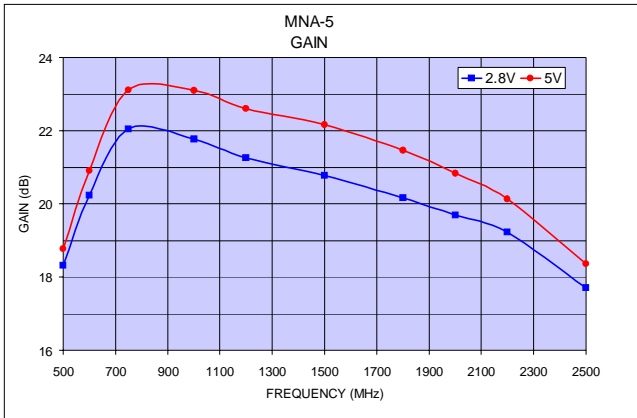
MNA-4 Performance Curves

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MNA-5 Performance Curves

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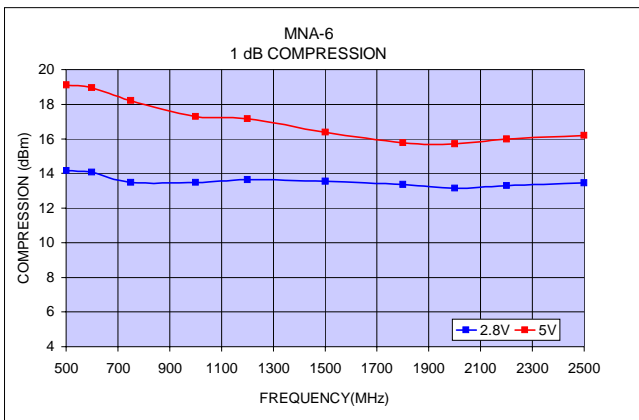
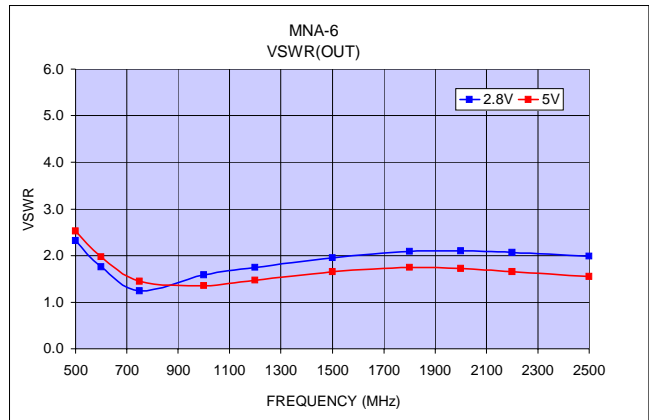
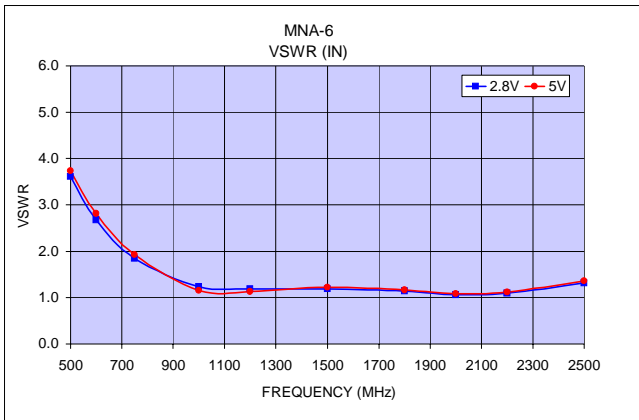
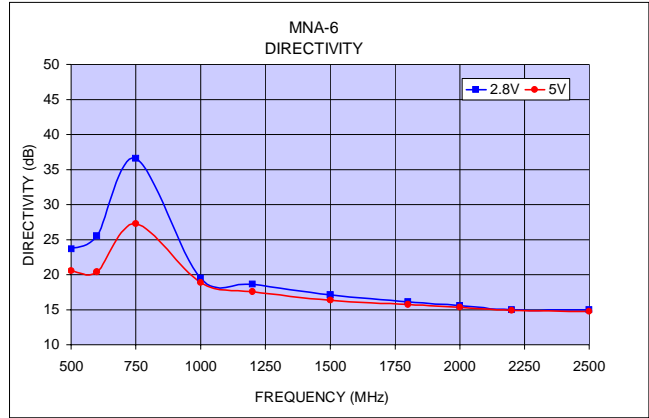
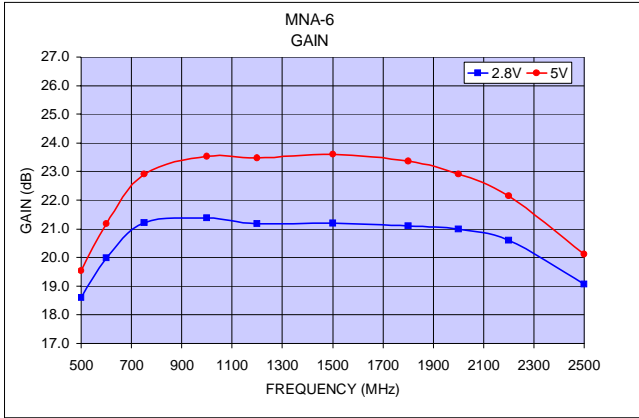
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