



5RU Active RF Chassis
(front view)

Active Products

Amplifiers:

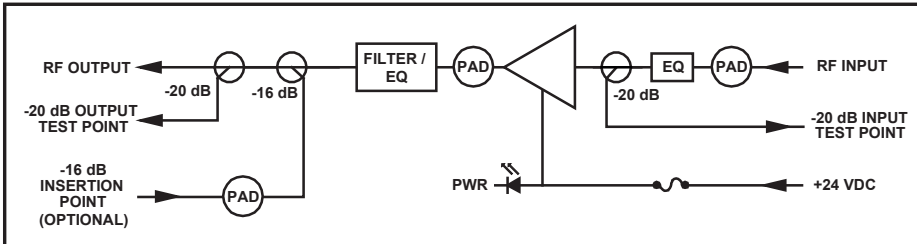
Forward Combining Amplifier Specifications

PART NUMBER <small>(Notes 1, 8, & 9)</small>	FWD. GAIN SPEC.				RESP. CONT.		INJECT. PORT		I/O T.P.		CURRENT <small>(Note 6)</small> Output Level (dBmV)	DISTORTIONS				NOISE FIGURE <small>(dB)</small>	AMP TECH <small>(Note 7)</small>	
	BW (MHz)	Gain ⁽²⁾ (dB)	Slope ⁽³⁾ (dB)	Flat. (±dB)	Gain Cont. Plug-In	Slope Cont.	IL (16.0±dB)	ISO ⁽⁴⁾ (dB)	IL (20.0±dB)	RL (Note 5) (dB)		Ch. Load # ⁽¹¹⁾	Ch. Slope (dB)	CTB (-dB)	CSO (-dB)			
QMN870-18GP/**	40-870	18	-0/+1.5	.5	PAD	EQ	.5	≥ 50	1	16	420	43	79	0	76	74	< 5.0	PD GaAs
QMN870-22GP/**	40-870	22	-0/+1.5	.75	PAD	EQ	.5	≥ 50	1	16	420	43	79	0	74	74	< 5.0	PD GaAs
QMN870-25GP/**	40-870	25	-0/+1.5	.75	PAD	EQ	.5	≥ 50	1	16	420	43	79	0	74	72	< 5.0	PD GaAs
QMN1000-18GP/**	40-1000	18	-0/+2	.5	PAD	EQ	.75	≥ 45	1	14.5	420	43	79	0	76	74	< 5.0	PD GaAs
QMN1000-22GP/**	40-1000	22	-0/+2	.75	PAD	EQ	.75	≥ 45	1	14.5	420	43	79	0	74	74	< 5.0	PD GaAs
QMN1000-25GP/**	40-1000	25	-0/+2	.75	PAD	EQ	.75	≥ 45	1	14.5	420	43	79	0	74	72	< 5.0	PD GaAs

NOTES:

- (1) ** Details = 1st* = F for F, B for BNC connectors; 2nd* = replace with I for Post gain stage -16 dB output insertion point.
- (2) Gain at 50 MHz.
- (3) Gain at highest specified Frequency.
- (4) From Injection port to RF Input port with RF Output port terminated into 75 ohm Load.
- (5) Worst case Return Loss for Input and Output ports.
- (6) DC Load current at +24 VDC.
- (7) PP = Push Pull; PD = Power Doubled; Si = Silicon; GaAs = Gallium Arsenide.
- (8) F Connector mating center conductor diameter: .025" - .042".
- (9) All specifications listed include 20 dB output test point. Assume worst case of 1 dB increased insertion loss if input test point is required.
- (10) Operating Temperature: 0°C to +50°C (+32°F to +122°F).
- (11) 79 CW NTSC Analog Channels from 54-550 MHz with 320 MHz QAM loading 6 dB below Analog Carrier levels.

Functional Schematic



Ordering Information

Part Number	Description
QMN870-18GP/B	870 MHz, 18 dB, GaAs PD, BNC Connectors (rear only), 20 dB Input & Output TPs
QMN870-18GP/F	870 MHz, 18 dB, GaAs PD, F Connectors, 20 dB Input & Output TPs
QMN870-22GP/B	870 MHz, 22 dB, GaAs PD, BNC Connectors (rear only), 20 dB Input & Output TPs
QMN870-22GP/F	870 MHz, 22 dB, GaAs PD, F Connectors, 20 dB Input & Output TPs
QMN870-25GP/B	870 MHz, 25 dB, GaAs PD, BNC Connectors, 20 dB Input & Output TPs
QMN870-25GP/F	870 MHz, 25 dB, GaAs PD, F Connectors, 20 dB Input & Output TPs
QMN1000-18GP/B	1000 MHz, 18 dB, GaAs PD, BNC Connectors, 20 dB Input & Output TPs
QMN1000-18GP/F	1000 MHz, 18 dB, GaAs PD, F Connectors, 20 dB Input & Output TPs
QMN1000-22GP/B	1000 MHz, 22 dB, GaAs PD, BNC Connectors, 20 dB Input & Output TPs
QMN1000-22GP/F	1000 MHz, 22 dB, GaAs PD, F Connectors, 20 dB Input & Output TPs
QMN1000-25GP/B	1000 MHz, 25 dB, GaAs PD, BNC Connectors, 20 dB Input & Output TPs
QMN1000-25GP/F	1000 MHz, 25 dB, GaAs PD, F Connectors, 20 dB Input & Output TPs
Dimensions	8.66"H x 1.82"W x 6.0"D (21.99H x 4.62W x 15.24D cm)



Amplifier

RF Signal Management

Amplifiers (cont'd):

Forward Dual Hybrid Amplifier Specifications**

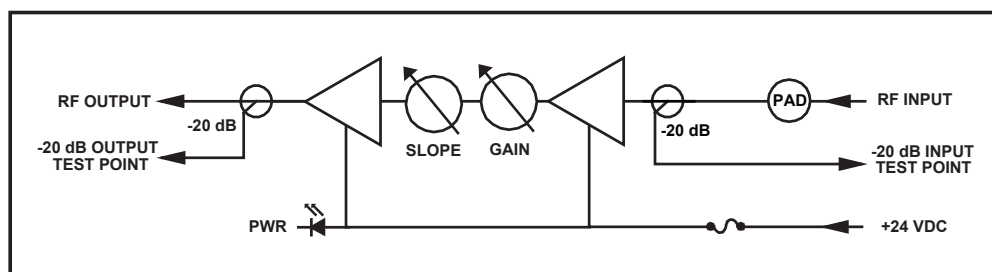
PART NUMBER <small>(Notes 1 and 5)</small>	FWD. GAIN SPEC.			RESP. CONT.		I/O T.P.		CUR. <small>(Note 3)</small> (mA)	Output Level (dBmV)	DISTORTIONS				NOISE FIGURE (dB)	AMP TECH <small>(Note 4)</small>
	BW (MHz)	Gain (dB)	Flat. (±dB)	Gain Cont. (-dB)	Slope Cont. (-dB)	IL (20.0±dB)	I/O RL <small>(Note 2)</small> (dB)			Ch. Load (#) ⁽⁶⁾	Ch. Slope (dB)	CTB (-dB)	CSO (-dB)		
QMN2870-30GP/*	40-870	30	.5	8	8	0.8	17	665	43	79	0	76	74	5	PD GaAs
QMN2870-34GP/*	40-870	34	.5	8	8	0.8	17	670	43	79	0	76	73.5	4.5	PD GaAs
QMN21000-30GP/*	40-1000	30	.7	8	8	1	15	665	43	79	0	76	74	5.3	PD GaAs
QMN21000-34GP/*	40-1000	34	.7	8	8	1	15	670	43	79	0	76	73.5	4.8	PD GaAs

NOTES:

- (1) * = F for F, or B for BNC connectors. Note: All front test points are F connectors.
- (2) Worst case Return Loss for Input and Output ports.
- (3) DC Load current (worst case) at +24 VDC.
- (4) PP = Push Pull; PD = Power Doubled; Si = Silicon; GaAs = Gallium Arsenide.
- (5) F Connector mating center conductor diameter: .025" - .042".
- (6) 79 CW NTSC Analog Channels from 54-550 MHz with 320 MHz QAM loading 6 dB below Analog Carrier levels.

** **NOTE:** A maximum of 5 forward dual hybrid amplifiers can be used in one active chassis, if it is powered with MNAC-110, MNAC-220, or MNDC power supplies.

Functional Schematic



Ordering Information

Part Number	Description
QMN2870-30GP/B	870 MHz, 30 dB, GaAs PD, BNC Connectors
QMN2870-30GP/F	870 MHz, 30 dB, GaAs PD, F Connectors
QMN2870-34GP/B	870 MHz, 34 dB, GaAs PD, BNC Connectors
QMN2870-34GP/F	870 MHz, 34 dB, GaAs PD, F Connectors
QMN21000-30GP/B	1000 MHz, 30 dB, GaAs PD, BNC Connectors
QMN21000-30GP/F	1000 MHz, 30 dB, GaAs PD, F Connectors
QMN21000-34GP/B	1000 MHz, 34 dB, GaAs PD, BNC Connectors
QMN21000-34GP/F	1000 MHz, 34 dB, GaAs PD, F Connectors
Dimensions	8.66"H x 1.82"W x 6.0"D (21.99H x 4.62W x 15.24D cm)

Amplifiers (cont'd):

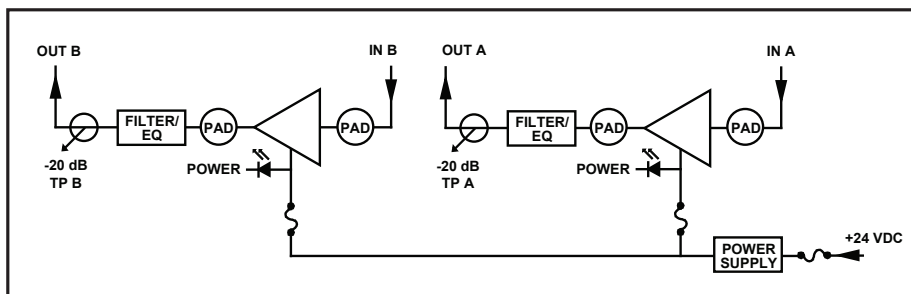
Narrowcast QAM Amplifier Specifications

PART NUMBER	# AMPS.	BW (MHz)	GAIN SPECIFICATIONS				OUT. T.P. (20±dB) (Note 2)	RETURN LOSS			I _{MAX} @24 V (mA)	NOISE FIG. (dB)	REV. ISO. (dB)	OUTPUT LEVEL w MER >43dB & Pre BER <10 ⁻¹⁰				
			Gain (Note 4)			Flat. (±dB) (Note 5)		Input (MHz)						Output (MHz)	QAM Channel Loading 550-870 MHz (Notes 6-8)			
			870 MHz (dB)	500 MHz (±dB)	54 MHz (±dB)			54-500 MHz (≥dB)	500-870 MHz (≥dB)	54-870 MHz (≥dB)					1 (dBmV)	2 (dBmV)	4 (dBmV)	8 (dBmV)
QMNN1-13P*	Single	54-870	13	0.5	1	0.2	1.0	16	16	16	175	6.0	20	+63	+57	+51	+47	
QMNN2-13P*	Dual	54-870	13	0.5	1	0.2	1.0	16	16	16	350	6.0	20	+63	+57	+51	+47	
QMNN1-17P*	Single	54-870	17	0.5	1	0.2	1.0	16	16	16	175	6.0	23	+64	+58	+52	+48	
QMNN2-17P*	Dual	54-870	17	0.5	1	0.2	1.0	16	16	16	350	6.0	23	+64	+58	+52	+48	
QMNN1-21P*	Single	54-870	21	0.5	1	0.2	1.0	16	16	16	175	6.0	26	+64	+58	+52	+48	
QMNN2-21P*	Dual	54-870	21	0.5	1	0.2	1.0	16	16	16	350	6.0	26	+64	+58	+52	+48	

NOTES:

- (1) * = "F" for F connectors and "B" for BNC connectors.
- (2) All front test points are F connectors.
- (3) F Connector mating center conductor diameter: .025" - .042".
- (4) Gains at 500 MHz and 50 MHz are referenced to the gain at 870 MHz.
- (5) As measured over any consecutive 6 MHz bandwidth.
- (6) All QAM channels adjacent.
- (7) QAM signal(s) performance at input: MER >45 dB and Pre BER < 10⁻¹⁰.
- (8) QAM signal(s) output performance: MER >43 dB and Pre BER < 10⁻¹⁰.

Functional Schematic



Ordering Information

Part Number	Description
QMNN1-13PB	Single QAM Narrowcast Amp Module, 870 MHz, 13 dB, BNC
QMNN1-13PF	Single QAM Narrowcast Amp Module, 870 MHz, 13 dB, F
QMNN1-17PB	Single QAM Narrowcast Amp Module, 870 MHz, 13 dB, BNC
QMNN1-17PF	Single QAM Narrowcast Amp Module, 870 MHz, 17 dB, F
QMNN1-21PB	Single QAM Narrowcast Amp Module, 870 MHz, 21 dB, BNC
QMNN1-21PF	Single QAM Narrowcast Amp Module, 870 MHz, 21 dB, F
QMNN2-13PB	Dual QAM Narrowcast Amp Module, 870 MHz, 13 dB, BNC
QMNN2-13PF	Dual QAM Narrowcast Amp Module, 870 MHz, 13 dB, F
QMNN2-17PB	Dual QAM Narrowcast Amp Module, 870 MHz, 17 dB, BNC
QMNN2-17PF	Dual QAM Narrowcast Amp Modules, 870 MHz, 17 dB, F
QMNN2-21PB	Dual QAM Narrowcast Amp Module, 870 MHz, 21 dB, BNC
QMNN2-21PF	Dual QAM Narrowcast Amp Module, 870 MHz, 21 dB, F
Dimensions	8.66"H x 1.82"W x 6.0"D (21.99H x 4.62W x 15.24D cm)

RF Signal Management

Amplifiers (cont'd):

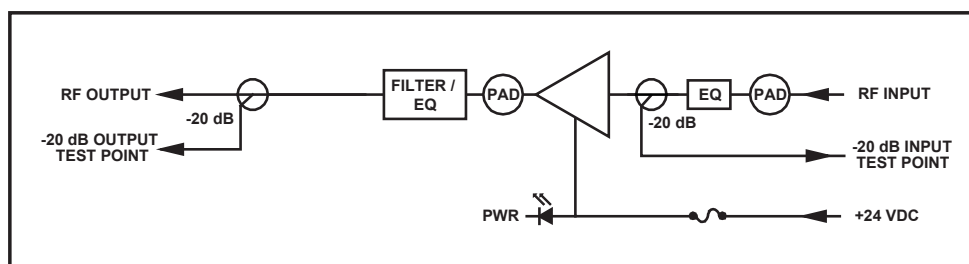
Return Amplifier Specifications

PART NUMBER <small>(Notes 1, 8, & 9)</small>	GAIN SPEC.				RESP. CONT.		I/O T.P.		I/O <small>(Note 5)</small> (dB)	CURRENT <small>(Note 6)</small> (mA)	DISTORTIONS				NOISE FIGURE (dB)	AMP TECH <small>(Note 7)</small>
	BW (MHz)	Gain <small>(Note 2)</small> (dB)	Slope <small>(Note 3)</small> (dB)	Flat. (±dB)	Gain Cont. Plug-In	Slope Cont.	IL (20.0±dB)	RL			Output Level (dBmV)	Ch. Load (#)	Ch. Slope (dB)	CTB (-dB)		
QMN200-22*	5-200	22	-1/+5	.5	PAD	EQ	.5	18	220	50	22	0	70	74	5	PP Si
QMN200-28L*	5-200	28	-1/+5	.5	PAD	EQ	.5	18	100	50	10	0	67	70	5	PP Si

NOTES:

- (1) * = F for F, B for BNC connectors
- (2) Gain at 5 MHz.
- (3) Gain at highest specified Frequency.
- (4) From Injection port to RF Input port with RF Output port terminated into 75 ohm Load.
- (5) Worst case Return Loss for Input and Output ports.
- (6) DC Load current at +24 VDC.
- (7) PP = Push Pull; PD = Power Doubled; Si = Silicon; GaAs = Gallium Arsenide.
- (8) F Connector mating center conductor diameter: .025" - .042".
- (9) All specifications listed include 20 dB output test point. Assume worst case of 1 dB increased insertion loss if input test point is required.
- (10) Operating Temperature: 0°C to +50°C (+32°F to +122°F).

Functional Schematic



Ordering Information

Part Number	Description
QMN200-22B	200 MHz, 22 dB, Si PP, BNC (rear), 20 dB Input & Output TPs
QMN200-22F	200 MHz, 22 dB, Si PP, F Connectors, 20 dB Input & Output TPs
QMN200-28LB	200 MHz, 28 dB, Si PP, Low Current, BNC (rear), 20 dB Input & Output TPs
QMN200-28LF	200 MHz, 28 dB, Si PP, Low Current, F Connectors, 20 dB Input & Output TPs
Dimensions	8.66"H x 1.82"W x 6.0"D (21.99H x 4.62W x 15.24D cm)

Plug-In PAD & EQ



* is MN*PAD value from 0 to 20 dB in 1 dB steps



* is EQ value from 1.5 to 21 dB in 1.5 dB steps

For Plug-In PAD & EQ specifications & ordering information, see RF Passive Pad/EQ spec sheet.

Specifications subject to change without notice.
MAXNET specifications are only valid when ATX
plug-in pads & EQs are used.

