



AMP-case QQ96

AMP-case PP120/
PP230

MAN



ZFL-case Y39/460



ZHL-1HLD

VARIABLE GAIN 10 to 1200 MHz

MODEL NO.	FREQ. (MHz) f_L - f_U	GAIN (dB)			MAXIMUM POWER (dBm)		DYNAMIC RANGE		VSWR		DC POWER		CASE STYLE	CONNECTOR	PRICE \$ ea. Qty. (1-9)
		Min.	Flatness Max.	Control range	Output (1 dB Comp.)	Input (no damage)	NF (dB) Typ.	IP3 (dBm) Typ.	In	Out	Volt (V)	Current (mA)			
ZFL-1000GH *	10-1200	24	±1.5	30**	+13	+10	15	+25	2.2:1	2:1	15	170	Y39	-	219.00
ZFL-1000G *	10-1000	17	±1.5	30**	+3	+10	12	+13	2:1	2:1	15	100	Y39	-	199.00

* ZFL-1000GH and ZFL-1000G, all specifications at 0 Volts control voltage.

** Response time (10% to 90%) 25µsec., control voltage 0 to 5 volts.

HIGH ISOLATION 2 to 2000 MHz

up to 500 mW (+27 dBm) output

MODEL NO.	FREQ. (MHz) f_L - f_U	GAIN (dB)			MAXIMUM POWER (dBm)			DYNAMIC RANGE		VSWR Typ.		ACTIVE DIRECTIVITY* (dB)				DC POWER		CASE STYLE	CONNECTOR	PRICE \$ ea. Qty. (1-9)
		Min.	Flatness Max. m	Total range	Output (1 dB Comp.) L_w	Input (no damage) U	NF (dB) Typ.	IP3 (dBm) Typ.	In	Out	L_w Typ.	U Typ.	Min	Min	Volt (V)	Current (mA)	Note B			
MAN-1AD	5-500	16	±0.5	±1.0	+7	+6	+15	7.2	+20	1.6	1.7	35	25	30	20	12	85	A05	CC	28.70
MAN-11AD	2-2000	8	±0.5	±1.5	-2	-3.5 ^(a)	+10	6.5	+14	3.0	2.0	21	14	16	12	15	22	A06	CC	34.20
MAN-2AD	2-1000	9	±0.4	±0.7	-2	-3.5	+10	6.5	+14	2.0	2.0	24	19	19	14	15	22	A06	CC	26.20
ZFL-11AD	2-2000	8	±0.5	±1.3	-2	-3.5 ^(a)	+10	6.5	+14	2.5	2.0	21	14	16	12	15	22	Y39	-	91.95
ZFL-2AD	2-1000	9	±0.4	±0.5	-2	-3.5	+10	6.5	+14	2.0	2.0	24	19	19	14	15	22	Y39	-	83.95
ZFL-1HAD**	10-500	10	—	±1.0	+20	+20	+17	7.5	+30	1.3	1.35	30	20	25	18	15	115	SS98	-	210.00
ZFL-2HAD	50-1000	11	±0.7	±1.0	+20	+20	+15	5.0	+33	2.0	2.0	30	20	21	15	15	110	SS98	-	264.95
▲ ZHL-1HLD	225-400	23	—	±1.0	+27	+27	+10	2.5	+40	2.0	2.0	34	28	34	28	24	525	T34	-	395.00

L_w = low range [f_L to $f_U/2$]

m = mid range [$2f_L$ to $f_U/2$]

U = upper range [$f_U/2$ to f_U]

* Active Directivity (dB) = Isolation (dB) - Gain (dB)

**Input VSWR of ZFL-1HAD in 10-20 MHz band increases to 1.45:1 at -55 deg.C.

Below 50 MHz, NF increases to 11 dB typ at 10 MHz.

^(a)Above 1 GHz, -5 dBm min.

NOTES:

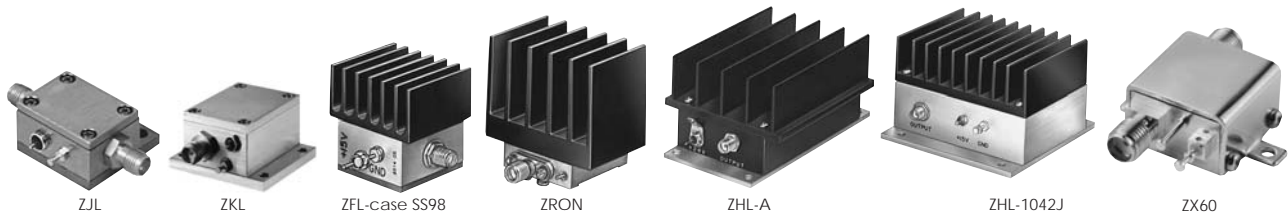
- ❖ Max. voltage Vdc
 - * Available only with BNC connectors
 - ▲ Available only with SMA connectors
 - ▼ SMA standard: Also available with BNC or type N connectors, please consult factory.
 - B. Connector types and case mounted options, case finishes are given in section 0, see "Case styles & outline drawings".
 - C. Prices and specifications subject to change without notice.
 - D. For Quality Control Procedures see Table of Contents, Section 0, "Mini-Circuits Guarantees Quality" article. For Environmental Specifications see Amplifier Selection Guide.
1. Absolute maximum power, voltage and current rating (for medium-pwr see note ❖)
 - 1a. AMP models, 17V DC
 - 1b. 12-V MAN models, 12.5V DC (except MAN-1AD, 14 V DC), 15-V MAN models, 16V DC
 - 1c. ZFL models, 17V DC (except ZFL-AD, 16V DC)
 - 1d. ZHL-1HLD, 25V DC
 - 1e. ZJL, 13V DC
 - 1f. ZX60-14012L 20 VDC (internally voltage regulated over 10.5 to 20 VDC input range)
 2. Open load is not recommended, potentially can cause damage. With no load, derate max input power by 20 dB.

NSN GUIDE

MCL NO.	NSN
ZFL-1000G	5996-01-464-8970
ZFL-1000H	5996-01-299-5588
ZFL-1000VH	5996-01-454-6938
ZFL-2000	5996-01-220-2213
ZKL-2	5996-01-495-8804
ZHL-6A	5996-01-330-3533

pin connections

PORT	cc	cd	ce
RF IN	1	2	5
RF OUT	8	4	11
DC	5	1	2
CASE GND	2,3,4,6	3	1,3,4,6,7,8,9,10,12
NOT USED	7	—	—



Low Power 50 kHz to 14000 MHz

up to 16 mW (+12 dBm) output

MODEL NO.	FREQ. (MHz) f_L - f_U	GAIN (dB)				MAXIMUM POWER (dBm)			DYNAMIC RANGE ⁽¹⁾		VSWR Typ.		DC POWER		CASE STYLE	NOTE	PRICE \$ ea. Qty. (1-9)
		Typ.	Min.	Flatness Typ. ⁽²⁾	Max.	Output (1 dB Comp.) L_w U	Input (no damage)	NF (dB) Typ.	IP3 (dBm) Typ.	In	Out	Volt (V)	Current (mA)	Note B			
ZJL-7G	20-7000	10	7.5	±1.0	—	+8	+9	+15	5.0	+24	1.5:1	1.5:1	12	50	BW459	-	99.95
ZJL-6G	20-6000	13	10	±1.6	—	+9	+10	+15	4.5	+24	1.5:1	1.4:1	12	50	BW459	-	114.95
ZJL-3G	20-3000	19	14	±2.2	—	+8	+8	+13	3.8	+22	1.4:1	1.6:1	12	45	BW459	-	114.95
▼ ZFL-500	0.05-500	—	20	—	±1.0	—	+9	+5	5.3	+18	1.9:1	1.9:1	15	80	Y460	-	69.95
ZFL-750	0.2-750	—	18	—	±0.55	—	+9***	+5	6.0	+18	1.5:1	2:1	15	90	Y460	-	74.95
ZFL-1000	0.1-1000	—	17	—	±0.7	—	+9**	+5	6.0	+18	1.5:1	2:1*	15	105	Y460	-	79.95
NEW AMP-25G	10-800	—	18	—	±1.4	—	12.2	+13	3.0	+26	1.4:1	1.2:1	15	55	PP120	cd	84.45
	800-1600	—	15	—	±1.6	—	12.5	+13	3.0	+28	1.6:1	1.2:1	15	55			
	1600-2500	—	15	—	±1.0	—	10.0	+13	4.5	+22	1.8:1	1.3:1	15	55			
AMP-3G	30-3000	—	8	—	±0.75	+9.5	+9.5	+13	3.5**	+20	2.6:1	2.5:1	15	55	PP230	cd	94.45
MAN-1	0.5-500	—	28	—	±1.4	+8	+8	+15	4.5	+18	1.8:1	1.8:1	12	60	A05	cc	18.20
MAN-2	0.5-1000	—	18	—	±1.5	+9	+7	+15	6.0	+19	1.8:1	1.8:1	12	85	A05	cc	22.20
NEW ZX-60-14012L	0.3-14000	12	9	±1.0	±2.0	+11	+11	+10	5.5	+20	1.3:1	1.7:1	12	68	GC957	-	172.95

L_w = low range [f_L to $f_U/2$]

U = upper range [$f_U/2$ to f_U]

* ZFL-1000 output VSWR 2.8:1 maximum over 750-1000 MHz; 1 dB compression +7 dBm at 500-1000 MHz

** NF increases with decreasing frequency, 5 dB typical at 300 MHz, and 10 dB typical at 30 MHz.

*** +7 dBm from 500 to 750 MHz.

⁽¹⁾ ZJL models: Flatness specified to 0.75 f_U , dynamic range at 2 GHz

MEDIUM POWER 2.5 kHz to 8000 MHz

up to 320 mW (+25 dBm) output

MODEL NO.	FREQ. (MHz) f_L - f_U	GAIN (dB)				MAXIMUM POWER (dBm)			DYNAMIC RANGE ⁽¹⁾		VSWR Typ.		DC POWER		CASE STYLE	NOTE	PRICE \$ ea. Qty. (1-9)
		Typ.	Min.	Flatness Typ. ⁽²⁾	Max.	Output (1 dB Comp.) L_w U	Input (no damage)	NF (dB) Typ.	IP3 (dBm) Typ.	In	Out	Volt (V)	Current (mA)	Note B			
AMP-2000	10-2000	—	20	—	±1.5	+15	+5		5	+25	2:1	2:1	15	100	QQ96	ce	144.45
ZFL-2000	10-2000	—	20	—	±1.5	+16*	+5		7	+25	2:1	2:1	15	120	SS98	-	219.00
ZFL-2500	500-2500	—	28	—	±1.5	+15	+5		8	+27	2.5:1	2.5:1	5	220	Y460	-	99.95
ZFL-2500VH	10-2500	—	20	—	±1.5	+23	+10		5.5	+35	1.7:1*	2:1*	15	300	SS98	-	264.95
ZFL-1000H	10-1000	—	28	—	±1.0	+20	+5		5	+33	2:1	2:1	15	160	SS98	-	219.00
ZFL-1000VH	10-1000	—	20	—	±1.0	+25	+15		4.5	+38	2:1**	2.5:1	15	320	SS98	-	229.00
ZFL-1000VH2	10-1000	28	26	—	±1.0	+25	+15		5.0	+38	2:1	2.5:1	15	320	SS98	-	249.00
ZRON-8G	2000-8000	—	20	—	±1.5★	+20	+10		6	+30	2:1	2:1	15	310	AV243	-	495.00
* ZHL-6A	.0025-500	25	21	—	±1.2	+22	+10		9.5***	+34	1.8:1	2:1***	24	350	S32	-	199.00
ZHL-1042J	10-4200	—	25	—	±1.5	+20	+10		6	+30	2.5:1	2.5:1	15	330	NN92	-	495.00
ZJL-4G	20-4000	12.4	10.0	±0.25	—	+13.5	+11		5.5	+30.5	1.4:1	1.6:1	12	75	BW459	-	129.95
ZJL-4HG	20-4000	17.0	13.0	±1.5	—	+15.0	+12		4.5	+30.5	1.5:1	1.4:1	12	75	BW459	-	129.95
ZJL-5G	20-5000	9.0	7.0	±0.55	—	+15.0	+9.5		8.5	+32	1.6:1	1.3:1	12	80	BW459	-	129.95
ZKL-2R7	10-2700	24.0	20.0	—	±0.7	+13	+11		5.0	+30	1.3:1	1.4:1	12	120	BY493	-	149.95
ZKL-2R5	10-2500	30.0	26.0	—	±1.5	+15	+15		5.0	+31	1.4:1	1.4:1	12	120	BY493	-	149.95
ZKL-2	10-2000	33.5	29.0	—	±1.0	+15	+15		4.0	+31	1.4:1	1.4:1	12	120	BY493	-	149.95
ZKL-1R5	10-1500	40.0	36.0	—	±1.2	+15	+15		3.0	+31	1.4:1	1.6:1	12	115	BY493	-	149.95

L_w = low range [f_L to $f_U/2$]

U = upper range [$f_U/2$ to f_U]

* +15 dBm below 1000 MHz

** Input VSWR 2:1 max, increasing below 20 MHz to 2.25:1 max at 10 MHz.

*** NF continually increases from 70 MHz to 10 MHz by approximately 4 dB; output VSWR 2.8:1 below 30 MHz.

• Max. VSWR In 2.0:1, Out 2.5:1

★ Measured at 25°C.

⁽¹⁾ ZJL models: Flatness specified to 0.75 f_U , dynamic range at 2 GHz.