Coaxial

Broadband Amplifier

ZFL-1200GH+

50Ω Variable Gain 10 to 1200 MHz

Features

- wideband, 10 to 1200 MHz
- rugged, shielded case
- gain control range: 60 dB typ.
- gain control voltage: 0 to +5V
- variable gain: +34 to -26 dB

Applications

- cellular
- VHF/UHF
- AGC applications

Generic photo used for illustration purposes only

CASE STYLE: Y39

Connectors	Model
SMA	ZFL-1200GH+
BRACKET (OPTION "B")	

+RoHS Compliant

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

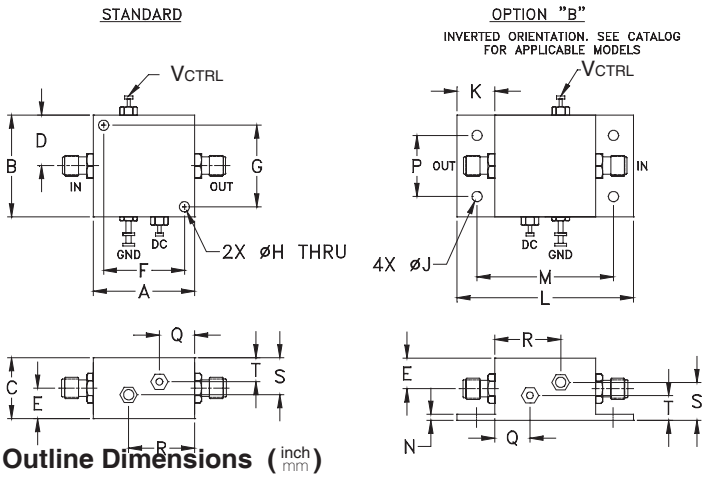
Electrical Specifications at 25°C, V_{CTRL}=0V (or open)

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range		10	—	1200	MHz
Gain	10-1200	29	32	—	dB
Gain Flatness	10-1200	—	±1.3	—	dB
Output Power at 1dB compression	10-1200	—	+13	—	dBm
Output Power at 3dB compression	10-1200	—	+15	—	dBm
Noise Figure	10-1200	—	5.5	—	dB
Output third order intercept point	10-1200	—	+28	—	dBm
Output second order intercept point	10-1200	—	+50	—	dBm
Input VSWR	10-1200	—	1.25	—	:1
Output VSWR	10-1200	—	1.5	—	:1
DC Supply Voltage		—	15	—	V
Supply Current		—	—	230	mA

Open load is not recommended, potentially can cause damage.
With no load derate max input power by 20 dB

VCTRL: Gain Control Voltage.

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	wt.
1.25	1.25	.75	.63	.36	1.000	1.000	.125	.125	.46	2.18	1.688	.06	.750	.50	.80	.45	.29	grams
31.75	31.75	19.05	16.00	9.14	25.40	25.40	3.18	3.18	11.68	55.37	42.88	1.52	19.05	12.70	20.32	11.43	7.37	38

Gain Flatness, Vcc=15V, 10-1200 MHz

V_{CTRL} (V)	Gain Flatness (dB) Typ.
0 or open	±1.3
1	±1.5
2	±2.2
3	±3.3
4	±1.0
5	±1.0

Maximum Ratings

Parameter	Ratings
Operating Temperature	-20°C to 71°C
Storage Temperature	-55°C to 100°C
DC Voltage	+17V
V_{CTRL}	0 to +5.5V
Input RF Power (no damage)	+10 dBm

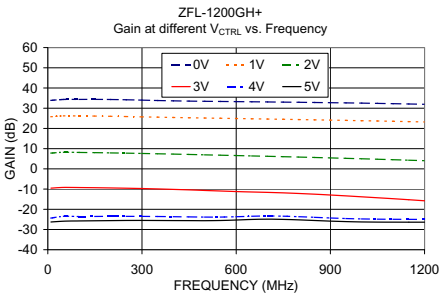
Permanent damage may occur if any of these limits are exceeded.

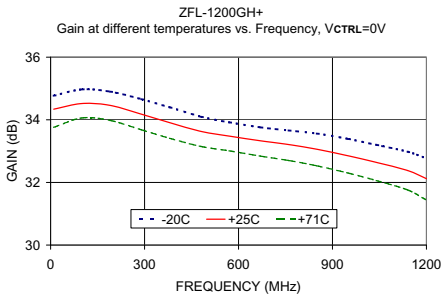
Notes

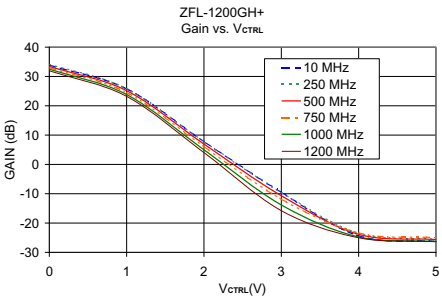
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

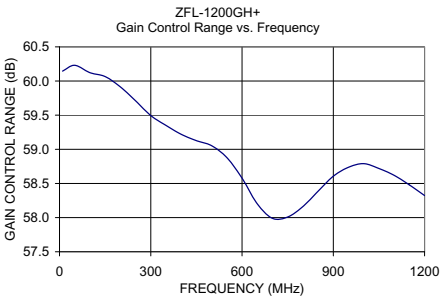
Electrical Performance at 25°C, V_{CC}=15V, V_{CTRL}=0V **ZFL-1200GH+**

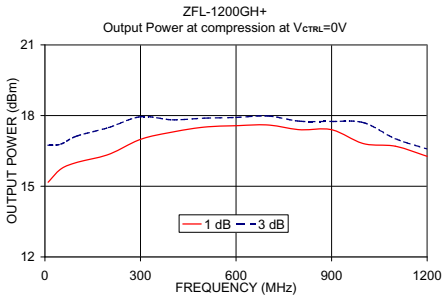
FREQUENCY (MHz)	GAIN (dB)	DIRECTIVITY (dB)	VSWR (:1)		POUT at 1 dB COMPR. (dBm)	POUT at 3 dB COMPR. (dBm)	NOISE FIGURE (dB)	IP3 (dBm)	IP2 (dBm)
			IN	OUT					
10.00	34.34	13.91	1.21	1.50	15.17	16.74	6.21	31.32	51.99
50.00	34.52	19.18	1.17	1.25	15.73	16.79	5.24	32.59	50.30
100.00	34.46	37.95	1.16	1.24	16.01	17.13	4.86	33.86	51.13
200.00	34.18	53.92	1.12	1.35	16.35	17.49	4.92	33.33	54.02
300.00	33.91	42.75	1.14	1.43	16.99	17.95	4.55	32.84	56.51
500.00	33.48	41.56	1.21	1.56	17.51	17.89	4.81	29.62	52.37
600.00	33.33	47.04	1.24	1.57	17.57	17.92	4.86	28.70	53.34
800.00	33.06	53.89	1.28	1.53	17.40	17.76	4.92	26.78	52.99
1000.00	32.64	36.54	1.31	1.43	16.81	17.70	4.81	24.53	52.46
1100.00	32.38	39.49	1.33	1.38	16.70	17.02	5.16	23.89	53.92
1200.00	32.12	35.67	1.35	1.33	16.27	16.58	4.99	22.97	55.74

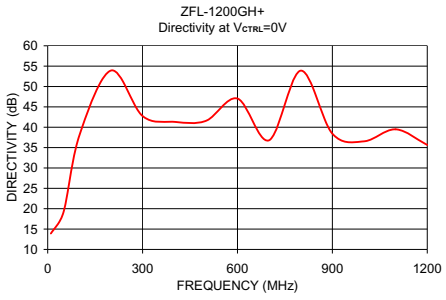


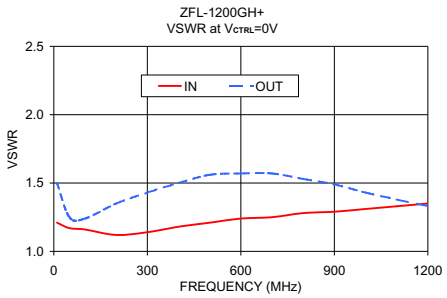


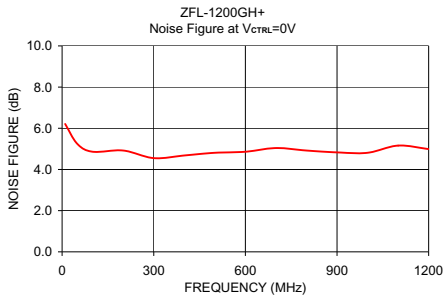


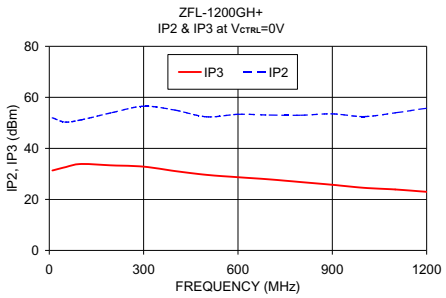












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Broadband Amplifier ZFL-1200GH+

Typical Performance Data

Vctrl=0V @ 25°C									
FREQUENCY (MHz)	GAIN (dB) 15V	DIRECTIVITY (dB) 15V	VSWR IN (:1) 15V	VSWR OUT (:1) 15V	NOISE FIGURE (dB) 15V	Pout at 1dB Comp. (dBm) 15V	Pout at 3dB Comp. (dBm) 15V	Output IP2 (dBm) 15V	Output IP3 (dBm) 15V
10.0	33.86	13.91	1.21	1.50	6.21	15.17	16.74	51.99	31.32
50.0	34.34	19.18	1.17	1.25	5.24	15.73	16.79	50.30	32.59
100.0	34.36	37.95	1.16	1.24	4.86	16.01	17.13	51.13	33.86
200.0	34.31	53.92	1.12	1.35	4.92	16.35	17.49	54.02	33.33
300.0	34.00	42.75	1.14	1.43	4.55	16.99	17.95	56.51	32.84
500.0	33.42	41.56	1.21	1.56	4.81	17.51	17.89	52.37	29.62
600.0	33.27	47.04	1.24	1.57	4.86	17.57	17.92	53.34	28.70
800.0	32.93	53.89	1.28	1.53	4.92	17.40	17.76	52.99	26.78
1000.0	32.52	36.54	1.31	1.43	4.81	16.81	17.70	52.46	24.53
1100.0	32.25	39.49	1.33	1.38	5.16	16.70	17.02	53.92	23.89
1200.0	31.95	35.67	1.35	1.33	4.99	16.27	16.58	55.74	22.97

Typical Performance Data

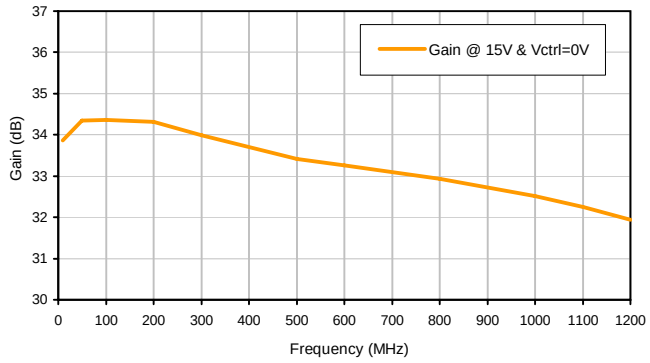
FREQUENCY	GAIN @ Vdc=15V & 25°C					
	Vctrl (V) = 0	Vctrl (V) = 1	Vctrl (V) = 2	Vctrl (V) = 3	Vctrl (V) = 4	Vctrl (V) = 5
(MHz)						
10.0	33.86	25.79	7.79	-9.53	-24.37	-26.29
50.0	34.34	26.21	8.21	-9.19	-23.46	-25.89
100.0	34.36	26.17	8.12	-9.24	-23.59	-25.77
150.0	34.38	26.11	8.02	-9.32	-23.54	-25.69
200.0	34.31	26.01	7.90	-9.44	-23.49	-25.60
250.0	34.18	25.88	7.77	-9.57	-23.48	-25.53
300.0	34.00	25.73	7.63	-9.73	-23.50	-25.50
350.0	33.81	25.57	7.47	-9.93	-23.55	-25.54
400.0	33.65	25.41	7.30	-10.15	-23.67	-25.58
450.0	33.52	25.27	7.13	-10.40	-23.76	-25.61
500.0	33.42	25.15	6.95	-10.67	-23.85	-25.63
550.0	33.34	25.03	6.77	-10.96	-23.85	-25.54
600.0	33.27	24.91	6.59	-11.22	-23.68	-25.31
650.0	33.18	24.78	6.40	-11.44	-23.44	-25.02
700.0	33.10	24.64	6.22	-11.63	-23.31	-24.89
750.0	33.02	24.51	6.03	-11.87	-23.41	-24.99
800.0	32.93	24.38	5.83	-12.17	-23.66	-25.23
850.0	32.84	24.25	5.63	-12.53	-23.98	-25.55
900.0	32.74	24.11	5.42	-12.94	-24.30	-25.87
950.0	32.64	23.98	5.21	-13.37	-24.57	-26.10
1000.0	32.52	23.83	4.99	-13.82	-24.76	-26.27
1050.0	32.38	23.68	4.76	-14.29	-24.89	-26.34
1100.0	32.25	23.53	4.53	-14.77	-24.95	-26.37
1150.0	32.10	23.37	4.29	-15.27	-24.99	-26.38
1200.0	31.95	23.20	4.04	-15.78	-25.01	-26.38

FREQUENCY	GAIN CONTROL RANGE @ Vdc=15V & 25°C
(MHz)	(dB)
10.0	60.15
50.0	60.23
100.0	60.12
150.0	60.07
200.0	59.91
250.0	59.71
300.0	59.49
350.0	59.35
400.0	59.22
450.0	59.13
500.0	59.05
550.0	58.88
600.0	58.58
650.0	58.20
700.0	57.99
750.0	58.01
800.0	58.16
850.0	58.39
900.0	58.61
950.0	58.74
1000.0	58.79
1050.0	58.72
1100.0	58.62
1150.0	58.48
1200.0	58.32

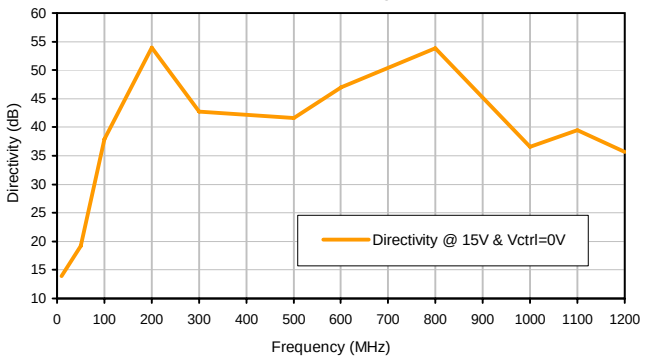
FREQUENCY	GAIN @ Vdc=15V & Vctrl=0V		
(MHz)	-20°C	+25°C	+71°C
10.0	34.77	34.34	33.76
100.0	34.97	34.52	34.06
190.0	34.90	34.46	33.98
290.0	34.66	34.18	33.68
380.0	34.40	33.91	33.41
480.0	34.10	33.63	33.15
570.0	33.92	33.48	33.01
670.0	33.76	33.33	32.84
760.0	33.66	33.21	32.70
850.0	33.56	33.06	32.53
950.0	33.39	32.85	32.30
1040.0	33.20	32.64	32.06
1140.0	32.98	32.38	31.76
1200.0	32.77	32.12	31.44

Typical Performance Curves

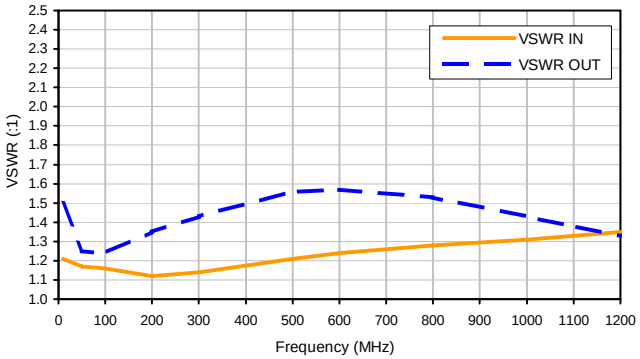
Gain



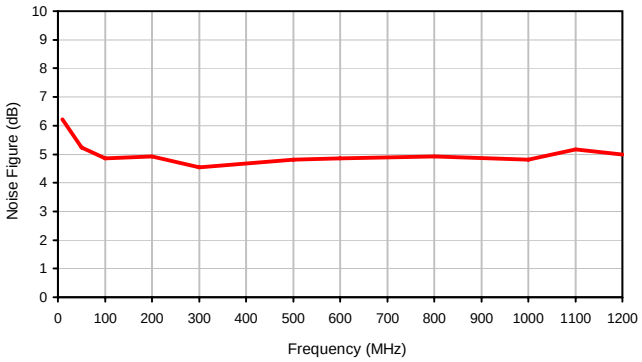
Directivity



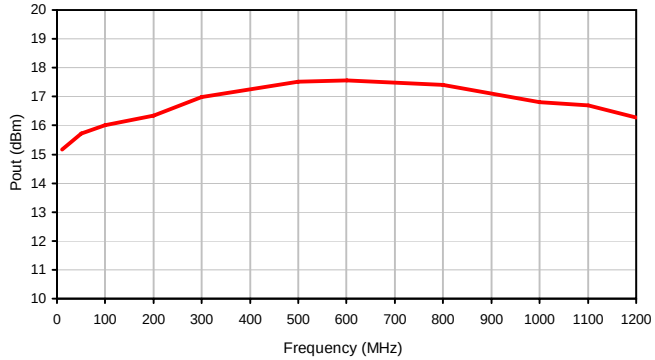
VSWR @ 15V & Vctrl=0V



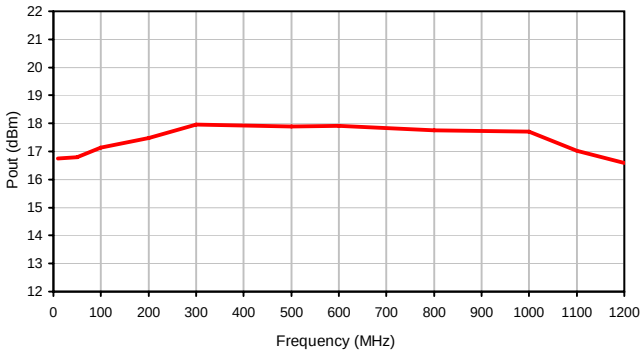
Noise Figure @ 15V & Vctrl=0V



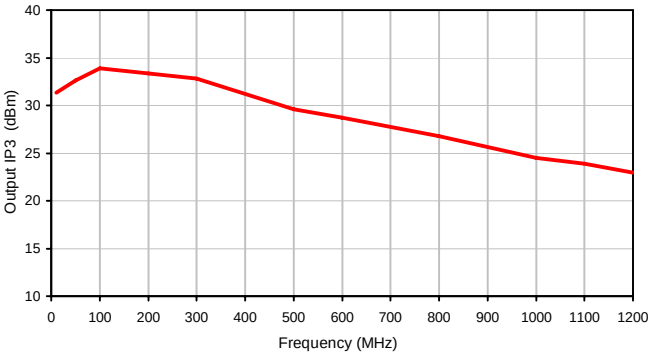
Pout at 1dB Compression @ 15V & Vctrl=0V



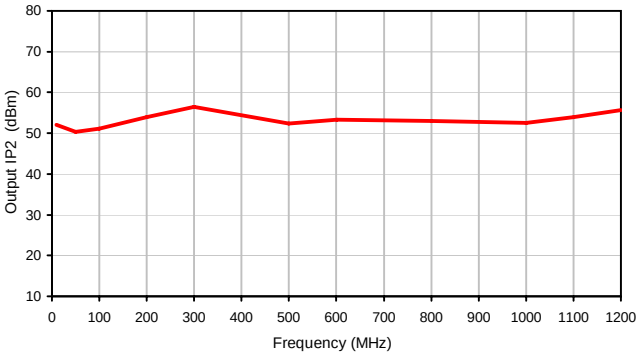
Pout at 3dB Compression @ 15V & Vctrl=0V



Output IP3 @ 15V & Vctrl=0V

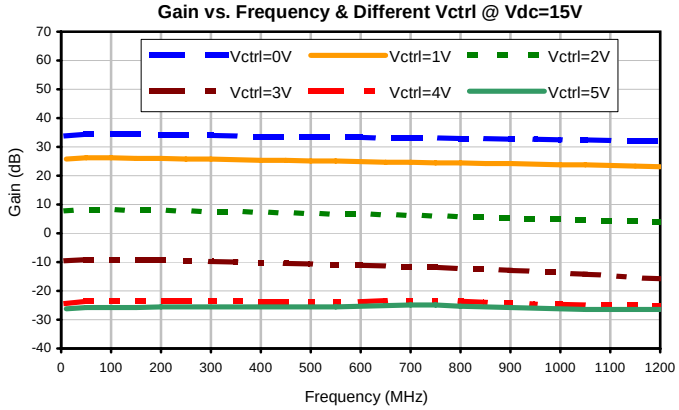


Output IP2 @ 15V & Vctrl=0V

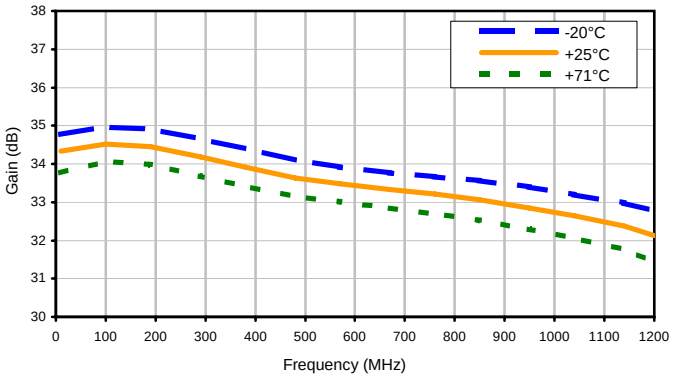


Typical Performance Curves

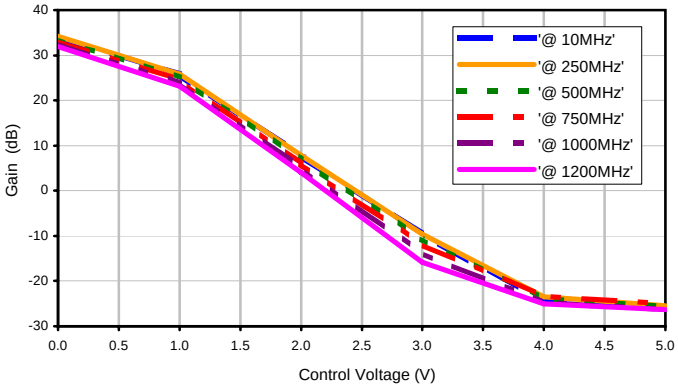
Gain vs. Frequency & Different Vctrl @ Vdc=15V



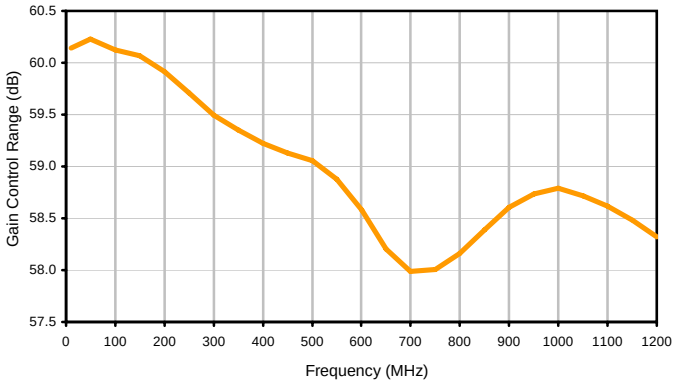
Gain vs Frequency & Temperature @ Vdc=15V & Vctrl=0V



Gain vs.Control Voltage @ Vdc=15V



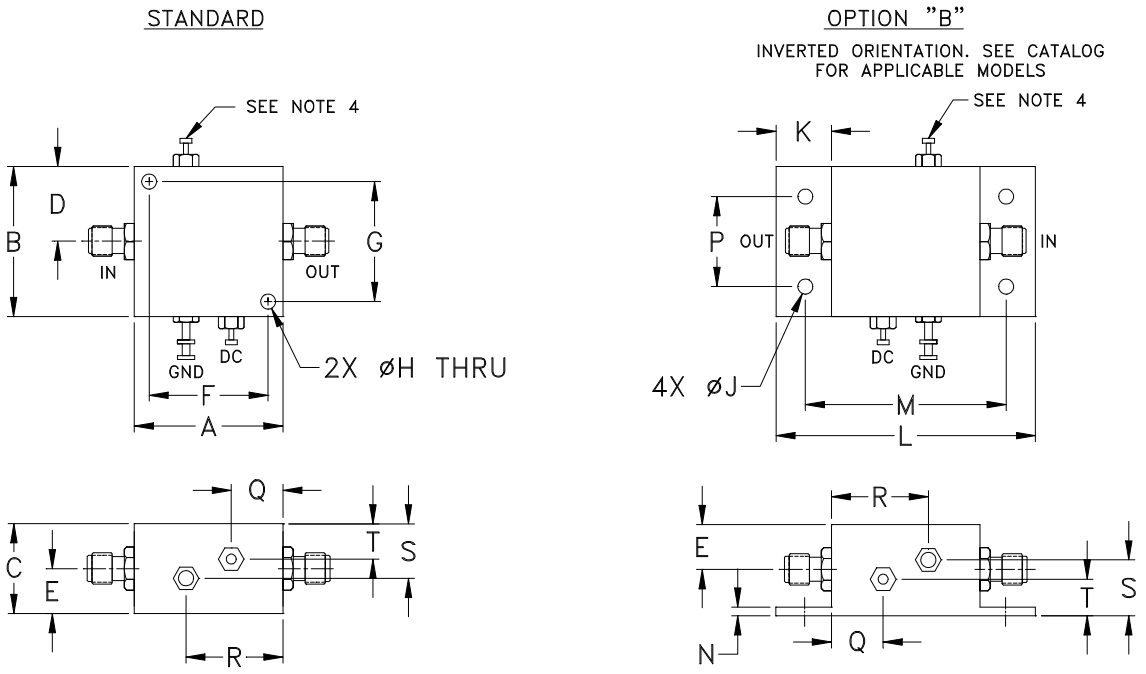
Gain Control Range vs. Frequency @ Vdc=15V



Case Style Y

Y39

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
Y39	1.25 (31.75)	1.25 (31.75)	.75 (19.05)	.63 (16.0)	.36 (9.15)	1.000 (25.4)	1.000 (25.4)	.125 (3.2)	.125 (3.2)	.46 (11.7)	2.18 (55.4)	1.688 (42.9)	.06 (1.5)

CASE#	P	Q	R	S	T	WT. GRAMS
Y39	.750 (19.0)	.50 (12.7)	.80 (20.3)	.45 (11.4)	.29 (7.4)	38

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .03; 3 Pl. ± .015

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number
4. Gain terminal may exists on some models, refer catalog data sheet for details..

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INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
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Environmental Specifications ENV23T2

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-20° to 71° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Stabilization Bake	(non-operating) 125°C, 24 hours	- - -
Burn-in at Elevated Temp.	(DC on) 160 hours at 85° C	MIL-STD-202, Method 108
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A, except 100°C