

# Coaxial Triplexer

## ZTPL-4620+

50Ω 1 to 4620 MHz  
(9.8 - 10.2, 852-1872, 3300-4620 MHz)

### The Big Deal

- Very Low insertion loss
- Good co-channel rejection
- Connectorized package



CASE STYLE: GW1052

### Product Overview

ZTPL-4620+ is a high performance 50Ω triplexer with the lowpass channel-1 at 9.8-10.2 MHz, bandpass channel-2 at 852-1872 MHz and highpass channel-3 at 3300-4620 MHz. The triplexer is a 4 port passive device used to separate the C band and L band receive signals on a common port and route them non-interactively to separate output ports. Additionally, the device routes a 10 MHz reference signal appearing on the 4th port non-interactively to the common port. Built in a rugged connectorized package, this triplexer finds its application in satellite communication systems and military.

### Key Features

Feature	Advantages
Low passband insertion loss, 0.5 dB typical at lowpass and Band pass channel, 1 dB typical at the High pass channel	Very low insertion loss ensures less signal loss through all the channels.
Good co-channel rejection	Rejection of 25-35 dB ensures sufficient isolation between the channels
Miniature connectorized package	Triplexer is designed into a compact connectorized package and it is easy to interface with other devices.

#### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



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### Maximum Ratings

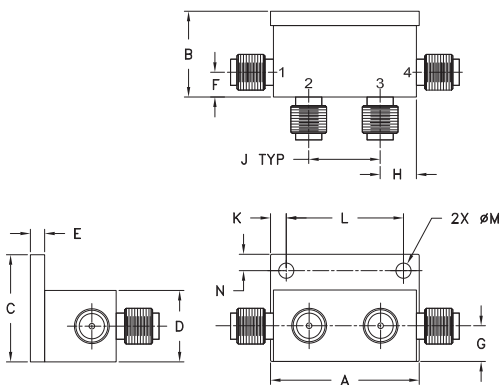
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	2 W

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

### Coaxial Connections

BAND PASS PORT	1
HIGH PASS PORT	2
COMMON PORT	3
LOW PASS PORT	4

### Outline Drawing



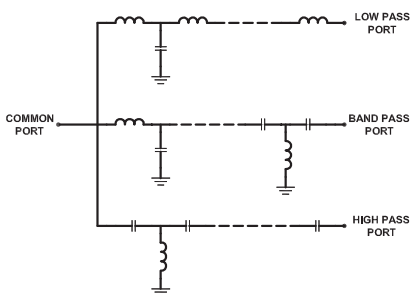
### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
1.04	.60	.75	.50	.10	.17	.25
26.42	15.24	19.05	12.70	2.54	4.32	6.35

H	J	K	L	M	N	wt.
.25	.50	.11	.820	.106	.12	grams
6.35	12.70	2.79	20.83	2.69	3.05	21.0

### Functional Schematic



### Notes

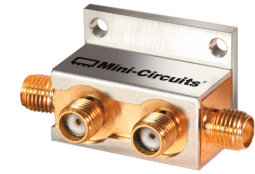
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### Features

- Low insertion loss
- 50Ω Impedance
- Miniature Connectorized package

### Applications

- Military
- Satellite communication



CASE STYLE: GW1052

Connectors	Model
SMA	ZTPL-4620-S+

### +RoHS Compliant

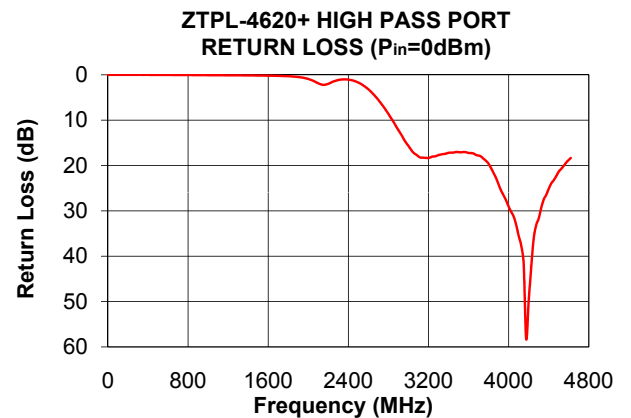
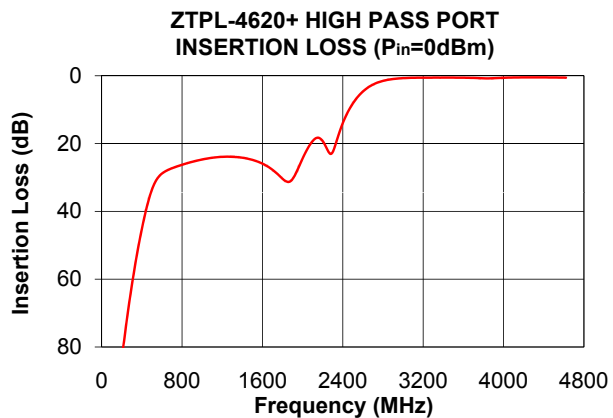
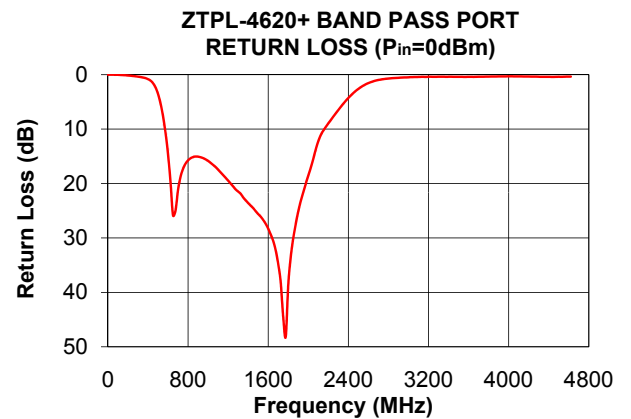
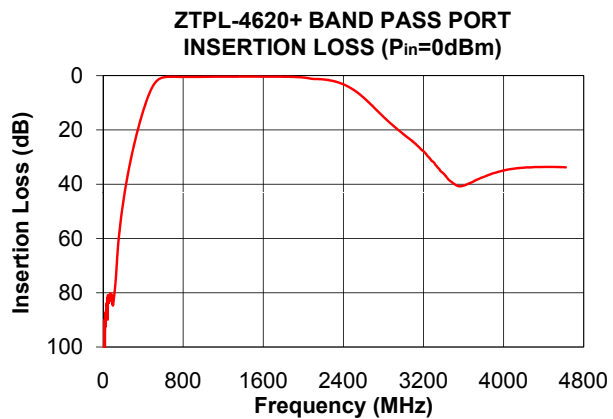
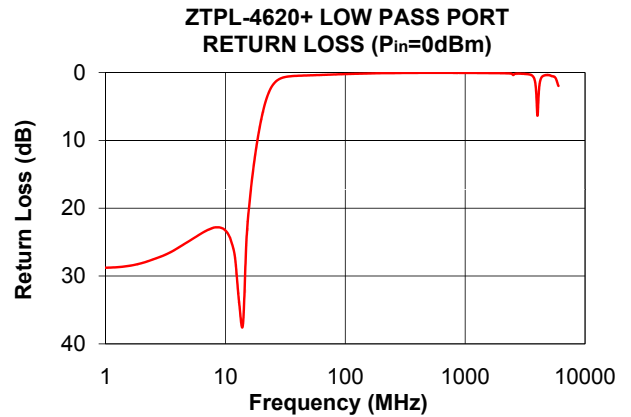
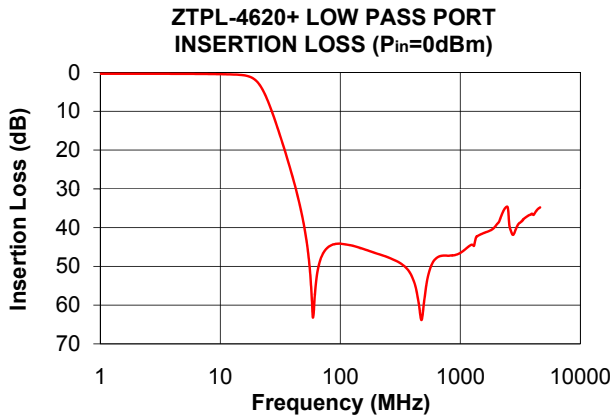
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	Low Pass, Channel -1	9.8-10.2	-	0.5	1.0	dB	
		Band Pass, Channel -2	852-1872	-	0.5	1.0		
		High Pass, Channel -3	3300-4620	-	1.0	2.0		
	Return Loss	Common	Low Pass, Channel -1	9.8-10.2	10	17	-	dB
			Band Pass, Channel -2	852-1872	9	14	-	
			High Pass, Channel -3	3300-4620	8	15	-	
Common		9.8-10.2	10	17	-			
			852-1872	9	14	-		
			3300-4620	8	15	-		
Stop Band Isolation	Common	Low Pass, Channel-1	50-4620	20	33	-	dB	
		Band Pass, Channel -2	1-250	20	35	-		
		High Pass, Channel -3	1-600	20	26	-		
		High Pass, Channel -3	600-1872	16	23	-		

### Typical Performance Data at 25°C

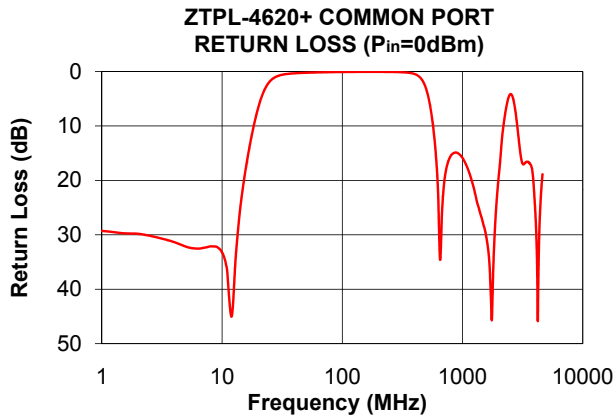
FREQ. (MHz)	INSERTION LOSS (dB)			Common	RETURN LOSS (dB)		
	Low Pass Channel -1	Band Pass Channel -2	High Pass Channel -3		Low Pass Channel -1	Band Pass Channel -2	High Pass Channel -3
1.00	0.31	118.76	98.06	29.29	28.77	0.01	0.01
9.80	0.43	108.97	102.87	32.92	23.14	0.01	0.01
10.20	0.44	102.93	94.57	33.63	23.44	0.01	0.01
22.00	3.87	90.57	98.35	3.87	3.88	0.01	0.01
35.00	20.76	86.09	96.36	0.44	0.54	0.01	0.01
43.00	30.50	82.01	91.77	0.29	0.45	0.01	0.01
50.00	39.68	81.87	103.01	0.22	0.41	0.01	0.01
250.00	47.67	36.05	72.12	0.08	0.08	0.25	0.01
350.00	50.24	19.64	52.92	0.20	0.05	0.53	0.02
500.00	58.90	3.73	33.63	3.33	0.04	3.52	0.02
600.00	48.60	0.64	28.86	15.41	0.04	14.55	0.04
852.00	47.21	0.45	25.79	14.94	0.05	15.12	0.07
1872.00	40.29	0.43	31.22	27.58	0.09	27.74	0.43
2100.00	38.51	1.19	19.27	13.74	0.10	12.23	1.88
2400.00	34.74	3.17	13.96	4.92	0.14	4.29	1.06
2500.00	35.30	5.16	8.18	4.15	0.33	2.62	1.72
2640.00	40.85	9.35	3.69	5.09	0.17	1.28	4.05
2960.00	39.76	20.35	0.79	13.33	0.17	0.52	14.43
3300.00	38.05	31.86	0.56	16.84	0.22	0.38	17.69
4620.00	34.80	33.76	0.57	18.88	0.40	0.36	18.35



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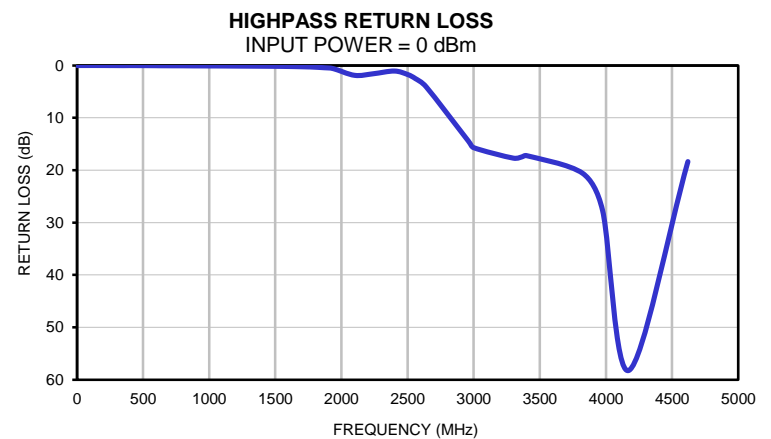
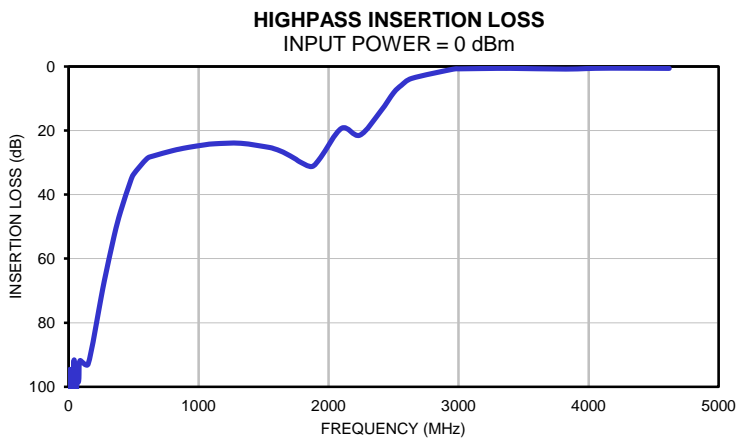
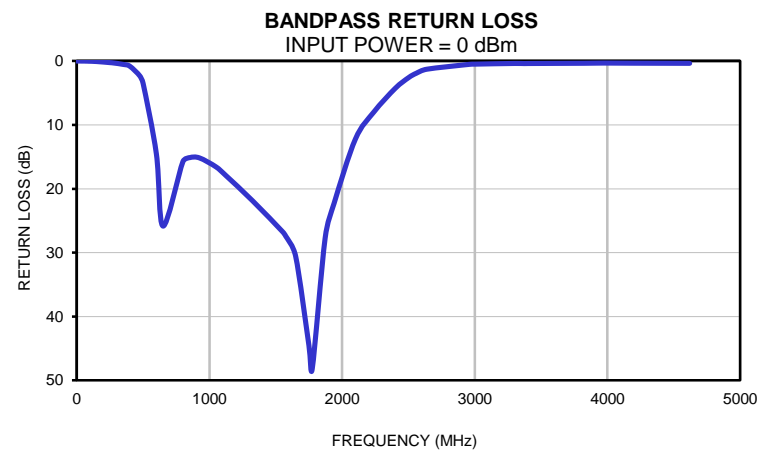
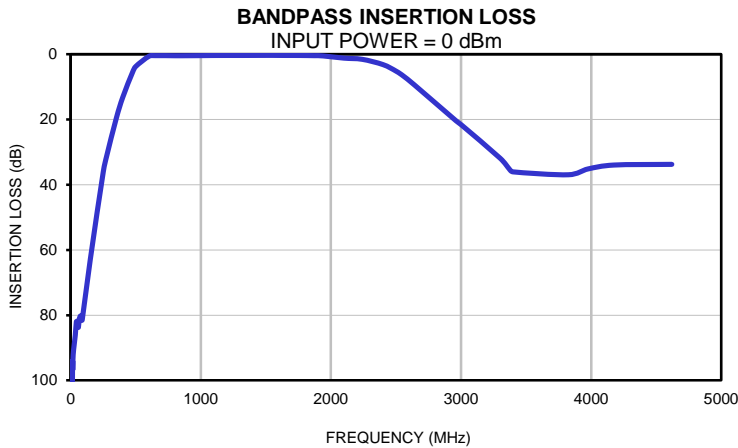
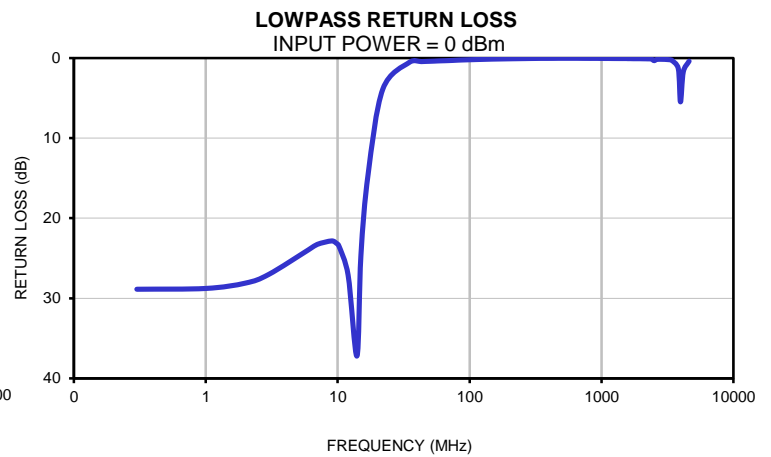
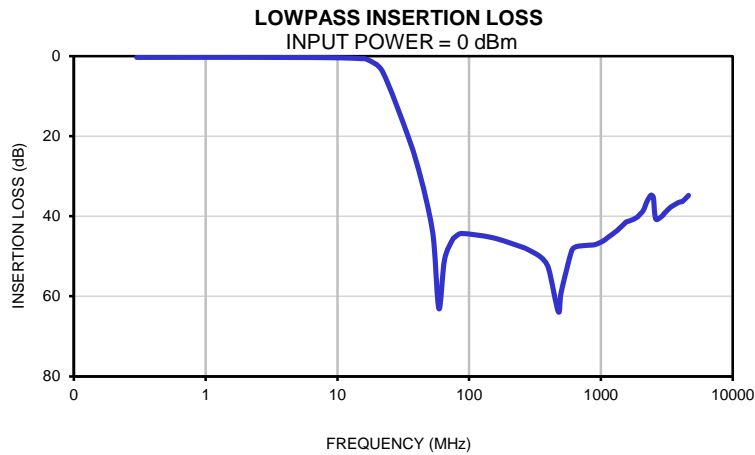


Typical Performance Data

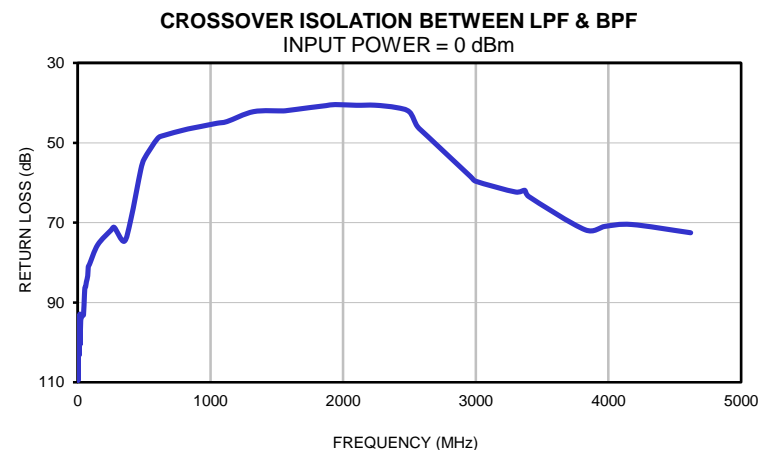
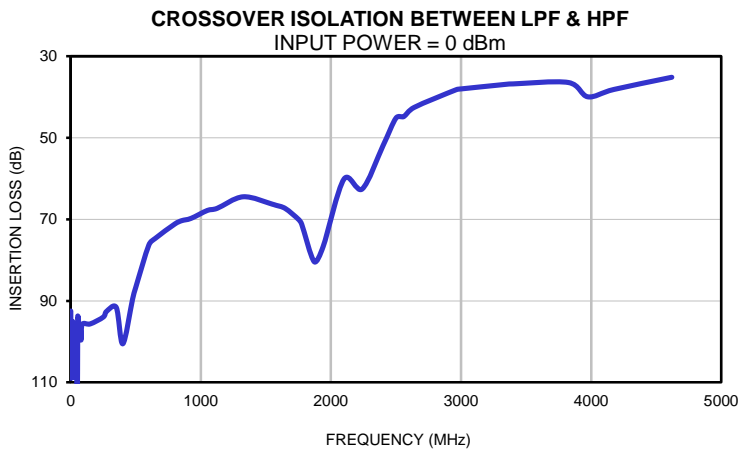
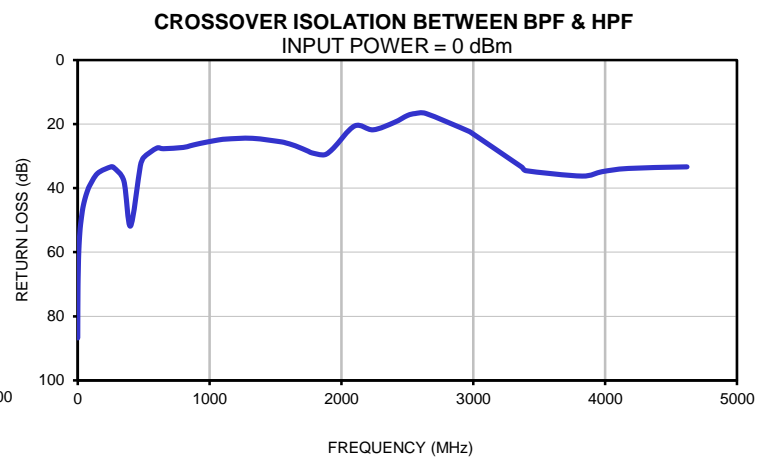
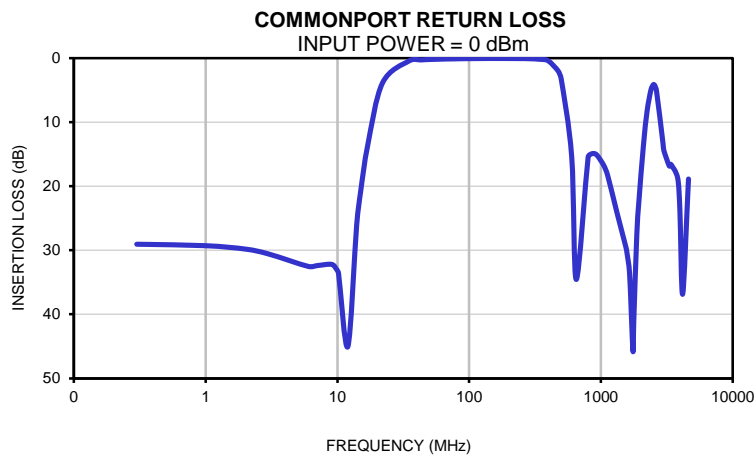
FREQUENCY (MHz)	INSERTION LOSS (dB)			Cross over isolation (dB)			RETURN LOSS (dB)			
	Lowpass port	Bandpass port	Highpass port	(between LPF and HPF)	(between BPF and HPF)	(between LPF and BPF)	Common port	Lowpass port	Bandpass port	Highpass port
0.3	0.33	104.32	98.05	92.49	86.74	96.06	29.06	28.87	0.02	0.00
1	0.31	118.76	98.06	102.99	78.08	98.73	29.29	28.77	0.01	0.00
2	0.32	110.30	98.63	98.68	72.01	109.52	29.82	28.10	0.00	0.00
3	0.33	103.34	116.32	108.99	68.50	104.23	30.58	27.02	0.00	0.00
6	0.36	114.58	101.51	98.56	62.44	99.69	32.52	23.95	0.00	0.00
7	0.37	97.89	101.56	96.77	61.10	96.69	32.40	23.27	0.00	0.00
9	0.41	105.19	97.19	101.21	58.91	103.29	32.20	22.84	0.00	0.00
9.8	0.43	108.97	102.87	99.63	58.27	98.40	32.92	23.14	0.00	0.00
10.2	0.44	102.93	94.57	99.04	57.77	98.06	33.63	23.44	0.00	0.00
12	0.49	105.36	100.94	100.16	56.44	99.31	45.03	27.11	0.00	0.00
14	0.57	94.04	117.89	108.84	55.10	99.13	26.08	37.20	0.00	0.00
15	0.64	96.79	109.45	95.04	54.51	92.88	20.87	24.65	0.00	0.00
17	0.93	93.47	105.71	103.96	53.45	100.57	13.56	14.55	0.00	0.00
22	3.87	90.57	98.35	99.42	51.22	94.47	3.87	3.88	0.00	0.00
35	20.76	86.09	96.36	103.53	47.20	93.22	0.44	0.54	0.01	0.00
43	30.50	82.01	91.77	97.08	45.38	93.08	0.29	0.45	0.01	0.00
50	39.68	81.87	103.01	117.80	44.12	88.19	0.22	0.41	0.01	0.00
54	46.66	82.95	92.97	93.70	43.49	86.20	0.20	0.39	0.01	0.00
59	63.12	83.70	101.23	94.48	42.74	86.04	0.18	0.36	0.01	0.00
65	50.86	81.33	98.28	99.37	41.91	84.78	0.15	0.34	0.02	0.00
75	45.79	80.23	98.54	97.08	40.71	83.29	0.13	0.30	0.02	0.00
79	45.07	81.63	97.35	99.62	40.29	81.04	0.12	0.28	0.02	0.00
88	44.31	81.47	91.83	95.78	39.41	80.44	0.10	0.25	0.03	0.00
150	45.35	62.97	92.92	95.65	35.41	75.55	0.06	0.14	0.08	0.00
250	47.67	36.05	72.12	93.98	33.38	71.89	0.08	0.08	0.25	0.01
275	48.22	31.39	66.87	92.59	33.64	71.18	0.09	0.07	0.30	0.01
350	50.24	19.64	52.92	91.62	37.75	74.65	0.20	0.05	0.53	0.02
400	52.99	13.17	45.23	100.53	51.84	69.16	0.46	0.05	0.82	0.01
475	63.84	5.53	35.93	89.61	33.04	56.70	2.06	0.04	2.33	0.02
500	58.90	3.73	33.63	86.66	30.44	54.06	3.33	0.04	3.52	0.02
600	48.60	0.64	28.86	76.33	27.49	48.97	15.41	0.04	14.55	0.04
650	47.60	0.42	27.94	74.67	27.69	48.13	34.57	0.04	25.84	0.05
800	47.25	0.45	26.26	71.14	27.29	46.77	15.44	0.05	15.75	0.06
852	47.21	0.45	25.79	70.34	26.79	46.38	14.94	0.05	15.12	0.07
925	46.98	0.44	25.21	69.76	26.07	45.91	15.08	0.05	15.17	0.08
1050	46.09	0.40	24.43	67.82	25.08	45.08	16.75	0.06	16.58	0.09
1125	45.33	0.37	24.11	67.31	24.69	44.66	18.33	0.06	17.95	0.10
1325	43.60	0.36	23.96	64.47	24.45	42.18	24.17	0.07	21.88	0.13
1550	41.46	0.34	25.30	66.29	25.60	42.00	29.57	0.07	26.69	0.17
1575	41.38	0.35	25.59	66.53	25.85	41.92	30.39	0.08	27.41	0.18
1650	41.15	0.36	26.72	67.36	26.79	41.60	33.63	0.08	30.57	0.21
1750	40.83	0.37	28.98	70.00	28.52	41.16	45.70	0.09	44.54	0.27
1775	40.73	0.38	29.68	71.19	28.98	41.06	41.17	0.09	48.15	0.29
1872	40.29	0.43	31.22	80.41	29.58	40.67	27.58	0.09	27.74	0.43
1940	39.83	0.51	28.33	76.69	27.50	40.41	22.47	0.09	22.25	0.61
2100	38.51	1.19	19.27	60.13	20.59	40.59	13.74	0.10	12.23	1.88
2240	36.28	1.55	21.43	62.56	21.79	40.57	8.31	0.11	7.97	1.58
2400	34.74	3.17	13.96	51.95	19.50	41.15	4.92	0.14	4.29	1.06
2500	35.30	5.16	8.18	45.16	17.33	42.25	4.15	0.33	2.62	1.72
2560	39.32	6.77	5.85	44.79	16.72	45.89	4.27	0.27	1.91	2.51
2640	40.85	9.35	3.69	42.54	16.69	48.44	5.09	0.17	1.28	4.05
2960	39.76	20.35	0.79	38.24	22.14	58.42	13.33	0.17	0.52	14.43
3000	39.42	21.57	0.71	38.01	23.13	59.61	14.39	0.17	0.49	15.69
3300	38.05	31.86	0.56	37.03	31.55	62.31	16.84	0.22	0.38	17.69
3370	37.80	35.15	0.57	36.80	33.51	61.88	16.62	0.25	0.40	17.40
3400	37.68	36.06	0.56	36.78	34.56	63.45	16.59	0.26	0.39	17.21
3825	36.68	36.95	0.78	36.44	36.23	71.78	18.75	1.31	0.35	20.60
3975	36.45	35.17	0.63	39.95	34.87	70.91	23.75	5.48	0.32	27.72
4175	36.26	33.97	0.50	38.14	33.85	70.44	36.83	1.73	0.34	58.20
4620	34.80	33.76	0.57	35.15	33.35	72.51	18.88	0.40	0.36	18.35



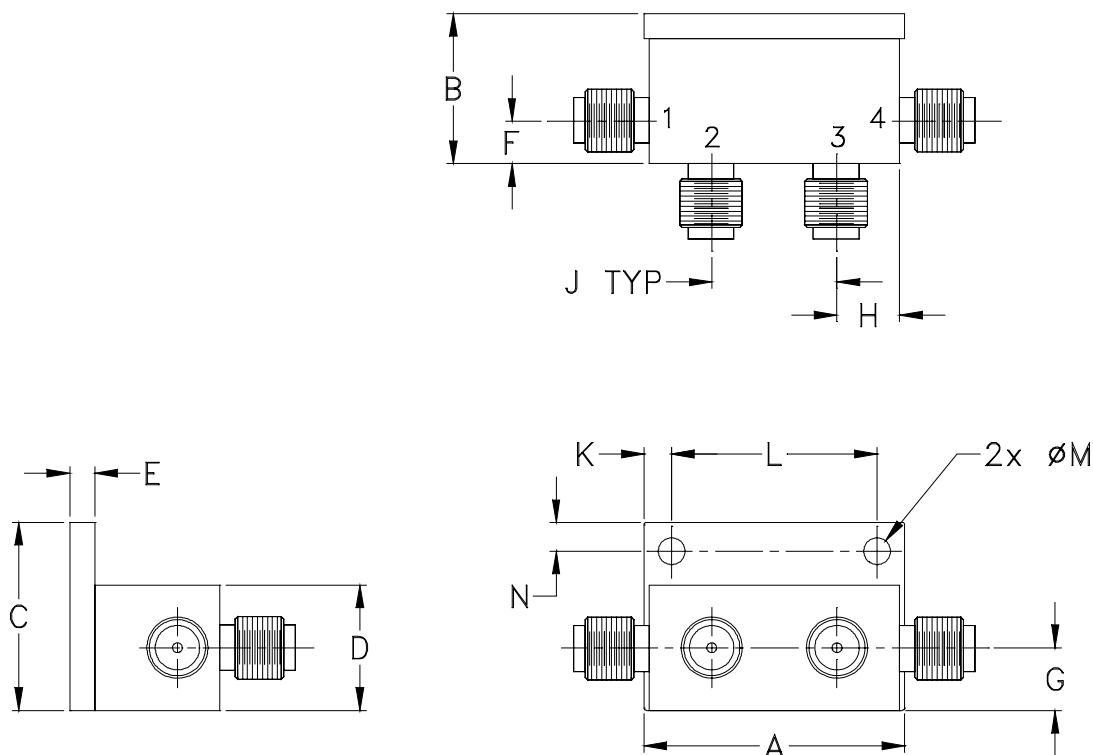
## Typical Performance Curves



## Typical Performance Curves



### Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N	WT. GRAM
GW1052	1.04 (26.42)	.60 (15.24)	.75 (19.05)	.50 (12.70)	.10 (2.54)	.17 (4.32)	.25 (6.35)	.25 (6.35)	.50 (12.70)	.11 (2.79)	.820 (20.83)	.106 (2.69)	.12 (3.05)	21.0

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

Tolerance on hole size and interaxes dimensions to be  $\pm .005$ .

#### Notes:

1. Case material: Brass.
2. Case finish: Nickel plate.





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	-40° to 85°C	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I