CAVITY COAXIAL

Bandpass Filter

ZVBP-5G-S+

50Ω 4.7 to 5.3 GHz

THE BIG DEAL

- Low Insertion Loss, 0.4 dB Typ.
- Good Return Loss, 20 dB Typ.
- Good Rejection
- Power Handling: 20 Watts
- Stopband Up to 11.5 GHz

Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM

APPLICATIONS

- Aerospace and Defense
  - ECM / Jamming
- Test & Measurement

PRODUCT OVERVIEW

Mini-Circuits' ZVBP-5G-S+ is a coaxial cavity filter designed by implementing resonant structures with very high Q and are ideal for narrow-band, high-selectivity applications.

Mini-Circuits' coaxial cavity filters feature a special protective assembly to prevent accidental de-tuning that would otherwise require expensive replacement or return to factory for re-tuning. Precise machining allows realization of cavity filters with small form factors for applications where size is critical.

KEY FEATURES

Features	Advantages
Low Insertion Loss, 0.4 dB Typ.	Low signal loss results in better SNR in receiver front end and better power delivery to antenna in transmitter.
Fast roll-off (97%, 0.5dB/MHz @ 20dB point)	Higher selectivity results in better adjacent channel rejection and dynamic range.
High power handling, 20W	Well suited for transmitter application.
Protective assembly	Prevents accidental de-tuning of precisely tuned resonant circuit.

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ELECTRICAL SPECIFICATIONS AT +25°C

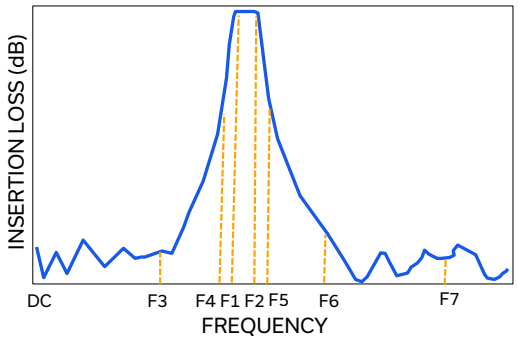
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	—	—	—	5000	—	MHz
	Insertion Loss	F1-F2	4700 - 5300	—	0.4	0.7	dB
	Return Loss	F1-F2	4700 - 5300	14	20	—	dB
Stop Band, Lower	Rejection	DC-F3	DC - 2500	75	86	—	dB
		F3-F4	2500 - 4500	14	17	—	
Stop Band, Upper	Rejection	F5-F6	5500 - 7500	14	17	—	dB
		F6-F7	7500 - 11500	75	89	—	

ABSOLUTE MAXIMUM RATINGS[1,2]

Parameter	Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +100 °C
Input Power	20W max. at 25°C

1. Permanent damage may occur if any of these limits are exceeded.
2. Input and output ports are DC short to ground.

TYPICAL FREQUENCY RESPONSE



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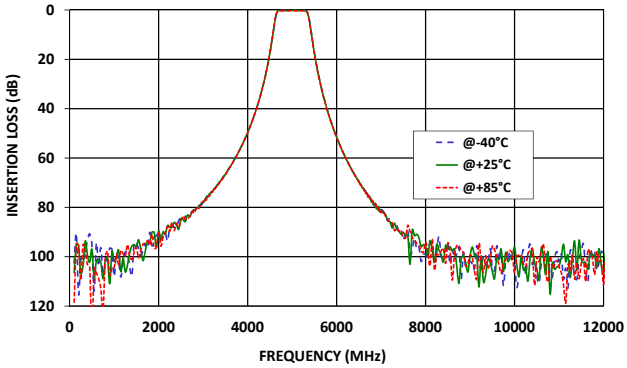
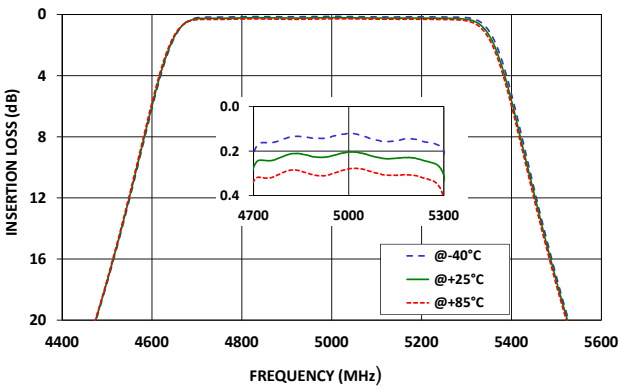
TYPICAL PERFORMANCE GRAPHS

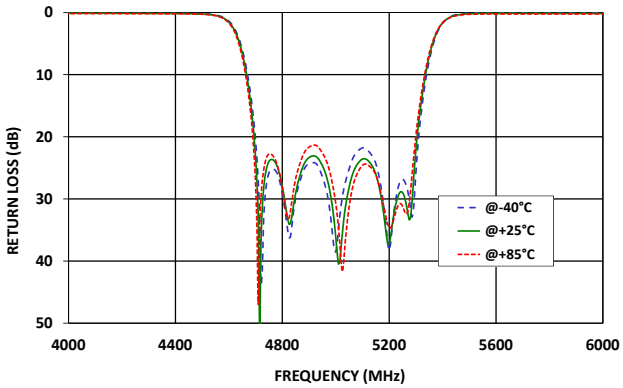
ZVBP-5G-S+
INSERTION LOSS



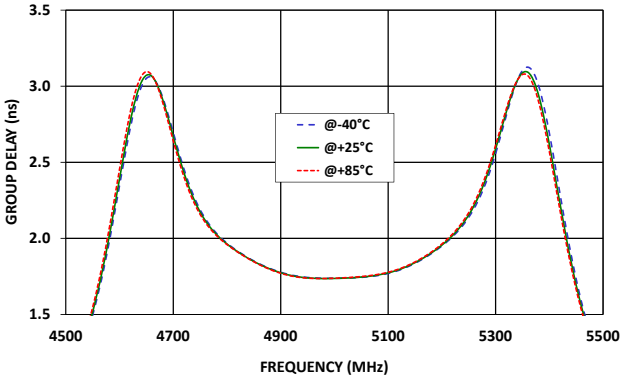
ZVBP-5G-S+
INSERTION LOSS (Zoomed)



ZVBP-5G-S+
RETURN LOSS



ZVBP-5G-S+
GROUP DELAY



Bandpass Filter

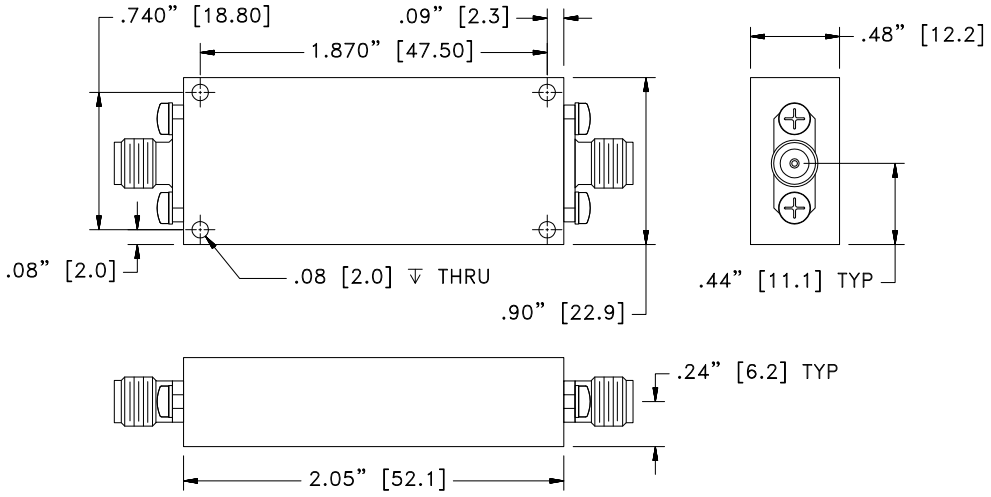
ZVBP-5G-S+

50Ω 4.7 to 5.3 GHz

CONNECTOR SPECIFICATIONS

Description	RF1-Port	RF2-Port
Connector Type	SMA-Female	SMA-Female
Orientation	Straight	Straight
Impedance	50 Ω	50 Ω
Connector Body	Stainless Steel Passivated	Stainless Steel Passivated
Center Contact	Beryllium Copper	Beryllium Copper
Housing	2-Hole Flange	2-Hole Flange
Insulator	PTFE	PTFE

OUTLINE DRAWING



Weight: 80 grams

Dimensions are in inches[mm]. Tolerance: 2PL. ± .100; 3PL. ± .015

PRODUCT MARKING*: ZVBP-5G-S+

*Marking may contain other features or characters for internal lot control.

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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASH BOARD CLICK HERE

Performance Data and Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file)
Case Style	YL3242
RoHs Status	Compliant
Environmental Rating	ENV46

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-Circuits' 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/terms/viewterm.html

Cavity Band Pass Filter ZVBP-5G-S+

Typical Performance Data

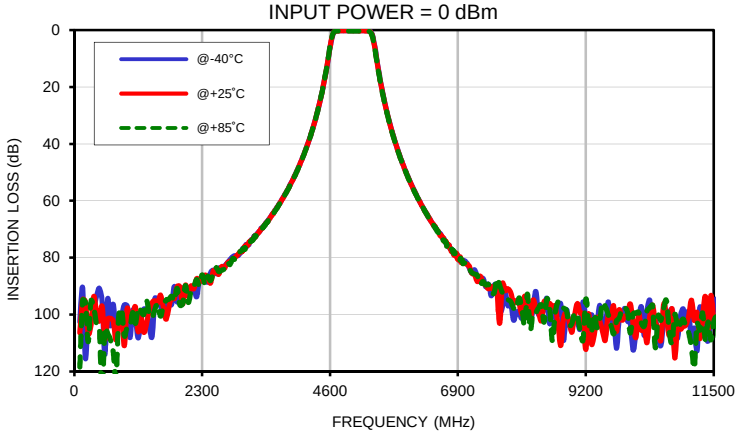
FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURN LOSS (dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
100	102.54	106.42	118.44	0.02	0.00	0.00	0.02	0.03	0.04
150	90.59	94.73	94.87	0.02	0.00	0.00	0.03	0.04	0.05
200	115.39	95.42	95.66	0.01	0.01	0.01	0.03	0.05	0.06
250	100.73	106.76	109.51	0.01	0.01	0.01	0.04	0.05	0.06
300	102.12	103.80	95.22	0.00	0.02	0.03	0.05	0.05	0.07
350	97.82	93.63	97.45	0.00	0.03	0.03	0.05	0.06	0.07
400	93.52	99.36	103.20	0.01	0.03	0.04	0.05	0.06	0.07
450	90.73	102.29	104.33	0.01	0.03	0.04	0.05	0.06	0.07
500	95.18	96.99	129.80	0.01	0.03	0.04	0.05	0.06	0.08
600	94.46	101.57	106.52	0.01	0.03	0.04	0.05	0.07	0.09
700	96.36	102.20	112.94	0.00	0.03	0.04	0.05	0.06	0.09
800	103.71	101.59	100.20	0.00	0.03	0.04	0.05	0.07	0.09
900	96.58	110.91	107.40	0.00	0.03	0.05	0.04	0.06	0.09
1000	108.08	101.83	104.50	0.00	0.04	0.05	0.04	0.06	0.09
1200	101.54	100.50	98.69	0.00	0.04	0.05	0.03	0.06	0.08
1400	107.64	95.67	101.11	0.02	0.02	0.04	0.02	0.05	0.08
1600	99.49	97.33	97.24	0.04	0.00	0.03	0.01	0.04	0.08
1800	90.12	94.33	95.16	0.04	0.01	0.04	0.00	0.04	0.08
2000	90.03	89.60	89.74	0.03	0.01	0.05	0.00	0.04	0.08
2200	93.73	87.35	87.70	0.05	0.01	0.05	0.01	0.04	0.09
2500	84.36	84.60	85.65	0.06	0.00	0.05	0.01	0.04	0.10
2700	82.91	83.70	83.85	0.05	0.02	0.07	0.01	0.05	0.11
3000	77.98	77.63	77.67	0.03	0.04	0.10	0.00	0.06	0.13
3200	73.68	73.68	73.85	0.03	0.05	0.11	0.01	0.07	0.14
3400	69.02	69.04	69.29	0.01	0.06	0.12	0.03	0.09	0.16
3600	63.65	63.65	63.91	0.01	0.09	0.15	0.04	0.10	0.17
3800	57.37	57.39	57.53	0.03	0.10	0.16	0.06	0.12	0.19
4000	49.61	49.73	49.79	0.04	0.11	0.17	0.07	0.14	0.20
4355	30.06	30.03	30.05	0.09	0.15	0.20	0.13	0.18	0.23
4500	17.56	17.47	17.37	0.18	0.25	0.28	0.22	0.28	0.31
4560	10.91	10.76	10.59	0.49	0.57	0.63	0.54	0.62	0.68
4630	2.98	2.85	2.68	3.36	3.69	4.08	3.42	3.74	4.14
4700	0.21	0.27	0.34	20.71	23.42	27.79	20.58	23.16	26.97
4800	0.14	0.22	0.29	29.21	27.99	28.35	27.85	27.25	28.06
4900	0.14	0.23	0.31	24.37	23.33	21.67	23.92	23.19	21.73
4950	0.13	0.22	0.30	26.46	24.65	22.62	26.24	24.72	22.68
5000	0.12	0.20	0.28	38.52	36.05	30.71	43.51	38.12	31.17
5050	0.13	0.21	0.28	25.17	28.10	31.32	25.12	27.99	31.22
5100	0.15	0.23	0.30	21.79	23.60	24.61	21.70	23.43	24.56
5200	0.14	0.23	0.31	38.29	37.27	34.62	31.81	33.42	34.60
5300	0.20	0.31	0.41	25.75	22.19	19.82	26.30	22.33	19.88
5380	3.13	3.52	3.85	3.23	3.03	2.90	3.29	3.07	2.96
5440	10.10	10.49	10.82	0.48	0.56	0.63	0.54	0.61	0.70
5500	17.16	17.45	17.72	0.08	0.19	0.29	0.14	0.23	0.35
5640	30.12	30.26	30.47	0.03	0.13	0.23	0.06	0.16	0.27
5800	41.05	41.14	41.29	0.05	0.14	0.24	0.08	0.16	0.27
6000	51.47	51.54	51.66	0.06	0.15	0.23	0.10	0.18	0.27
6300	63.37	63.48	63.50	0.10	0.18	0.25	0.13	0.19	0.27
6600	72.33	72.31	72.17	0.11	0.18	0.25	0.14	0.20	0.27
6900	79.48	79.53	80.22	0.10	0.17	0.23	0.15	0.21	0.26
7200	84.24	85.89	85.76	0.11	0.18	0.23	0.15	0.20	0.26
7500	93.37	90.11	92.15	0.10	0.17	0.21	0.15	0.20	0.25
8000	98.94	95.97	94.11	0.08	0.15	0.19	0.15	0.19	0.24
8500	94.30	96.85	94.41	0.04	0.12	0.15	0.13	0.19	0.23
9000	101.81	99.71	99.34	0.03	0.12	0.15	0.11	0.17	0.22
9500	104.53	105.85	95.81	0.01	0.08	0.13	0.08	0.16	0.22
10000	102.98	96.25	106.46	0.05	0.06	0.11	0.06	0.14	0.23
10500	107.97	104.75	100.31	0.07	0.04	0.12	0.03	0.13	0.23
11000	102.04	103.67	104.23	0.10	0.03	0.13	0.01	0.12	0.24
11500	97.88	101.28	102.60	0.17	0.03	0.10	0.01	0.11	0.26

Typical Performance Data

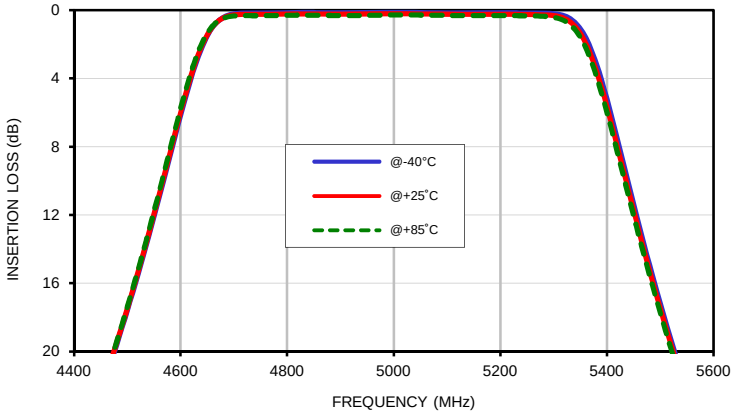
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-40°C	@+25°C	@+85°C
4700	2.70	2.67	2.64
4715	2.51	2.49	2.46
4730	2.35	2.33	2.31
4745	2.22	2.21	2.19
4760	2.13	2.11	2.10
4775	2.06	2.05	2.04
4795	1.98	1.98	1.97
4810	1.94	1.94	1.93
4825	1.90	1.90	1.90
4845	1.86	1.86	1.86
4860	1.83	1.83	1.83
4875	1.81	1.81	1.80
4890	1.79	1.79	1.78
4905	1.77	1.77	1.77
4920	1.76	1.76	1.75
4935	1.75	1.75	1.74
4950	1.74	1.74	1.74
4965	1.74	1.74	1.74
4980	1.74	1.74	1.74
5000	1.74	1.74	1.74
5015	1.74	1.74	1.74
5030	1.74	1.74	1.74
5045	1.74	1.74	1.75
5060	1.75	1.75	1.75
5075	1.75	1.76	1.76
5090	1.76	1.77	1.77
5105	1.77	1.78	1.78
5120	1.79	1.79	1.80
5135	1.81	1.82	1.82
5150	1.84	1.84	1.85
5165	1.87	1.87	1.88
5180	1.90	1.90	1.91
5195	1.94	1.94	1.95
5210	1.98	1.99	1.99
5220	2.01	2.02	2.03
5230	2.05	2.06	2.07
5240	2.09	2.10	2.12
5250	2.14	2.15	2.17
5260	2.20	2.22	2.23
5280	2.35	2.37	2.40
5300	2.56	2.59	2.61

Typical Performance Curves

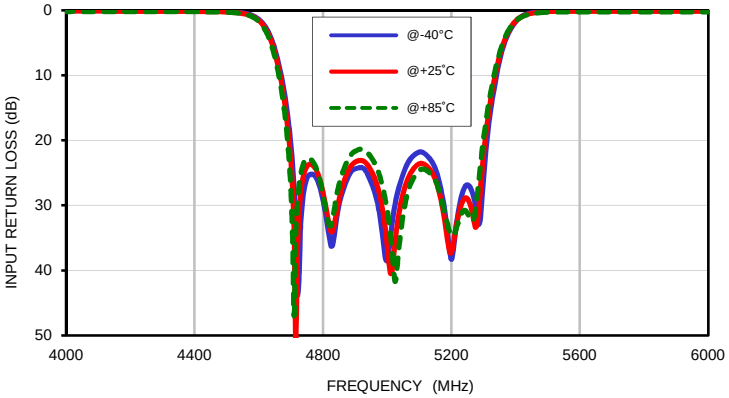
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



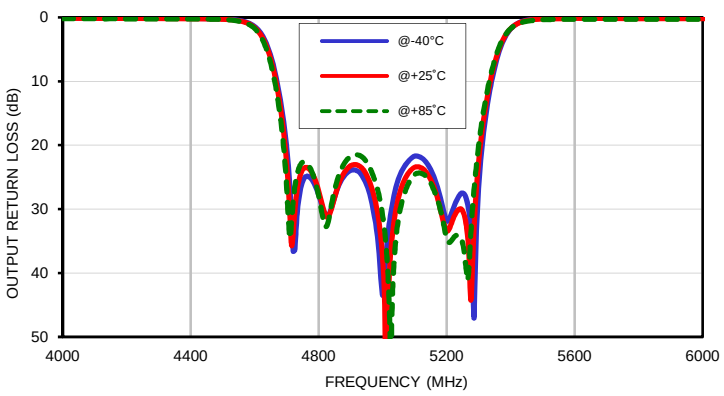
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



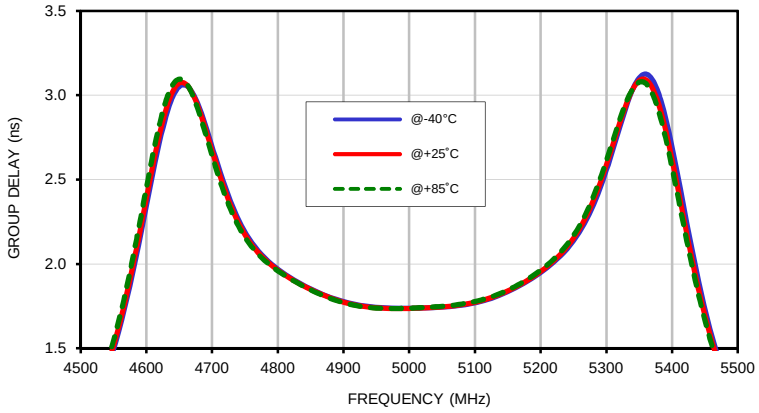
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



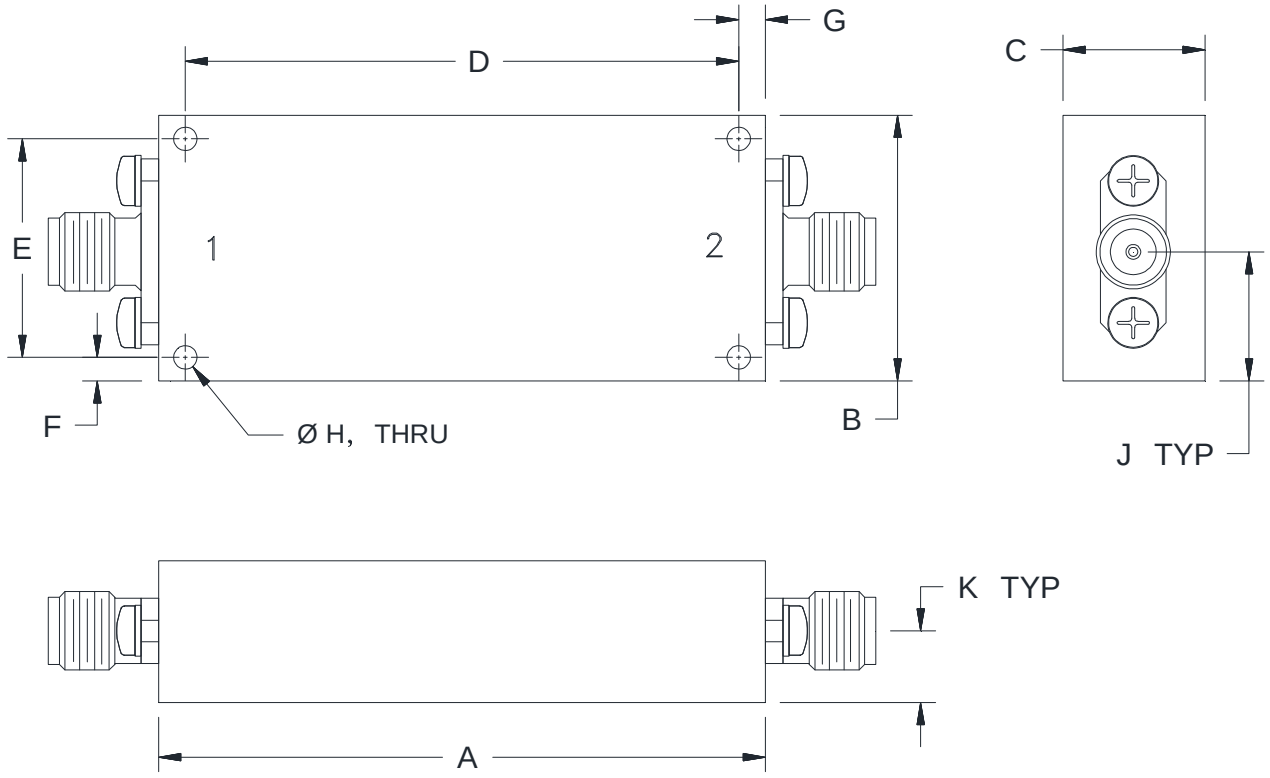
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style YL

Outline Dimensions

YL3242



CASE#	A	B	C	D	E	F
YL3242	2.05 (52.1)	.90 (22.9)	.48 (12.2)	1.870 (47.50)	.740 (18.80)	.08 (2.0)

CASE#	G	H	J	K	WT. GRAMS
YL3242	.09 (2.3)	.080 (2.03)	.44 (11.1)	.24 (6.2)	80

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .100; 3 Pl. ± .015

Notes:

1. Case material: Brass.
2. Case Finish: Powder coated.
3. Refer to the individual model data sheet for the type of connectors available.

Mini-Circuits

Environmental Specifications ENV46

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	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 40°C, 96 hours; Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103, Condintion B
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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	50g, 11ms half-sine, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition A