



COAXIAL

Bandpass Filter

ZABP-141-S+

Mini-Circuits

50Ω 110 to 180 MHz

THE BIG DEAL

- High rejection
- Good Return Loss
- Connectorized package



Generic photo used for illustration purposes only

APPLICATIONS

- Military communications
- Receivers / Transmitters
- Harmonic rejection
- Test equipment

Model No.	ZABP-141-S+
Case Style	UU1842
Connectors	SMA-FEMALE

+RoHS Compliant

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

PRODUCT OVERVIEW

ZABP-141-S+ is a 50Ω bandpass filter with a rugged connectorized package covering the passband of 110 to 180 MHz. The bandpass filter offers good matching within the passband and provides high rejection. This filter has miniature high Q capacitors and wire welded inductors for high reliability. It has repeatable performance across lots and consistent performance across temperature.

KEY FEATURES

Feature	Advantages
High rejection	ZABP-141-S+ has sharper transition and rejects spurious signals in the stopband.
Good Return Loss	This filter maintains typical Return Loss over passband frequency range making this filter easier to integrate into receiver and transmitter RF chains with less concerns for in band frequency ripple.
Connectorized package	Connectorized package is easy to interface with other devices and well suited for test setups.

REV. C
ECO-019470
ZABP-141-S+
EDU2935
URJ
231006





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ZABP-141-S+

ELECTRICAL SPECIFICATIONS AT 25°C

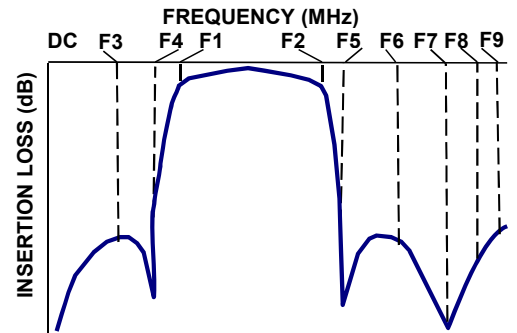
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	—	—	141	—	MHz
	Insertion Loss	F1-F2	110 - 180	1.3	2.0	dB
	Return Loss	F1-F2	110 - 180	11.7	17.7	dB
Stop Band, Lower	Rejection	DC-F3	DC - 90	—	40	dB
		F3-F4	90 - 92	20	38	—
Stop Band, Upper	Rejection	F5-F6	213 - 217	20	33	—
		F6-F7	217 - 1600	—	40	—
		F7-F8	1600 - 3000	—	50	—
		F8-F9	3000 - 3500	—	35	—

MAXIMUM RATINGS

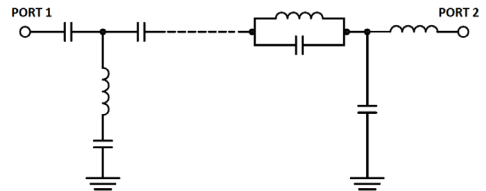
Parameter	Ratings
Operating temperature	-40°C to +85°C
Storage temperature	-55°C to +100°C
RF Power Input	0.2W max

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC





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Bandpass Filter

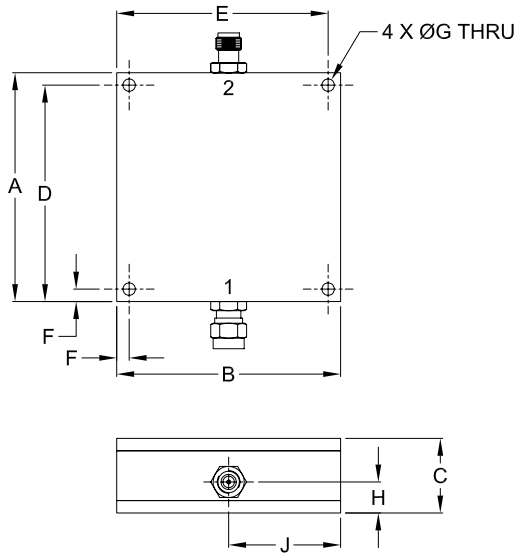
ZABP-141-S+

Mini-Circuits

COAXIAL CONNECTIONS

PORT 1	SMA-MALE
PORT 2	SMA-FEMALE

OUTLINE DRAWING



OUTLINE DIMENSIONS (Inches/mm)

A	B	C	D	E
2.300	2.250	.750	2.175	2.125
58.42	57.15	19.05	55.25	53.98
F	G	H	J	wt.
.125	.125	.312	1.125	grams
3.18	3.18	7.93	28.58	124

Note. Please refer to case style drawing for details



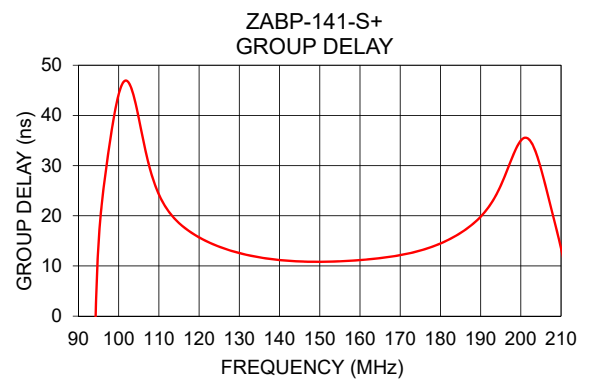
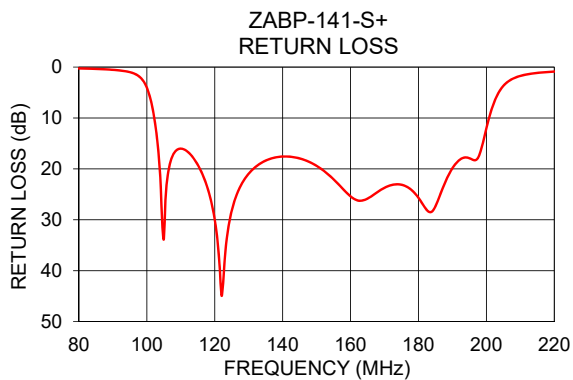
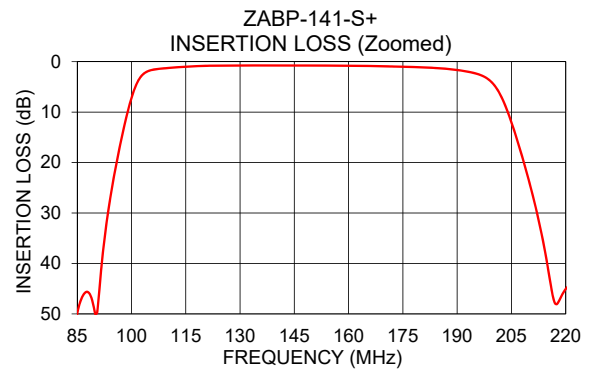
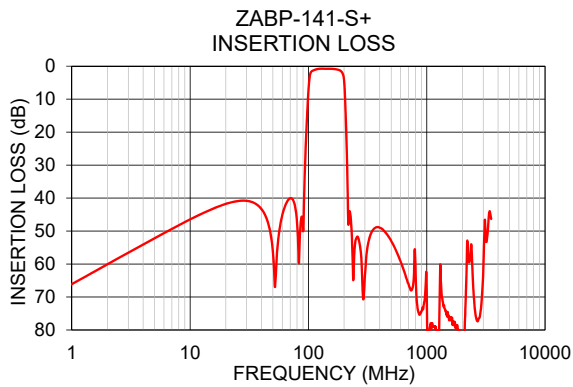
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Bandpass Filter

ZABP-141-S+

TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group (nsec)
1	66.07	0.01	110	24.23
90	50.03	0.54	114	19.35
92	38.53	0.67	118	16.67
96	19.57	1.21	124	14.15
103	2.64	14.03	130	12.57
110	1.26	16.02	136	11.58
141	0.77	17.57	141	11.10
180	1.12	25.69	145	10.90
198	3.19	17.16	148	10.84
209	21.42	1.95	154	10.90
213	33.00	1.33	157	11.02
217	47.85	1.02	160	11.17
1600	77.03	0.58	165	11.56
3000	62.58	0.94	170	12.15
3500	46.30	0.90	180	14.48



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



Typical Performance Data

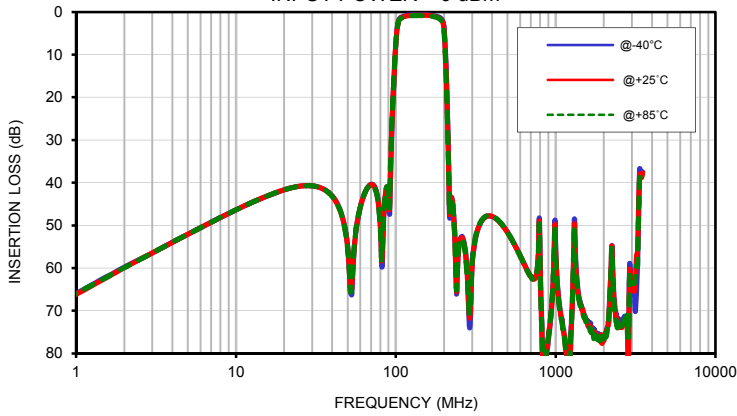
FREQ. (MHz)	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1.0	65.94	66.16	65.95	0.00	0.00	0.00	0.00	0.00	0.00
5.0	52.08	52.09	52.09	0.00	0.00	0.00	0.01	0.00	0.01
10.0	46.37	46.37	46.38	0.00	0.00	0.00	0.01	0.02	0.02
20.0	41.69	41.68	41.67	0.00	0.00	0.01	0.05	0.07	0.07
40.0	43.11	43.15	43.20	0.02	0.03	0.03	0.23	0.27	0.29
50.0	55.15	55.40	55.67	0.04	0.05	0.06	0.35	0.40	0.44
75.0	41.59	41.77	41.93	0.18	0.22	0.23	0.64	0.73	0.79
90.0	42.79	43.11	43.40	0.55	0.63	0.69	0.85	0.99	1.09
92.0	44.04	42.02	40.50	0.67	0.77	0.84	0.91	1.07	1.18
93.5	32.60	31.56	30.68	0.80	0.92	1.01	0.98	1.16	1.28
94.0	29.75	28.86	28.08	0.86	0.98	1.08	1.01	1.19	1.32
95.0	24.84	24.14	23.50	0.99	1.14	1.25	1.10	1.29	1.43
96.0	20.60	20.03	19.49	1.18	1.36	1.50	1.22	1.44	1.60
100.0	7.53	7.35	7.14	3.66	4.18	4.63	3.19	3.66	4.05
102.5	3.12	3.21	3.23	9.65	10.71	11.61	8.09	8.77	9.36
103.0	2.66	2.78	2.82	11.58	12.80	13.85	9.54	10.23	10.82
104.0	2.03	2.18	2.26	16.26	17.94	19.42	12.66	13.25	13.78
105.0	1.67	1.83	1.92	21.28	23.12	24.49	15.46	15.78	16.11
110.0	1.10	1.24	1.32	18.71	18.37	18.26	17.38	17.13	17.09
120.0	0.75	0.86	0.92	26.57	27.24	27.65	22.78	22.60	22.50
141.0	0.69	0.79	0.85	17.65	17.33	17.24	18.28	17.83	17.71
150.0	0.67	0.78	0.84	21.51	20.85	20.49	22.04	21.06	20.57
165.0	0.75	0.86	0.93	25.74	26.01	26.38	24.06	23.39	22.90
180.0	1.00	1.16	1.26	21.31	20.82	20.73	20.35	19.48	19.16
190.0	1.40	1.62	1.77	23.00	22.45	21.97	19.58	18.73	18.23
193.5	1.69	1.95	2.14	19.99	19.96	19.83	19.03	18.70	18.55
196.0	2.00	2.33	2.56	20.01	19.86	19.49	22.95	22.89	23.13
198.0	2.44	2.86	3.17	17.99	17.23	16.35	27.88	24.35	22.39
200.0	3.37	3.94	4.40	11.94	11.39	10.78	13.96	13.08	12.30
208.5	18.94	19.92	20.75	1.58	1.75	1.84	1.57	1.67	1.70
209.0	20.24	21.23	22.06	1.47	1.65	1.74	1.46	1.56	1.60
212.0	28.73	29.79	30.71	1.08	1.24	1.33	1.06	1.15	1.18
212.5	30.32	31.40	32.35	1.04	1.19	1.28	1.02	1.10	1.14
213.0	31.98	33.08	34.06	1.00	1.15	1.24	0.98	1.06	1.09
217.0	47.96	47.49	47.11	0.78	0.91	0.99	0.77	0.83	0.86
250.0	53.68	53.87	53.99	0.41	0.47	0.50	0.38	0.42	0.43
300.0	59.37	59.04	58.76	0.41	0.47	0.48	0.26	0.30	0.31
320.0	51.94	51.87	51.73	0.41	0.48	0.50	0.23	0.27	0.28
340.0	49.28	49.19	49.12	0.41	0.48	0.51	0.20	0.25	0.26
350.0	48.61	48.51	48.46	0.41	0.48	0.51	0.19	0.24	0.25
360.0	48.16	48.09	48.01	0.40	0.48	0.51	0.18	0.23	0.24
380.0	47.81	47.75	47.70	0.39	0.47	0.51	0.17	0.21	0.22
400.0	47.93	47.92	47.82	0.37	0.45	0.50	0.15	0.20	0.21
420.0	48.34	48.35	48.29	0.35	0.44	0.48	0.14	0.18	0.20
450.0	49.37	49.39	49.29	0.32	0.41	0.45	0.13	0.17	0.18
500.0	51.59	51.73	51.63	0.27	0.36	0.41	0.11	0.15	0.16
700.0	61.94	61.99	61.97	0.20	0.31	0.36	0.09	0.14	0.15
750.0	62.14	62.16	62.19	0.20	0.32	0.37	0.09	0.15	0.16
1000.0	55.14	56.04	56.86	0.47	0.57	0.60	0.14	0.20	0.22
1200.0	88.91	91.31	95.97	0.35	0.46	0.53	0.18	0.25	0.26
1250.0	74.11	74.86	73.59	0.36	0.48	0.55	0.20	0.26	0.28
1300.0	54.82	54.29	53.41	0.37	0.49	0.56	0.29	0.38	0.42
1500.0	70.67	71.08	71.50	0.39	0.53	0.61	0.24	0.31	0.33
1600.0	73.76	73.20	73.53	0.40	0.55	0.63	0.25	0.32	0.34
2000.0	76.77	77.04	76.17	0.49	0.66	0.75	0.27	0.36	0.38
2250.0	54.76	55.41	55.91	14.84	9.10	10.08	0.27	0.36	0.39
2500.0	73.36	73.55	74.19	0.54	0.72	0.84	0.27	0.37	0.40
3000.0	63.44	64.84	63.75	0.82	0.98	1.11	0.29	0.42	0.47
3250.0	59.89	56.21	59.64	1.71	2.02	2.18	0.36	0.51	0.56
3500.0	37.51	37.69	37.63	1.25	1.44	1.62	0.42	0.57	0.65

Typical Performance Data

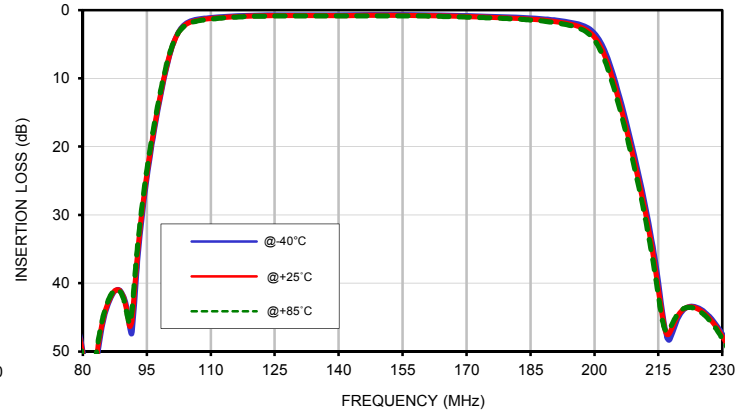
FREQ. (MHz)	GROUP DELAY		
	(ns)		
	@-40°C	@+25°C	@+85°C
110	24.66	24.29	23.98
111	22.99	22.68	22.43
112	21.62	21.37	21.15
113	20.48	20.26	20.08
114	19.51	19.32	19.16
115	18.66	18.50	18.36
116	17.92	17.78	17.66
117	17.26	17.14	17.03
118	16.67	16.56	16.47
119	16.13	16.04	15.96
120	15.64	15.57	15.49
121	15.19	15.12	15.06
122	14.78	14.72	14.66
123	14.40	14.35	14.30
124	14.06	14.01	13.97
125	13.73	13.69	13.65
126	13.44	13.40	13.37
127	13.16	13.13	13.10
128	12.91	12.88	12.85
129	12.67	12.64	12.63
130	12.45	12.43	12.41
131	12.26	12.24	12.22
132	12.07	12.06	12.05
133	11.91	11.89	11.88
134	11.76	11.74	11.73
135	11.62	11.60	11.59
136	11.49	11.47	11.47
137	11.39	11.37	11.36
138	11.28	11.26	11.26
140	11.11	11.10	11.10
141	11.04	11.03	11.03
142	10.99	10.97	10.97
143	10.93	10.92	10.92
145	10.86	10.85	10.85
146	10.83	10.83	10.83
148	10.81	10.80	10.81
150	10.80	10.80	10.81
152	10.82	10.83	10.84
154	10.87	10.89	10.90
155	10.90	10.92	10.93
158	11.02	11.04	11.06
160	11.12	11.15	11.17
161	11.18	11.21	11.24
162	11.24	11.28	11.31
163	11.31	11.34	11.38
164	11.39	11.42	11.46
165	11.47	11.51	11.55
166	11.56	11.60	11.64
167	11.66	11.70	11.75
168	11.76	11.80	11.86
169	11.88	11.93	11.98
170	12.01	12.06	12.11
171	12.15	12.20	12.26
172	12.30	12.36	12.42
173	12.46	12.53	12.59
174	12.65	12.71	12.79
176	13.07	13.14	13.22
177	13.31	13.39	13.47
178	13.57	13.65	13.75
180	14.17	14.27	14.36

Typical Performance Curves

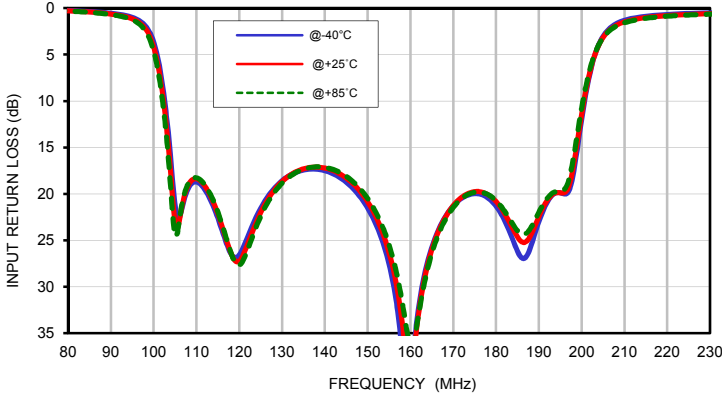
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



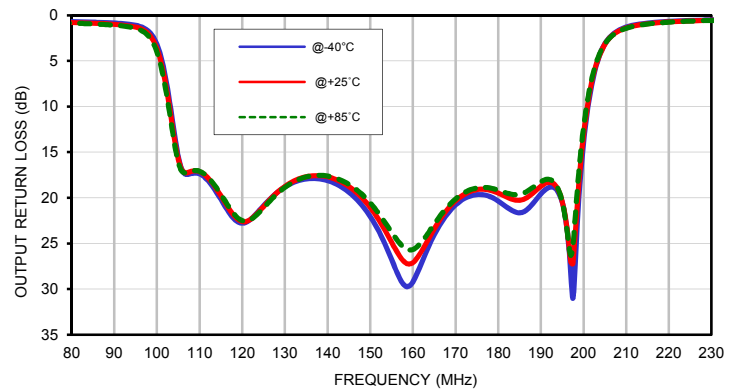
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



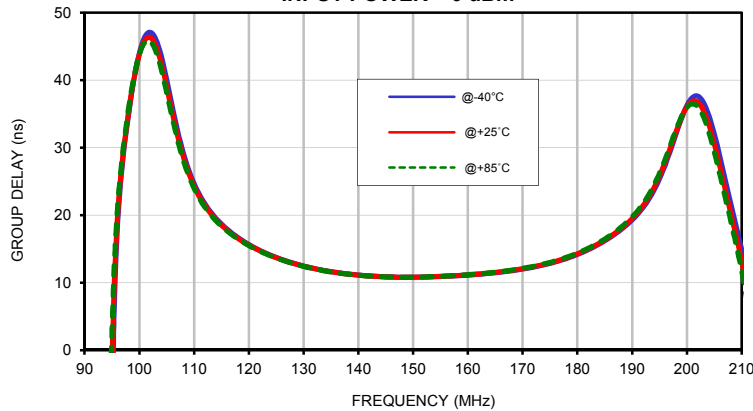
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm

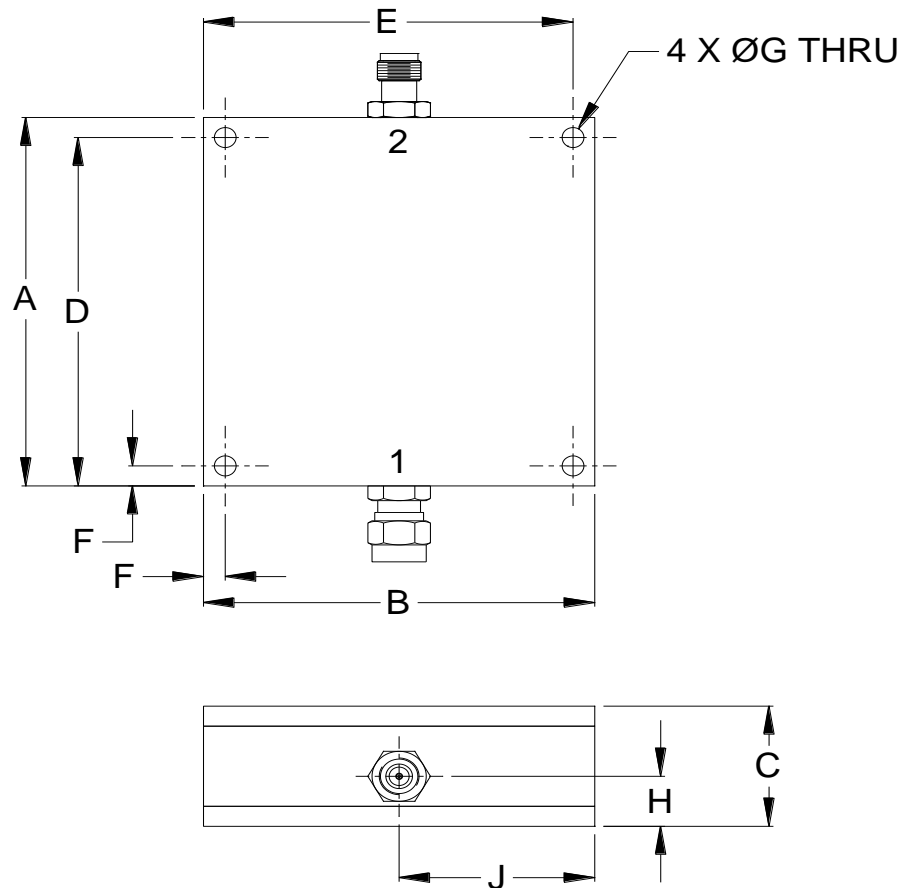


GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Outline Dimensions

UU1842



CASE#	A	B	C	D	E	F	G	H	J	WT.GRAMS
UU1842	2.300 (58.42)	2.250 (57.15)	0.750 (19.05)	2.175 (55.25)	2.125 (53.98)	0.125 (3.18)	0.125 (3.18)	0.312 (7.93)	1.125 (28.58)	124

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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RF/IF MICROWAVE COMPONENTS

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, Condition 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