COAXIAL

Fixed Slope Equalizer

ZEQ-18-24-S+

50Ω 0.5 to 18 GHz SMA Male/Female

KEY FEATURES

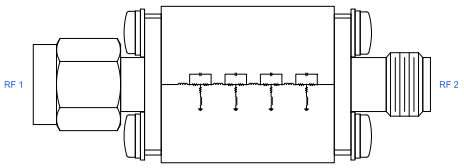
- 23 dB Slope
- Insertion Loss, 26 dB Typ. at 0.5 GHz
- Insertion Loss, 2.8 dB Typ. at 18 GHz
- Return Loss, 13.5 dB Typ.

Generic photo used for illustration purposes only

APPLICATIONS

- Aerospace and Defense
- Test and Measurement
- General

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' ZEQ-18-24-S+ is a broadband, connectorized slope equalizer, with a slope of 23 dB typ. over the range of 0.5 to 18 GHz. The model is bi-directional and offers excellent electrical performance and operates over a wide temperature range of -55°C to +100°C.

ELECTRICAL SPECIFICATIONS AT +25°C, 50Ω

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		0.5	—	18	GHz
Insertion Loss	0.5	24	26	28	dB
	6	19	21	23	
	10	12.5	14	15.5	
	14	6.2	7.2	8.2	
	16	—	4.7	—	
	18	—	2.8	—	
Return Loss	0.5 - 18	—	13.5	—	dB

ABSOLUTE MAXIMUM RATINGS[1]

Operating Case Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
Input Power[2]	+33 dBm (5-minute max) +30 dBm (continuous)

1. Permanent damage may occur if any of these limits are exceeded.
2. Derate linearly to +29 dBm at +100°C.

REV. OR
ECO-028749
ZEQ-18-24-S+
EDU5262
MCINU
260311

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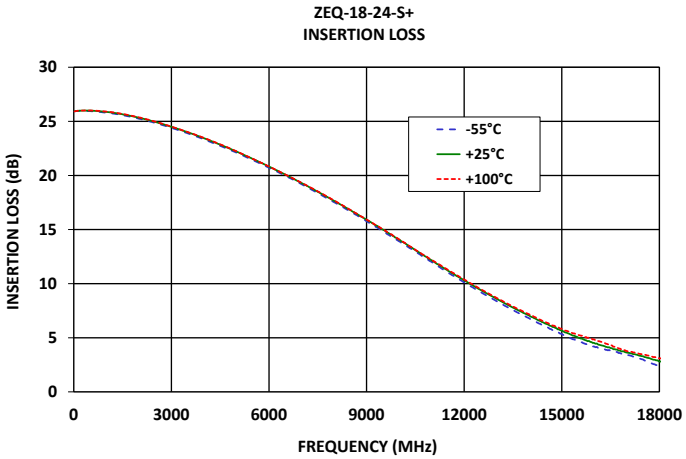
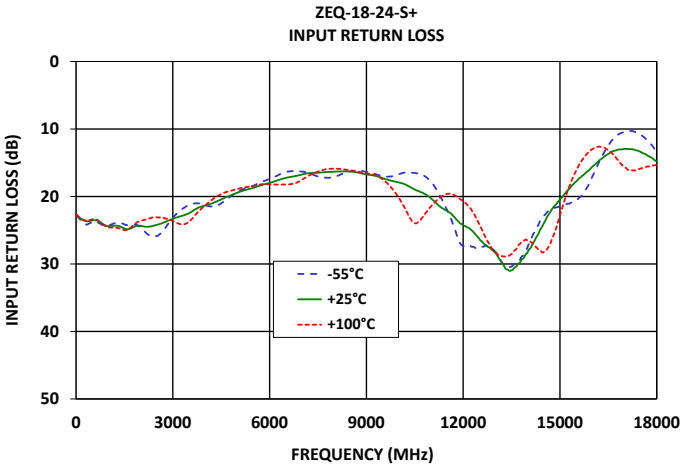
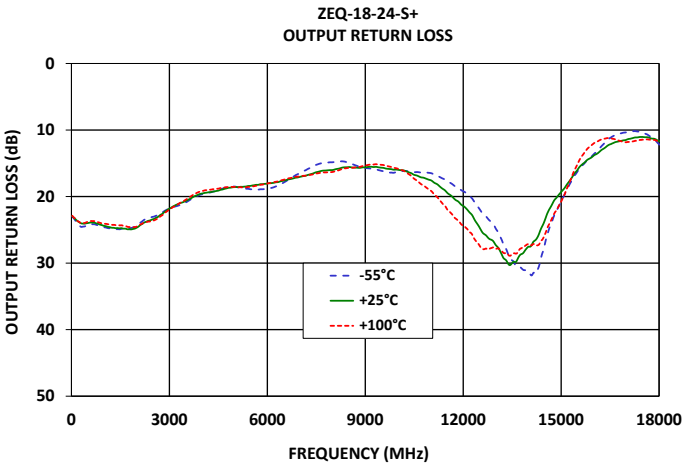
TYPICAL PERFORMANCE GRAPHS







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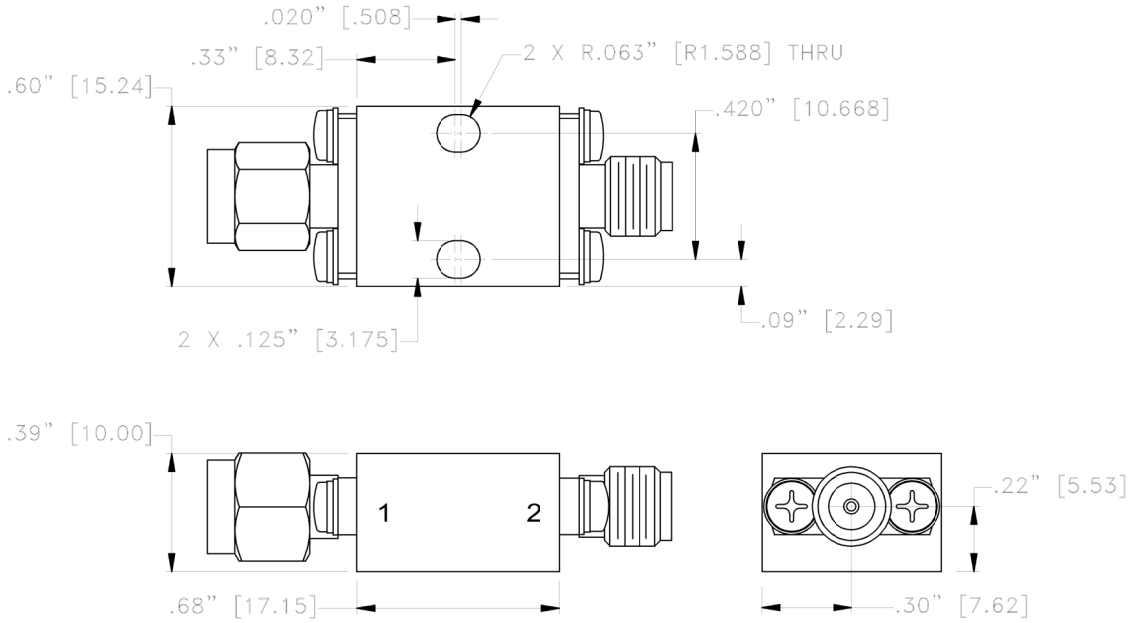
COAXIAL CONNECTIONS

Description	RF1 PORT[3]	RF2 PORT[3]
Connector Type	SMA Male	SMA Female

3. Bi-directional RF1 & RF2 ports can be interchanged. See S-Parameters for actual performance.

CASE STYLE DRAWING



Weight: 24 grams
Dimensions are in inches (mm). Tolerances: 2Pl ± .050 [1.27]; 3Pl. ± .015 [.38]

PRODUCT MARKING*: ZEQ-18-24-S+

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

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ZEQ-18-24-S+

50Ω 0.5 to 18 GHz SMA Male/Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file)
Case Style	UK3042-1
RoHS Status	Compliant
Environmental Ratings	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-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/terms/viewterm.html

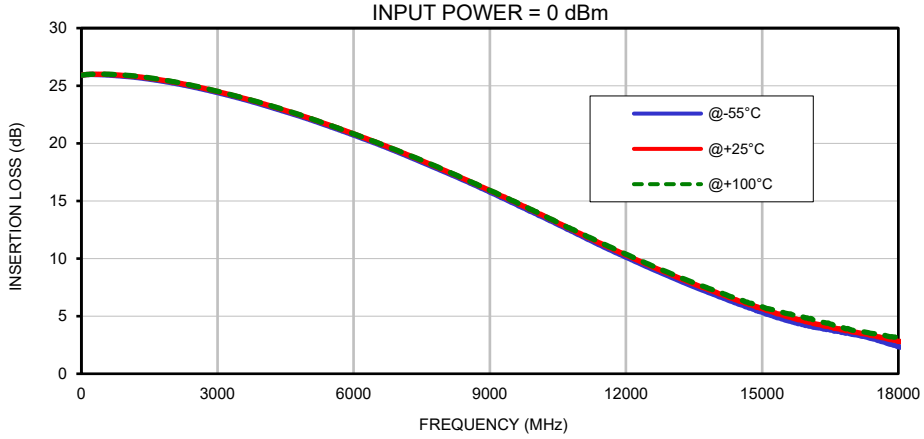
Fixed Slope Equalizer ZEQ-18-24-S+

Typical Performance Data

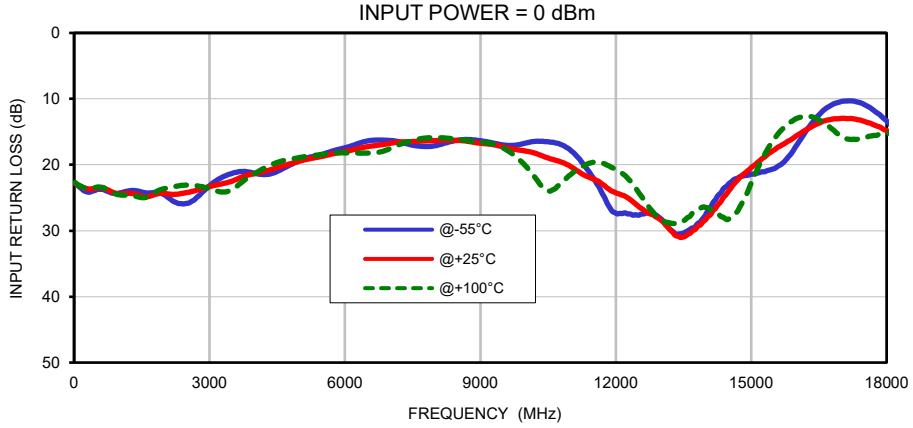
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C
25	25.93	25.94	25.92	22.85	22.79	22.69	23.00	22.95	22.88
50	25.94	25.95	25.93	22.99	22.92	22.86	23.15	23.06	23.04
100	25.96	25.97	25.96	23.26	23.13	23.08	23.45	23.28	23.25
150	25.97	25.98	25.98	23.53	23.29	23.25	23.86	23.53	23.52
200	25.98	25.99	25.99	23.84	23.46	23.42	24.19	23.73	23.72
300	25.97	26.00	26.00	24.14	23.64	23.55	24.56	24.03	23.99
500	25.95	25.99	26.00	23.78	23.55	23.40	24.27	23.98	23.80
900	25.83	25.90	25.93	24.34	24.27	24.35	24.45	24.25	23.98
1200	25.72	25.80	25.83	23.97	24.33	24.61	24.80	24.64	24.20
1500	25.57	25.65	25.68	24.13	24.75	24.98	24.89	24.76	24.33
1800	25.39	25.47	25.50	24.19	24.49	24.15	24.73	24.93	24.60
2100	25.18	25.27	25.30	25.06	24.44	23.49	23.97	24.32	24.23
2400	24.94	25.04	25.07	25.93	24.33	23.11	23.18	23.60	23.75
2700	24.68	24.77	24.80	25.07	23.89	23.18	22.61	22.85	23.08
3000	24.41	24.50	24.52	23.18	23.31	23.65	21.79	21.82	21.95
3300	24.11	24.20	24.22	21.81	22.84	24.12	21.31	21.05	21.04
3600	23.79	23.89	23.91	21.13	22.21	23.30	20.60	20.42	20.16
3900	23.46	23.56	23.58	21.12	21.47	21.74	19.82	19.69	19.32
4200	23.10	23.21	23.24	21.49	21.05	20.55	19.42	19.36	18.98
4500	22.73	22.84	22.87	21.00	20.43	19.64	19.05	19.11	18.81
4800	22.37	22.47	22.50	19.98	19.83	19.15	18.54	18.70	18.56
5100	21.97	22.08	22.09	19.08	19.26	18.77	18.60	18.59	18.61
5400	21.56	21.67	21.68	18.59	18.85	18.52	18.83	18.42	18.56
5700	21.15	21.25	21.26	17.96	18.38	18.22	18.95	18.24	18.37
6000	20.71	20.82	20.82	17.43	18.00	18.20	18.81	18.04	18.04
6300	20.28	20.39	20.39	16.75	17.52	18.23	18.42	17.84	17.75
6600	19.83	19.93	19.94	16.29	17.15	18.21	17.60	17.49	17.34
6900	19.36	19.46	19.48	16.27	16.87	17.81	16.71	17.15	17.02
7200	18.87	18.99	19.02	16.50	16.56	16.95	15.97	16.82	16.83
7500	18.36	18.48	18.53	17.03	16.47	16.31	15.23	16.34	16.53
7800	17.87	18.00	18.04	17.23	16.37	15.93	14.90	16.08	16.37
8100	17.36	17.48	17.52	16.94	16.30	15.89	14.76	15.88	16.15
8400	16.84	16.96	16.98	16.40	16.29	16.06	14.78	15.60	15.75
8700	16.32	16.45	16.47	16.17	16.42	16.31	15.31	15.65	15.62
9000	15.76	15.90	15.92	16.34	16.73	16.58	15.69	15.60	15.34
9300	15.22	15.36	15.39	16.73	16.97	16.90	15.91	15.54	15.15
9600	14.66	14.82	14.85	17.06	17.44	17.84	16.26	15.75	15.33
9900	14.10	14.25	14.28	16.88	17.81	19.47	16.39	15.96	15.70
10000	13.91	14.06	14.09	16.71	17.91	20.16	16.30	15.97	15.82
10500	12.96	13.10	13.13	16.50	18.96	23.94	16.33	16.74	17.33
10800	12.38	12.52	12.56	16.98	19.61	22.71	16.34	17.19	18.38
11100	11.80	11.96	12.01	18.43	20.70	20.96	16.67	17.87	19.61
11400	11.21	11.38	11.45	20.99	21.86	19.79	17.35	18.92	21.22
11700	10.67	10.85	10.92	24.35	22.93	19.75	18.27	20.20	22.94
12000	10.11	10.30	10.38	27.34	24.25	20.70	19.19	21.41	24.31
12300	9.58	9.77	9.85	27.45	25.18	22.31	20.48	23.02	25.97
12600	9.05	9.25	9.33	27.46	26.76	25.09	22.57	25.46	27.88
13000	8.37	8.59	8.68	28.20	28.40	28.31	24.84	27.31	27.86
13200	8.04	8.26	8.35	29.78	29.84	28.86	26.76	28.92	28.29
13500	7.55	7.78	7.89	30.37	30.95	28.54	29.60	29.98	28.69
13800	7.08	7.33	7.44	29.00	29.45	26.82	30.85	28.61	27.71
14000	6.79	7.05	7.16	27.44	28.22	26.50	31.26	27.53	27.10
14400	6.17	6.44	6.57	23.51	24.81	28.05	28.90	24.66	26.57
14700	5.73	6.03	6.15	22.02	22.29	27.02	24.01	21.39	23.48
15000	5.34	5.66	5.82	21.40	20.41	22.75	20.73	19.31	20.75
15300	4.92	5.27	5.47	21.05	18.81	18.41	17.81	17.36	17.36
15600	4.57	4.91	5.18	20.18	17.30	15.25	15.56	15.36	14.17
16000	4.18	4.51	4.83	17.09	15.60	12.98	13.63	13.83	12.00
17000	3.42	3.63	3.77	10.40	12.95	15.65	10.33	11.46	11.83
18000	2.34	2.80	3.09	13.35	14.82	15.31	12.15	11.64	11.74

Typical Performance Curves

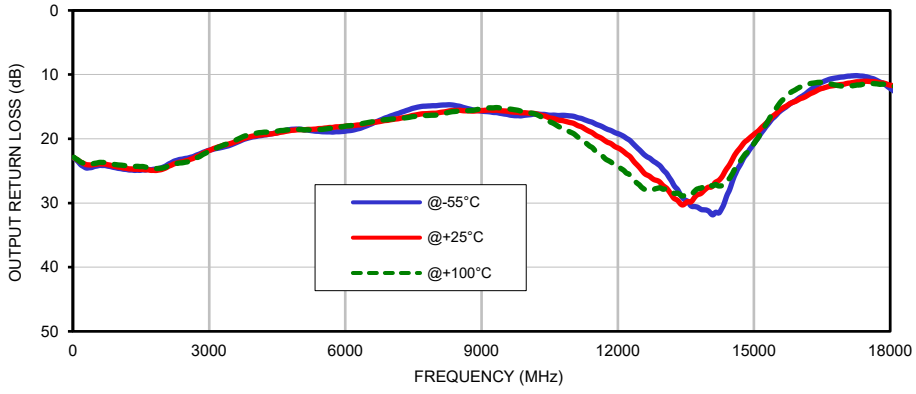
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



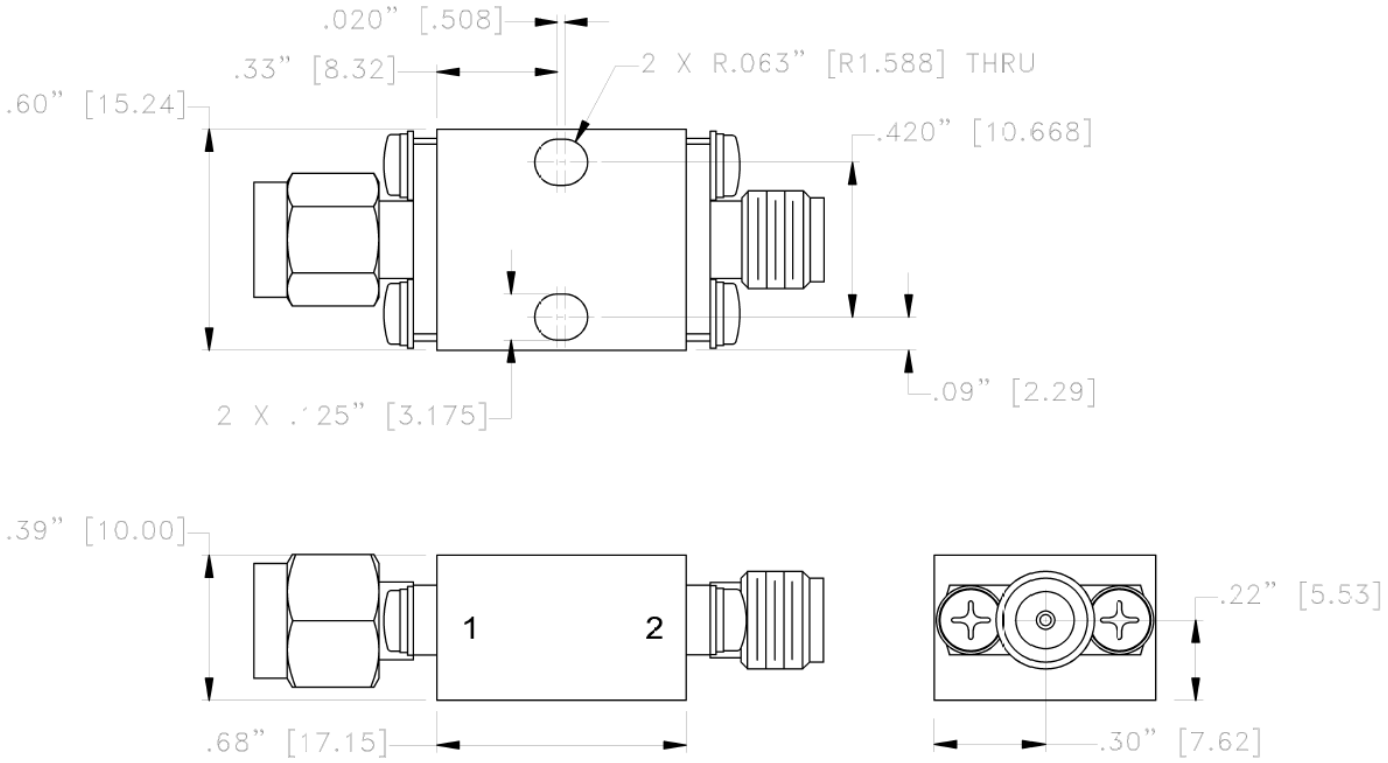
OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style UK

Outline Dimension

UK3042-1



Dimensions are in inches [mm]. Tolerances: 2 Pl ± .050 [1.27]; 3 Pl ± .015[.38]

Notes:

1. Case material: Brass alloy.
2. Case finish:
   a. Case & Cover of the units-Gold plating.
3. Unit weight: 24g
4. 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