



Mini-Circuits

COAXIAL

Low Pass Filter

50Ω

DC to 1800 MHz

ZNFLP-2100-S+

THE BIG DEAL

- High power handling, 25W
- High stopband rejection
- Low insertion loss in the passband, 0.6 dB typical
- Good return loss, 20.8 dB typical in passband



Generic photo used for illustration purposes only

Model No.	ZNFLP-2100-S+
Case Style	UU1432
Connectors	SMA-FEMALE

+RoHS Compliant

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

APPLICATIONS

- Harmonic rejection
- Transmitters / receivers
- Lab use

PRODUCT OVERVIEW

Mini-Circuits' ZNFLP-2100-S+ is a 50Ω low pass filter built into a rugged connectorized package (size: 2.25" x 2.30" x 0.63"). This model has low passband Insertion loss, high rejection with well matched input and output ports. In addition it has repeatable performance across production lots.

KEY FEATURES

Feature	Advantages
High power handling, 25W	Handles high power. Suitable for high performance application.
Low passband insertion loss	It provides minimal attenuation to the signal.
High rejection	This enables diplexer to attenuate harmonics, and spurious signals.
Good return loss, 20.8 dB typical in pass band	The model has good matching when used with other devices.

REV. C
ECO-015090
ZNFLP-2100-S+
EDU1088
URJ
220920





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ZNFLP-2100-S+

ELECTRICAL SPECIFICATIONS AT 25°C

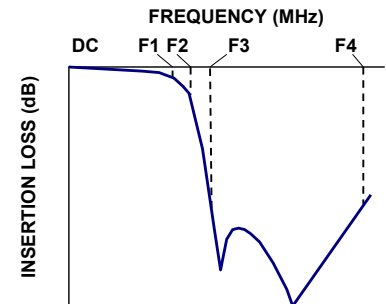
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Units	
Passband	Insertion Loss	DC-F1	DC - 1800	—	0.6	1	dB
	Freq. Cut-Off	F2	2100	—	3.5	—	dB
	Return Loss	DC-F1	DC - 1800	15.6	20.8	—	dB
Stopband	Rejection Loss	F3-F4	2600 - 4500	20	31	—	dB

MAXIMUM RATINGS

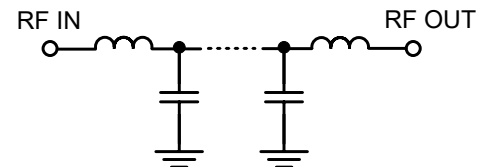
Parameter	Ratings
Operating temperature	-40°C to 85°C
Storage temperature	-55°C to 100°C
RF Power Input (Passband)	25W max. @25°C

Derate linearly to 10W at 85°C ambient
Permanent damage may occur if any of these limits are exceeded.

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC



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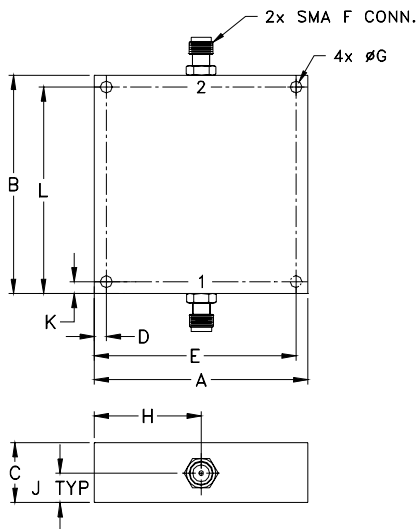
Low Pass Filter

ZNFLP-2100-S+

COAXIAL CONNECTIONS

PORT 1	SMA FEMALE
PORT 2	SMA FEMALE

OUTLINE DRAWING

OUTLINE DIMENSIONS (Inches)
mm

A	B	C	D	E	F
2.25	2.3	0.63	0.125	2.125	-
57.15	58.42	16	3.18	53.98	-
G	H	J	K	L	wt.
0.125	1.13	0.31	0.125	2.175	grams
3.18	28.70	7.87	3.18	55.25	93

Note. Please refer to case style drawing for details



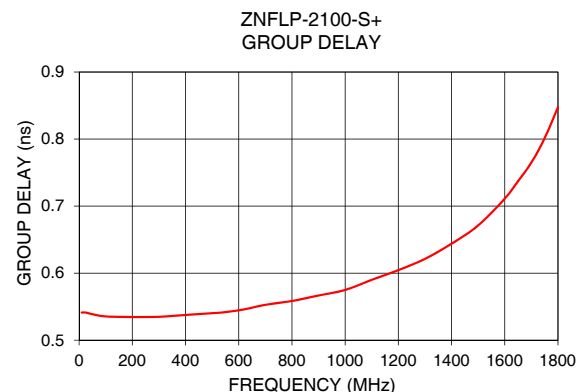
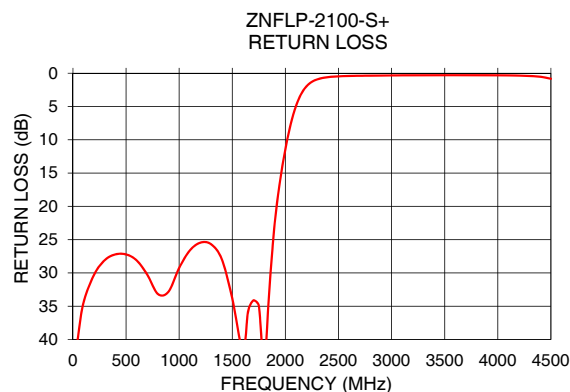
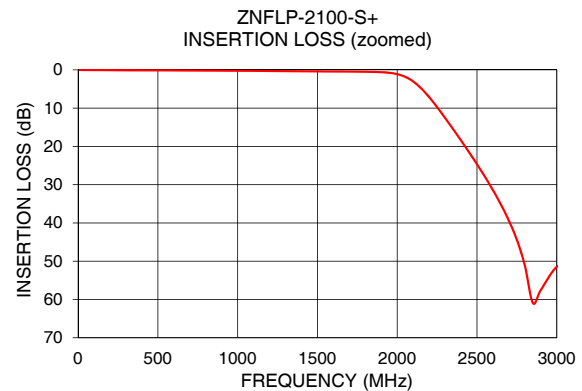
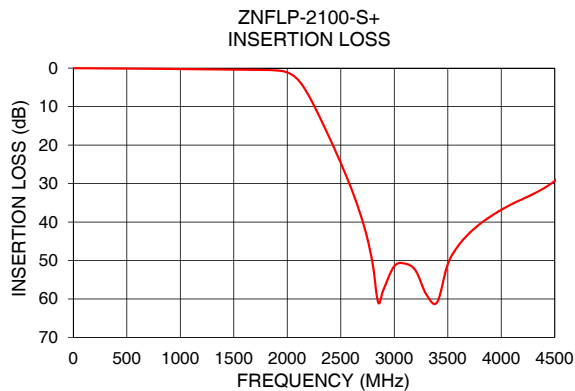
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Low Pass Filter

ZNFLP-2100-S+

TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Frequency (MHz)	GROUP DELAY (ns)
10	0.01	47.87	10	0.54
200	0.08	30.44	50	0.54
500	0.13	27.76	100	0.54
1000	0.22	26.61	300	0.53
1800	0.49	44.97	500	0.54
2000	1.11	11.36	600	0.54
2100	3.02	4.92	800	0.56
2250	9.74	1.29	900	0.57
2450	21.51	0.52	1000	0.57
2600	31.43	0.42	1100	0.59
3000	51.47	0.36	1300	0.62
3500	50.95	0.32	1500	0.67
4000	36.82	0.32	1650	0.74
4200	34.01	0.31	1700	0.76
4500	29.30	0.30	1800	0.85



NOTES

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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



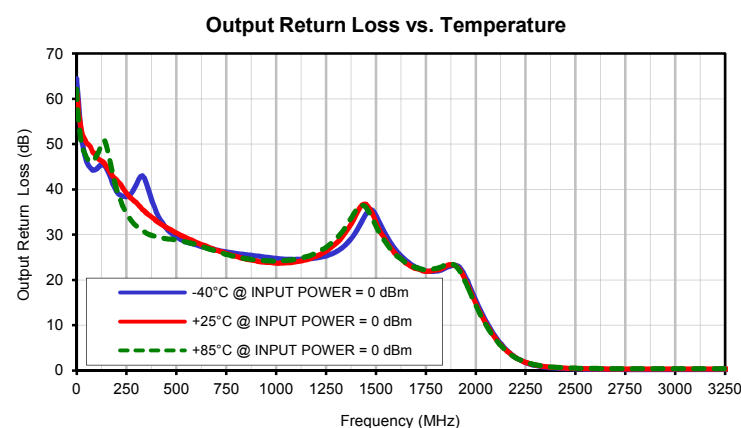
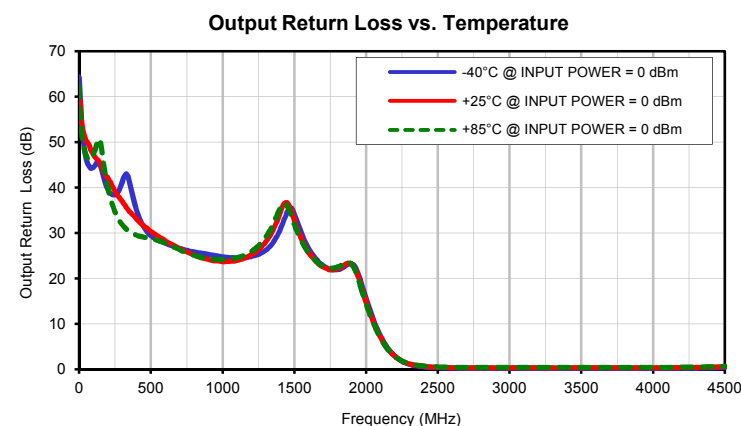
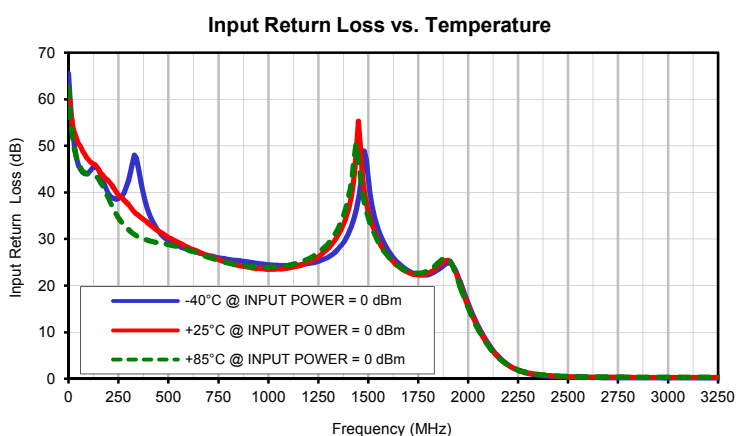
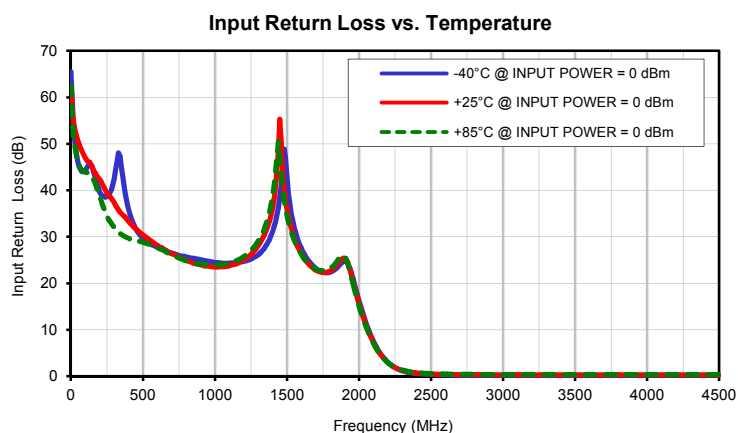
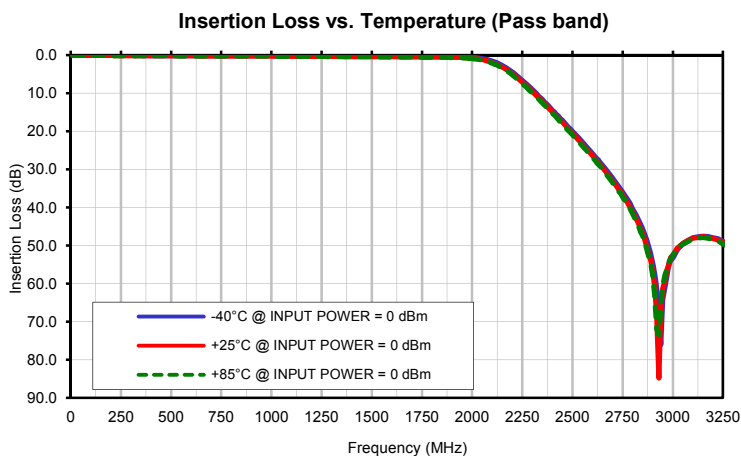
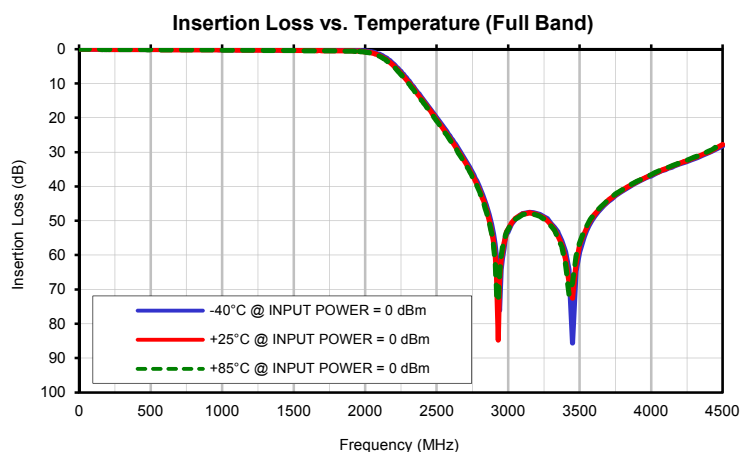
Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
0.5	0.00	0.01	0.01	65.52	61.56	62.60	64.41	60.06	62.06
1.0	0.00	0.00	0.00	64.65	61.92	61.63	63.79	61.17	60.73
5.0	0.01	0.00	0.01	62.01	60.51	57.95	61.58	59.83	57.63
50.0	0.02	0.03	0.03	45.85	50.47	46.15	46.04	50.13	46.93
100.0	0.04	0.05	0.05	44.25	47.01	43.97	44.46	47.24	47.43
500.0	0.10	0.14	0.15	29.62	30.40	28.80	29.45	30.33	28.80
600.0	0.12	0.16	0.18	27.72	28.15	27.65	27.72	28.26	27.75
700.0	0.12	0.17	0.19	26.49	26.30	26.13	26.57	26.55	26.32
800.0	0.14	0.20	0.22	25.67	24.96	24.87	25.86	25.17	25.09
900.0	0.15	0.22	0.24	25.07	23.98	24.15	25.29	24.18	24.37
1000.0	0.16	0.23	0.26	24.47	23.50	23.93	24.75	23.70	24.16
1200.0	0.21	0.29	0.32	24.72	25.03	25.75	24.82	25.19	25.93
1300.0	0.23	0.31	0.35	26.12	28.00	29.06	26.19	28.01	29.08
1400.0	0.26	0.34	0.38	31.13	36.22	38.75	30.60	34.29	35.39
1500.0	0.28	0.38	0.42	42.75	35.80	34.57	34.24	32.74	31.81
1600.0	0.31	0.42	0.46	27.54	26.36	26.24	26.55	25.67	25.55
1700.0	0.33	0.44	0.50	23.21	22.82	23.06	22.83	22.54	22.73
1800.0	0.34	0.47	0.52	22.37	22.67	23.20	21.94	22.16	22.53
1850.0	0.36	0.48	0.55	23.43	24.13	24.85	22.62	23.04	23.33
1900.0	0.38	0.51	0.59	24.86	25.43	25.82	23.21	23.08	23.05
1950.0	0.42	0.58	0.67	21.95	21.42	21.01	20.62	19.83	19.37
2000.0	0.56	0.76	0.87	16.20	15.54	15.17	15.59	14.80	14.41
2050.0	0.88	1.13	1.28	11.34	10.85	10.58	11.03	10.48	10.18
2100.0	1.54	1.88	2.06	7.59	7.26	7.09	7.40	7.04	6.85
2150.0	2.67	3.11	3.34	4.84	4.68	4.59	4.72	4.53	4.44
2200.0	4.38	4.87	5.14	2.99	2.97	2.93	2.88	2.85	2.82
2250.0	6.55	7.05	7.35	1.84	1.90	1.90	1.74	1.80	1.81
2300.0	9.04	9.52	9.85	1.17	1.27	1.30	1.10	1.19	1.23
2350.0	11.68	12.16	12.50	0.80	0.92	0.96	0.73	0.85	0.90
2400.0	14.41	14.88	15.24	0.59	0.72	0.77	0.53	0.66	0.71
2450.0	17.14	17.65	18.01	0.46	0.57	0.63	0.40	0.51	0.58
2500.0	19.95	20.49	20.89	0.37	0.50	0.54	0.32	0.44	0.51
2550.0	22.83	23.42	23.80	0.33	0.45	0.50	0.29	0.40	0.47
2600.0	25.81	26.43	26.84	0.28	0.39	0.45	0.26	0.37	0.44
2700.0	32.24	32.99	33.39	0.25	0.37	0.42	0.22	0.33	0.40
2800.0	40.27	41.13	41.69	0.22	0.34	0.39	0.20	0.32	0.39
2900.0	54.63	56.98	58.09	0.20	0.32	0.38	0.19	0.30	0.38
3000.0	53.25	52.40	52.46	0.19	0.30	0.37	0.19	0.31	0.38
3100.0	47.97	48.02	48.20	0.21	0.33	0.38	0.23	0.34	0.41
3200.0	47.97	48.09	48.42	0.21	0.32	0.37	0.20	0.32	0.40
3300.0	50.85	51.19	51.53	0.17	0.29	0.35	0.21	0.32	0.39
3400.0	59.02	61.08	62.51	0.22	0.32	0.38	0.19	0.31	0.39
3500.0	59.24	57.20	56.55	0.16	0.28	0.34	0.21	0.32	0.40
3600.0	49.00	48.38	48.21	0.21	0.32	0.38	0.22	0.35	0.42
3700.0	44.42	44.04	43.89	0.18	0.29	0.34	0.20	0.31	0.40
3800.0	41.28	41.07	40.94	0.21	0.33	0.38	0.22	0.35	0.42
3900.0	38.78	38.62	38.48	0.18	0.29	0.34	0.21	0.33	0.40
4000.0	36.90	36.68	36.56	0.20	0.30	0.36	0.23	0.35	0.43
4100.0	35.11	34.87	34.77	0.21	0.31	0.36	0.20	0.33	0.40
4200.0	33.52	33.29	33.14	0.21	0.33	0.39	0.24	0.37	0.45
4300.0	31.96	31.71	31.54	0.19	0.30	0.36	0.23	0.38	0.46
4400.0	30.26	29.99	29.77	0.19	0.30	0.36	0.29	0.45	0.54
4500.0	28.16	27.80	27.51	0.21	0.31	0.38	0.38	0.59	0.72

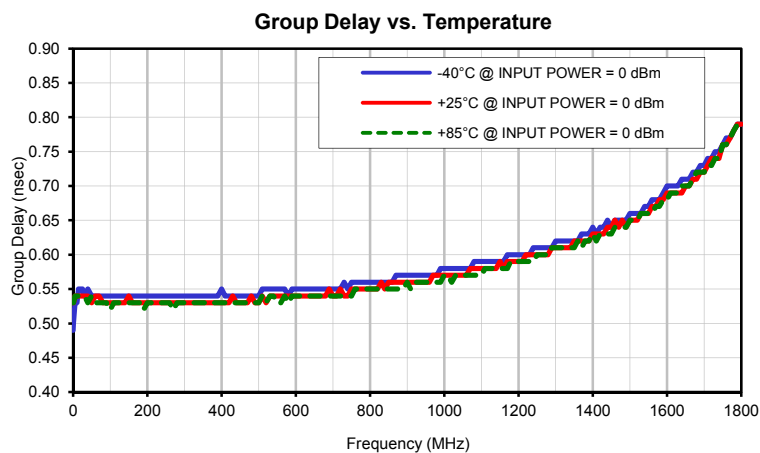
Typical Performance Data

FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-40°C	@+25°C	@+85°C
0.5	0.49	0.53	0.53
1.0	0.50	0.53	0.53
10.0	0.53	0.54	0.54
50.0	0.54	0.53	0.54
60.0	0.54	0.54	0.53
70.0	0.54	0.54	0.53
80.0	0.54	0.53	0.53
90.0	0.54	0.53	0.53
100.0	0.54	0.53	0.52
110.0	0.54	0.53	0.53
120.0	0.54	0.53	0.53
130.0	0.54	0.53	0.53
140.0	0.54	0.53	0.53
150.0	0.54	0.54	0.53
160.0	0.54	0.53	0.53
170.0	0.54	0.53	0.53
180.0	0.54	0.53	0.53
190.0	0.54	0.53	0.52
200.0	0.54	0.53	0.53
210.0	0.54	0.53	0.53
220.0	0.54	0.53	0.53
230.0	0.54	0.53	0.53
240.0	0.54	0.53	0.53
250.0	0.54	0.53	0.53
260.0	0.54	0.53	0.53
270.0	0.54	0.53	0.52
280.0	0.54	0.53	0.53
290.0	0.54	0.53	0.53
300.0	0.54	0.53	0.53
310.0	0.54	0.53	0.53
320.0	0.54	0.53	0.53
330.0	0.54	0.53	0.53
340.0	0.54	0.53	0.53
350.0	0.54	0.53	0.53
400.0	0.55	0.53	0.53
450.0	0.54	0.53	0.53
500.0	0.54	0.53	0.53
550.0	0.55	0.54	0.53
600.0	0.55	0.54	0.54
650.0	0.55	0.54	0.54
700.0	0.55	0.54	0.54
750.0	0.56	0.55	0.54
800.0	0.56	0.55	0.55
850.0	0.56	0.56	0.55
900.0	0.57	0.56	0.56
950.0	0.57	0.56	0.56
1000.0	0.58	0.57	0.57
1200.0	0.60	0.59	0.59
1300.0	0.62	0.61	0.61
1400.0	0.64	0.63	0.63
1500.0	0.66	0.65	0.65
1600.0	0.70	0.69	0.68
1700.0	0.73	0.72	0.72
1800.0	0.79	0.79	0.79

Typical Performance Curves

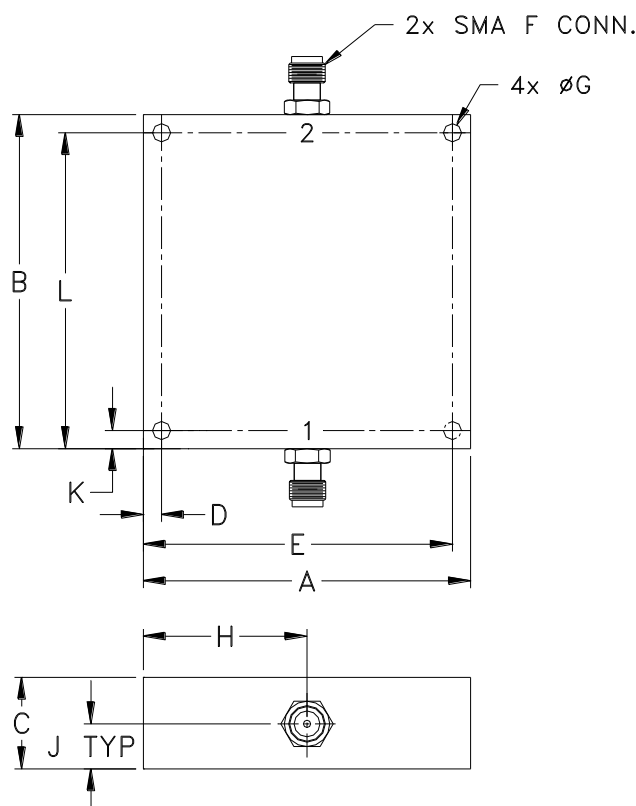


Typical Performance Curves



Outline Dimensions

UU1432



CASE#	A	B	C	D	E	F	G	H	J	K	L	WT. GRAMS
UU1432	2.25 (57.15)	2.30 (58.42)	.63 (16.00)	.125 (3.18)	2.125 (53.98)	- -	.125 (3.18)	1.13 (28.70)	.31 (7.87)	.125 (3.18)	2.175 (55.24)	93

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

Notes:

- Case material: Aluminum alloy.
- 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



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

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	-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