COAXIAL

Bias-Tee

ZFBT-6G+

50Ω 10 to 6000 MHz Wideband SMA Male/ Female Bracket (Option "B")

KEY FEATURES

- Wideband, 10 to 6000 MHz
- Low Insertion Loss, 0.6 dB Typ.
- Good Isolation, 40 dB Typ.

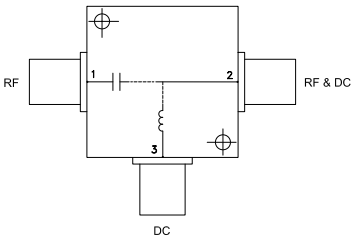


Generic photo used for illustration purposes only

APPLICATIONS

- Biasing Amplifiers
- Biasing of Laser Diodes
- Biasing of Active Antennas
- DC Return
- DC Blocking
- Test Accessory

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' ZFBT-6G+ is coaxial bias tee providing low insertion loss for applications over a very wide frequency range from 10 to 6000 MHz. It provides 40 dB typical DC-RF isolation and handles up to 0.5A DC current at the input. This model features rugged shielded construction with SMA connectors, providing excellent durability.

ELECTRICAL SPECIFICATIONS[1,2] AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Frequency Range	—	10	—	6000	MHz
Insertion Loss	10 - 100	—	0.15	0.6	dB
	10 - 3000	—	0.6	1.4	
	3000 - 6000	—	1.0	2.2	
Return Loss (RF Port)	10 - 100	20	30	—	dB
	10 - 3000	17.7	24	—	
	3000 - 6000	13.9	24	—	
Return Loss (RF & DC Port)	10 - 100	20	30	—	dB
	10 - 3000	17.7	24	—	
	3000 - 6000	13.9	24	—	
Isolation (RF to DC Port)(RF&DC Port to DC Port)	10 - 100	20	32	—	dB
	10 - 3000	20	40	—	
	3000 - 6000	17	30	—	
DC Resistance (DC to RF & DC Port)	—	—	4.5	—	Ohm

1. Insertion Loss and Isolation are guaranteed up to 20 dBm-RF power and 200mA DC current.
2. Return loss measured with open and short at DC port.

ABSOLUTE MAXIMUM RATINGS[3]

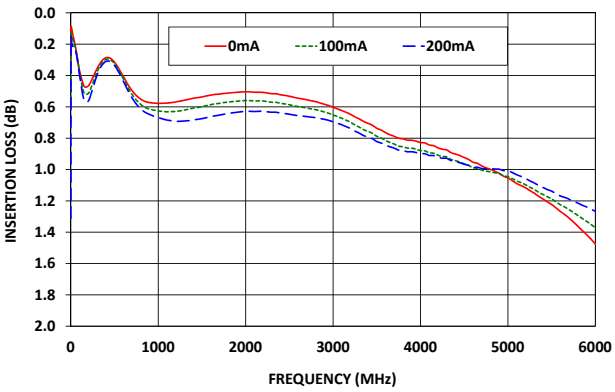
Operating Case Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
Input Power	30 dBm max.
Voltage at DC Port	30 V max.
Current at DC Port	500 mA

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

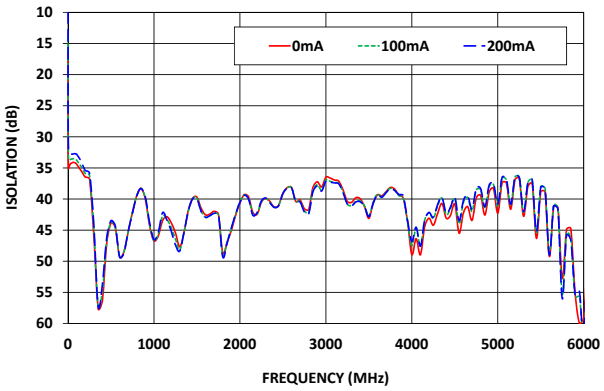
REV. D
ECO-025025
ZFBT-6G+
URJ
250327

TYPICAL PERFORMANCE GRAPHS

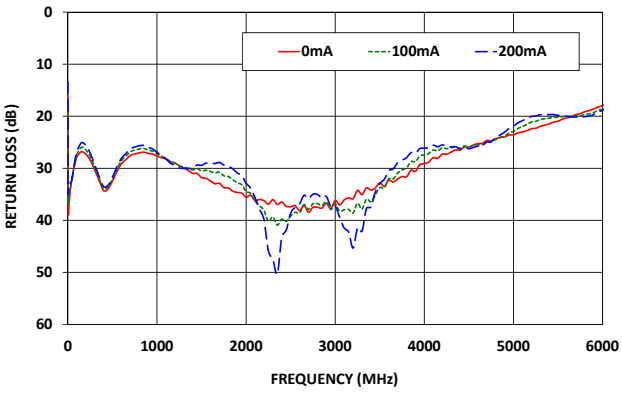
ZFBT-6G+
INSERTION LOSS WITH CURRENT (Pin= 0dBm)



ZFBT-6G+
ISOLATION WITH CURRENT (Pin= 0dBm)



ZFBT-6G+
RETURN LOSS WITH CURRENT (Pin= 0dBm)



COAXIAL

Bias-Tee

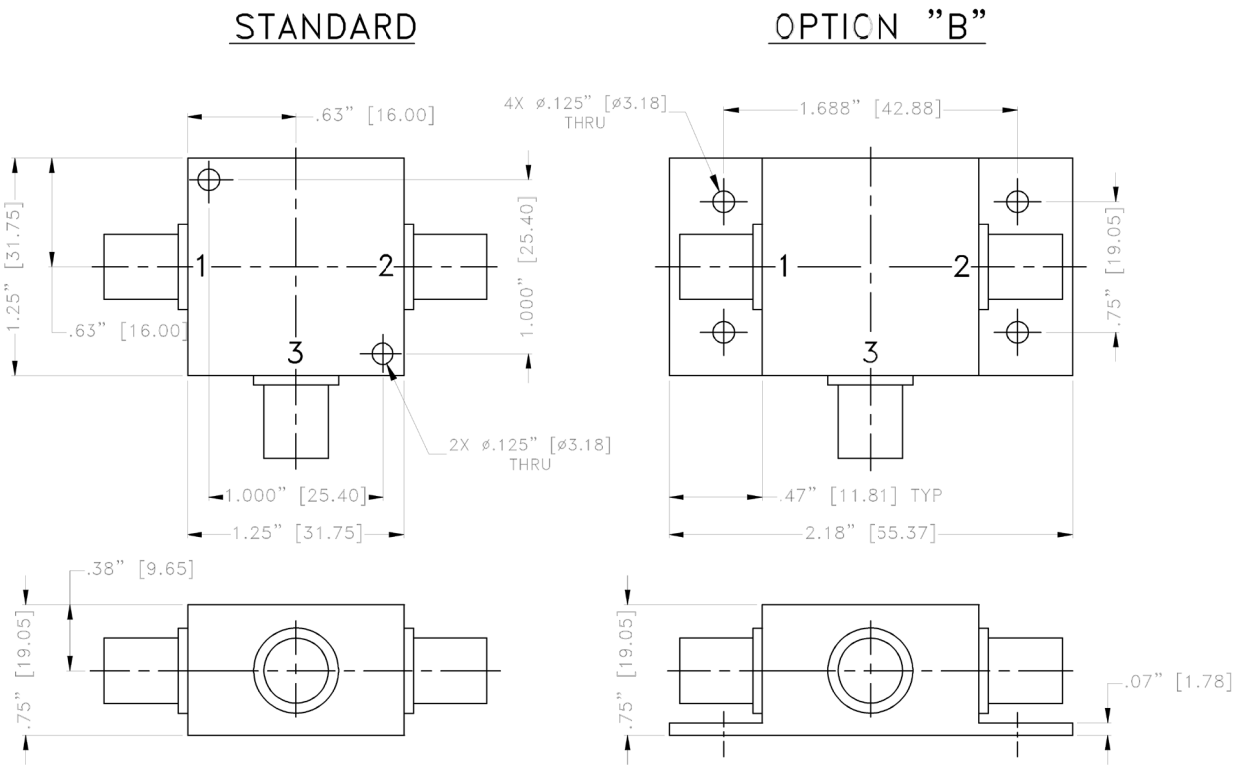
ZFBT-6G+

50Ω 10 to 6000 MHz Wideband SMA Male/ Female Bracket (Option "B")

COAXIAL CONNECTIONS

Description	RF PORT	RF & DC PORT	DC PORT	GROUND
Connector Type	SMA Female	SMA Male	SMA Female	—
Orientation	1	2	3	—

CASE STYLE DRAWING



Weight: 70 gram

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

PRODUCT MARKING*: ZFBT-6G+

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

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S3P Files) Data Set (.zip file)
Case Style	K18
RoHS Status	Compliant
Environmental Ratings	ENV28

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

Typical Performance Data

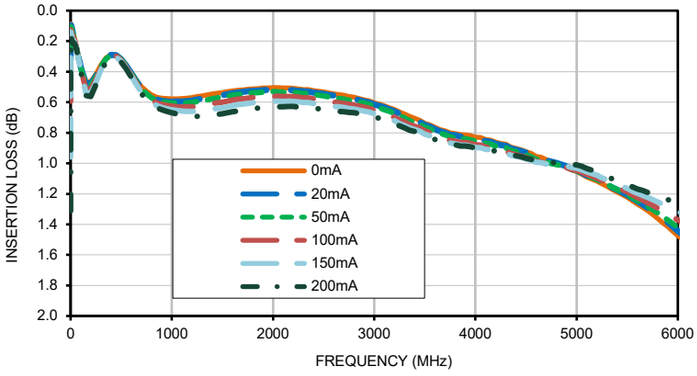
FREQ.	INSERTION LOSS with current (PIN= 0dBm)						ISOLATION with current (PIN= 0dBm)					
(MHz)	(dB)						(dB)					
	0mA	20mA	50mA	100mA	150mA	200mA	0mA	20mA	50mA	100mA	150mA	200mA
10	0.10	0.11	0.12	0.14	0.16	0.19	34.97	34.77	34.41	33.69	32.86	32.08
20	0.13	0.14	0.15	0.17	0.19	0.21	34.55	34.41	34.16	33.68	33.07	32.43
30	0.16	0.16	0.17	0.18	0.19	0.21	34.33	34.21	34.03	33.62	33.16	32.69
40	0.18	0.19	0.19	0.20	0.21	0.22	34.23	34.14	33.95	33.60	33.18	32.78
50	0.21	0.21	0.22	0.22	0.23	0.23	34.15	34.09	33.90	33.55	33.15	32.79
60	0.24	0.24	0.24	0.25	0.25	0.25	34.11	34.07	33.90	33.51	33.11	32.76
70	0.27	0.27	0.28	0.28	0.28	0.28	34.12	34.07	33.89	33.53	33.09	32.72
80	0.31	0.31	0.31	0.32	0.32	0.32	34.17	34.13	33.95	33.56	33.10	32.71
90	0.34	0.34	0.35	0.35	0.36	0.36	34.25	34.22	34.03	33.63	33.16	32.75
100	0.37	0.37	0.38	0.39	0.40	0.40	34.40	34.34	34.16	33.76	33.25	32.80
150	0.47	0.48	0.49	0.51	0.54	0.56	35.40	35.26	35.10	34.73	34.28	33.89
200	0.47	0.48	0.49	0.51	0.54	0.56	36.47	36.22	36.12	35.89	35.62	35.42
250	0.42	0.43	0.43	0.45	0.47	0.48	36.82	36.51	36.40	36.20	35.98	35.84
300	0.36	0.36	0.37	0.38	0.39	0.40	45.84	45.56	45.32	44.88	44.42	44.13
350	0.31	0.31	0.32	0.32	0.33	0.34	57.58	57.19	57.10	57.20	57.20	57.21
400	0.29	0.29	0.29	0.30	0.30	0.31	56.32	55.87	55.49	54.75	54.17	53.71
450	0.29	0.29	0.29	0.30	0.31	0.31	47.12	47.06	46.90	46.71	46.44	46.21
500	0.32	0.32	0.32	0.33	0.33	0.34	43.85	43.84	43.80	43.70	43.57	43.48
550	0.36	0.36	0.36	0.37	0.38	0.38	44.58	44.59	44.55	44.48	44.43	44.33
600	0.41	0.41	0.41	0.42	0.43	0.44	49.27	49.26	49.22	49.31	49.32	49.31
650	0.46	0.46	0.47	0.47	0.48	0.49	48.48	48.54	48.46	48.47	48.65	48.73
700	0.50	0.50	0.51	0.52	0.53	0.54	45.29	45.37	45.34	45.28	45.20	45.16
750	0.53	0.54	0.55	0.56	0.57	0.58	42.11	42.15	42.15	42.18	42.20	42.24
800	0.55	0.56	0.57	0.58	0.60	0.61	39.43	39.44	39.44	39.48	39.48	39.50
850	0.57	0.58	0.59	0.60	0.62	0.64	38.28	38.29	38.30	38.31	38.32	38.32
900	0.57	0.59	0.60	0.61	0.63	0.65	40.04	40.00	39.95	39.89	39.83	39.72
950	0.58	0.59	0.60	0.62	0.64	0.66	44.37	44.40	44.32	44.16	44.06	43.87
1000	0.58	0.60	0.61	0.63	0.65	0.67	46.71	46.89	46.80	46.70	46.56	46.53
1050	0.58	0.60	0.61	0.63	0.65	0.68	45.93	45.93	45.80	45.60	45.51	45.37
1100	0.58	0.60	0.61	0.63	0.66	0.68	43.47	43.33	43.08	42.73	42.44	42.19
1150	0.57	0.59	0.60	0.63	0.66	0.69	42.84	42.98	43.08	43.25	43.32	43.35
1200	0.57	0.59	0.60	0.63	0.66	0.69	43.80	44.07	44.25	44.59	44.86	45.15
1250	0.56	0.58	0.60	0.63	0.66	0.69	45.45	45.73	45.95	46.44	46.93	47.39
1300	0.56	0.58	0.59	0.62	0.65	0.69	47.69	48.02	48.12	48.19	48.30	48.36
1350	0.55	0.57	0.58	0.61	0.65	0.69	45.31	45.28	45.27	45.25	45.28	45.31
1400	0.55	0.56	0.58	0.61	0.64	0.68	41.81	41.85	41.85	41.88	41.87	41.90
1450	0.54	0.56	0.57	0.60	0.64	0.68	39.87	39.91	39.91	39.93	39.93	39.98
1500	0.54	0.55	0.57	0.60	0.64	0.68	39.69	39.74	39.73	39.80	39.87	39.96
1600	0.53	0.54	0.55	0.59	0.62	0.66	42.54	42.94	42.96	42.93	42.92	42.94
1700	0.52	0.53	0.55	0.58	0.61	0.65	41.97	42.18	42.20	42.22	42.23	42.29
1800	0.51	0.53	0.54	0.57	0.60	0.64	48.65	49.09	49.05	49.12	49.33	49.30
1900	0.51	0.52	0.53	0.56	0.60	0.63	45.07	44.87	44.84	44.73	44.68	44.65
2000	0.50	0.52	0.53	0.56	0.59	0.63	40.61	40.59	40.60	40.53	40.54	40.53
2500	0.53	0.55	0.56	0.59	0.62	0.65	39.08	39.09	39.11	39.09	39.13	39.12
2700	0.55	0.57	0.58	0.61	0.63	0.66	40.15	40.27	40.27	40.37	40.44	40.47
3000	0.60	0.61	0.63	0.65	0.68	0.70	36.50	36.74	36.81	36.92	37.04	37.11
3100	0.62	0.63	0.65	0.67	0.70	0.72	36.95	37.17	37.23	37.34	37.38	37.41
3200	0.65	0.66	0.67	0.70	0.72	0.74	38.53	38.74	38.81	38.89	38.98	38.97
3400	0.71	0.72	0.73	0.76	0.78	0.79	39.97	40.15	40.21	40.31	40.42	40.45
3800	0.80	0.82	0.83	0.85	0.87	0.88	38.41	38.61	38.61	38.60	38.59	38.61
4000	0.83	0.84	0.86	0.88	0.90	0.90	48.92	48.11	47.81	47.46	47.18	46.82
4200	0.86	0.87	0.89	0.91	0.92	0.92	43.07	42.22	42.25	42.18	42.20	42.16
4400	0.90	0.91	0.92	0.94	0.95	0.95	43.07	42.61	42.53	42.49	42.38	42.27
4500	0.92	0.93	0.95	0.96	0.97	0.97	40.82	40.08	40.03	39.93	39.80	39.71
4600	0.95	0.96	0.97	0.99	0.99	0.99	42.22	40.87	40.74	40.55	40.34	40.22
4800	1.00	1.00	1.01	1.01	1.01	0.99	39.40	38.69	38.62	38.54	38.40	38.29
5000	1.05	1.05	1.05	1.05	1.03	1.01	42.27	41.38	41.28	41.10	40.99	40.83
5200	1.12	1.11	1.11	1.10	1.08	1.06	36.94	36.46	36.48	36.47	36.51	36.47
5500	1.22	1.21	1.20	1.19	1.16	1.14	38.85	37.93	37.96	38.01	38.07	38.11
6000	1.47	1.44	1.42	1.37	1.32	1.27	59.15	63.58	63.02	62.28	61.89	62.03

Typical Performance Data

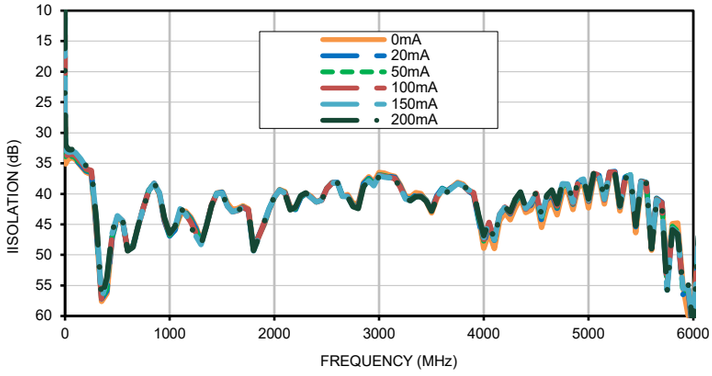
FREQ. (MHz)	RETURN LOSS (PIN= 0dBm) (dB)					
	0mA	20mA	50mA	100mA	150mA	200mA
10	37.58	37.35	36.87	35.71	34.47	33.27
20	35.29	35.20	34.93	34.41	33.64	32.70
30	33.85	33.80	33.66	33.52	33.27	32.89
40	32.73	32.66	32.65	32.62	32.57	32.50
50	31.64	31.62	31.58	31.58	31.61	31.67
60	30.67	30.63	30.60	30.55	30.56	30.63
70	29.78	29.73	29.68	29.56	29.49	29.54
80	29.04	29.01	28.90	28.73	28.60	28.55
90	28.39	28.32	28.20	27.97	27.75	27.65
100	27.85	27.78	27.64	27.35	27.06	26.89
150	26.83	26.66	26.43	25.98	25.49	25.12
200	27.29	27.05	26.85	26.42	25.94	25.56
250	28.41	28.21	28.07	27.74	27.38	27.08
300	30.27	30.10	29.98	29.77	29.51	29.28
350	32.30	32.12	32.06	31.92	31.69	31.53
400	34.26	34.06	34.01	33.88	33.69	33.49
450	33.99	33.79	33.75	33.61	33.46	33.29
500	32.48	32.27	32.21	32.03	31.84	31.69
550	30.67	30.41	30.34	30.14	29.94	29.76
600	29.16	28.89	28.80	28.57	28.33	28.11
650	28.36	28.08	27.97	27.70	27.41	27.18
700	27.55	27.22	27.11	26.85	26.53	26.27
750	27.26	26.91	26.78	26.51	26.18	25.91
800	27.06	26.69	26.60	26.31	25.98	25.69
850	26.89	26.56	26.44	26.19	25.87	25.59
900	27.15	26.80	26.71	26.50	26.21	25.96
950	27.25	26.92	26.89	26.72	26.48	26.28
1000	27.67	27.34	27.34	27.23	27.07	26.94
1050	27.97	27.67	27.70	27.69	27.64	27.60
1100	28.22	27.94	27.99	28.08	28.10	28.19
1150	28.73	28.47	28.55	28.69	28.83	29.02
1200	28.99	28.71	28.81	28.97	29.14	29.43
1250	29.52	29.22	29.34	29.50	29.67	29.94
1300	29.93	29.60	29.68	29.76	29.87	30.04
1350	30.39	30.04	30.04	30.02	30.01	30.04
1400	30.98	30.53	30.48	30.31	30.11	29.93
1450	30.99	30.50	30.39	30.08	29.73	29.37
1500	31.79	31.24	30.99	30.52	29.97	29.44
1600	32.44	31.77	31.37	30.60	29.79	29.01
1700	32.89	32.14	31.68	30.75	29.81	28.88
1800	33.77	33.08	32.58	31.59	30.60	29.61
1900	34.64	33.99	33.64	32.78	31.86	30.89
2000	35.58	35.17	34.97	34.46	33.75	32.87
2500	37.39	38.15	38.54	39.18	39.32	38.60
2700	38.44	39.05	38.69	37.89	36.97	35.81
3000	36.20	36.71	36.67	36.85	37.06	37.25
3100	36.08	36.58	36.98	37.97	39.42	41.48
3200	35.84	36.43	37.04	38.64	41.20	45.33
3400	34.17	34.50	35.15	36.42	37.39	37.47
3800	31.63	31.18	30.83	29.94	28.95	27.99
4000	29.12	28.63	28.22	27.44	26.74	26.15
4200	27.28	26.83	26.54	26.07	25.72	25.51
4400	26.50	26.26	26.20	26.13	26.17	26.31
4500	25.92	25.74	25.80	25.91	26.06	26.25
4600	25.27	25.18	25.30	25.49	25.64	25.76
4800	24.30	24.29	24.41	24.48	24.34	24.13
5000	23.55	23.46	23.33	22.92	22.39	21.90
5200	22.41	22.19	21.82	21.13	20.51	20.05
5500	20.95	20.85	20.60	20.22	19.97	19.84
6000	17.97	18.22	18.36	18.58	18.74	18.85

Typical Performance Curves

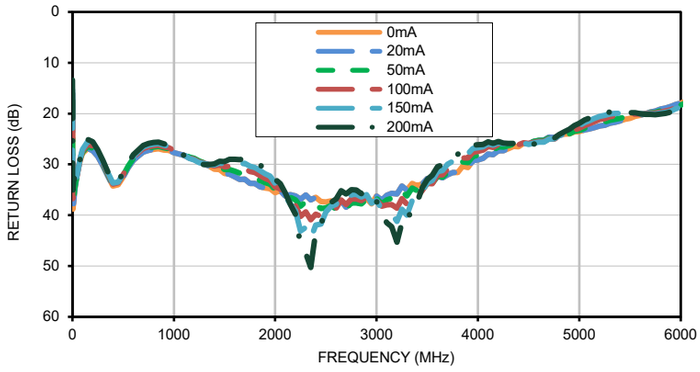
INSERTION LOSS



ISOLATION



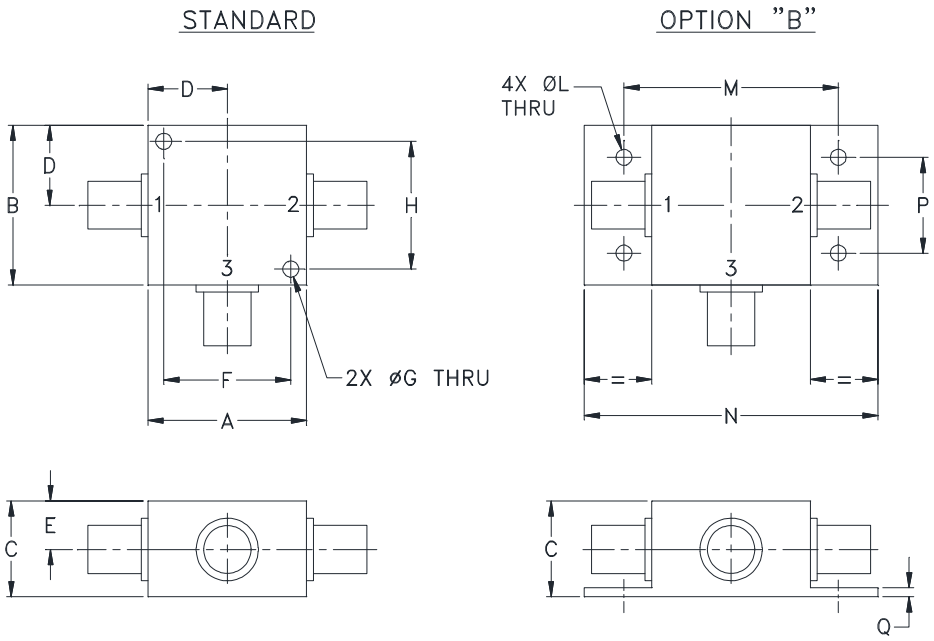
RETURN LOSS



Case Style K

K18

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
K18	1.25 (31.75	1.25 (31.75)	.75 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	-- --	-- --	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT. GRAMS
K18	.75 (19.05)	.07 (1.78)	70.0

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number.
4. For port marking 1, 2, and 3 see specifications data sheet.
5. For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
6. Refer to the individual model data sheet for the type of connectors available.

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Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
Mini-Circuits ISO 9001 & ISO 14001 Certified

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Mini-Circuits

Environmental Specifications ENV28

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
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

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