

Coaxial I&Q Demodulator

50Ω

66 to 73 MHz

ZFMIQ-70D

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
LO/RF Power	50mW
I&Q Current	40mA

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

Coaxial Connections

LO (carrier)	1
RF (signal)	3
I (0°)(ref.)	S
Q (90°)*	2

*Q= I+90° for LO>RF

Q= I-90° for LO<RF

Features

- rugged, shielded case
- excellent 3rd and 5th order harmonic suppression
- good phase and amplitude unbalance

Applications

- radar and communication systems



Generic photo used for illustration purposes only

CASE STYLE: J17

Connectors	Model
SMA	ZFMIQ-70D
BRACKET (OPTION "B")	

Demodulator Electrical Specifications

MODEL NO.	FREQUENCY (MHz)				CONVERSION LOSS (dB)			AMPLITUDE UNBALANCE (dB)		PHASE UNBALANCE (Deg.)		HARMONIC SUPPRESSION (dBc)			
	RF (SIGNAL)	LO (CARRIER)	I&Q							with reference to 90°		3XI/Q	5XI/Q		
	fL	fU	Min.	Max.	$\bar{x}$	σ	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ	Min.
ZFMIQ-70D	66	73	DC	2	6.2	0.10	7.0	0.15	0.5	0.7	3.0	56	45	58	55

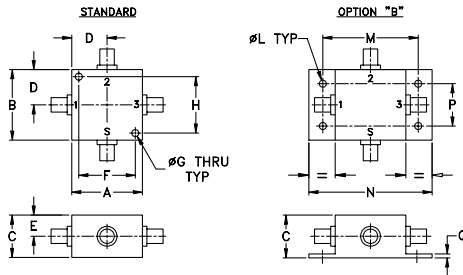
Notes:

1. Operating LO Power: 10±0.5 dBm
2. 1 dB Compression at +4 dBm RF input
3. DC offset 1mV typ.
4. Conversion Loss=RF power, dBm - (I+Q) power, dBm

Typical Performance Data

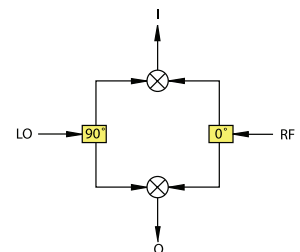
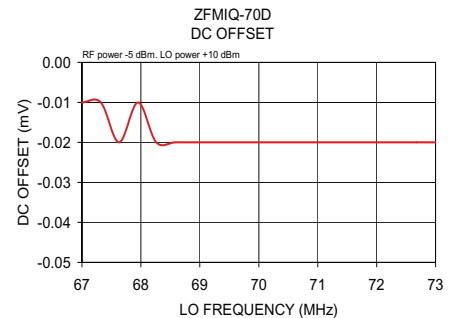
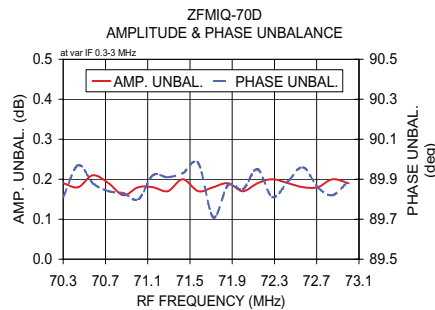
Frequency (MHz)		Conversion Loss (dB)	Amplitude Unbalance (dB)	Phase (I&Q) (deg.)	Frequency (MHz)		DC Offset (mV)
LO=70MHz	RF				LO	RF	
70.30	0.30	6.10	0.19	89.81	67.00	67.10	-0.01
70.44	0.44	6.08	0.18	89.97	67.32	67.42	-0.01
70.58	0.58	6.13	0.21	89.88	67.63	67.73	-0.02
70.73	0.73	6.12	0.19	89.84	67.95	68.05	-0.01
70.87	0.87	6.13	0.16	89.83	68.26	68.36	-0.02
71.01	1.01	6.07	0.18	89.80	68.58	68.68	-0.02
71.15	1.15	6.10	0.18	89.92	68.89	68.99	-0.02
71.29	1.29	6.10	0.17	89.91	69.21	69.31	-0.02
71.43	1.43	6.13	0.20	89.93	69.53	69.63	-0.02
71.58	1.58	6.12	0.17	89.98	69.84	69.94	-0.02
71.72	1.72	6.10	0.18	89.71	70.16	70.26	-0.02
71.86	1.86	6.10	0.19	89.87	70.47	70.57	-0.02
72.00	2.00	6.09	0.17	89.85	70.79	70.89	-0.02
72.14	2.14	6.10	0.19	89.95	71.11	71.21	-0.02
72.28	2.28	6.11	0.20	89.81	71.42	71.52	-0.02
72.43	2.43	6.10	0.19	89.89	71.74	71.84	-0.02
72.57	2.57	6.11	0.18	89.96	72.05	72.15	-0.02
72.71	2.71	6.11	0.18	89.86	72.37	72.47	-0.02
72.85	2.85	6.10	0.20	89.82	72.68	72.78	-0.02
73.00	3.00	6.11	0.19	89.89	73.00	73.10	-0.02

Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.000	.125	1.000
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40
J	K	L	M	N	P	Q	wt
-	-	.125	1.688	2.18	.75	.07	grams
-	-	3.18	42.88	55.37	19.05	1.78	75.0



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



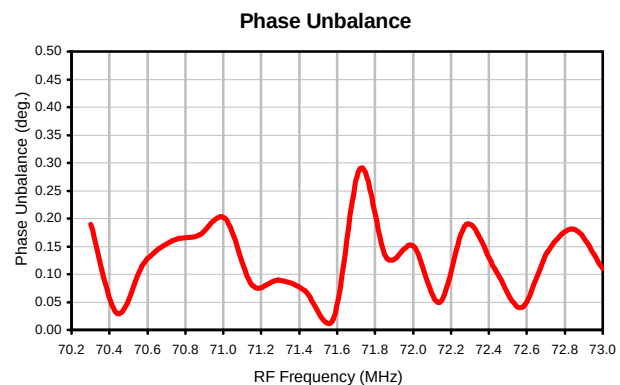
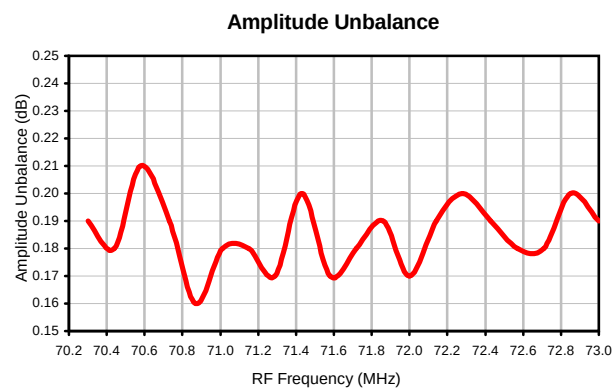
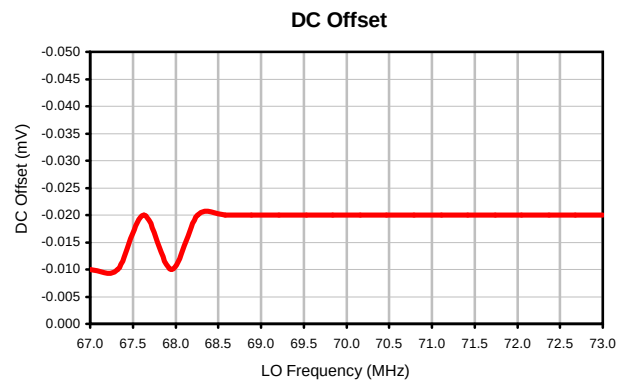
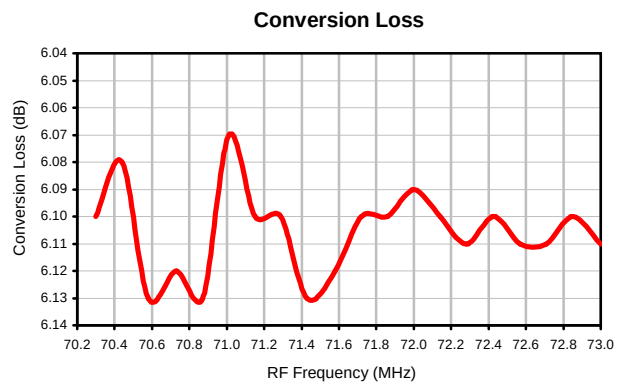
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REV. A
M151107
ZFMI-70D
DJ/VV/CP
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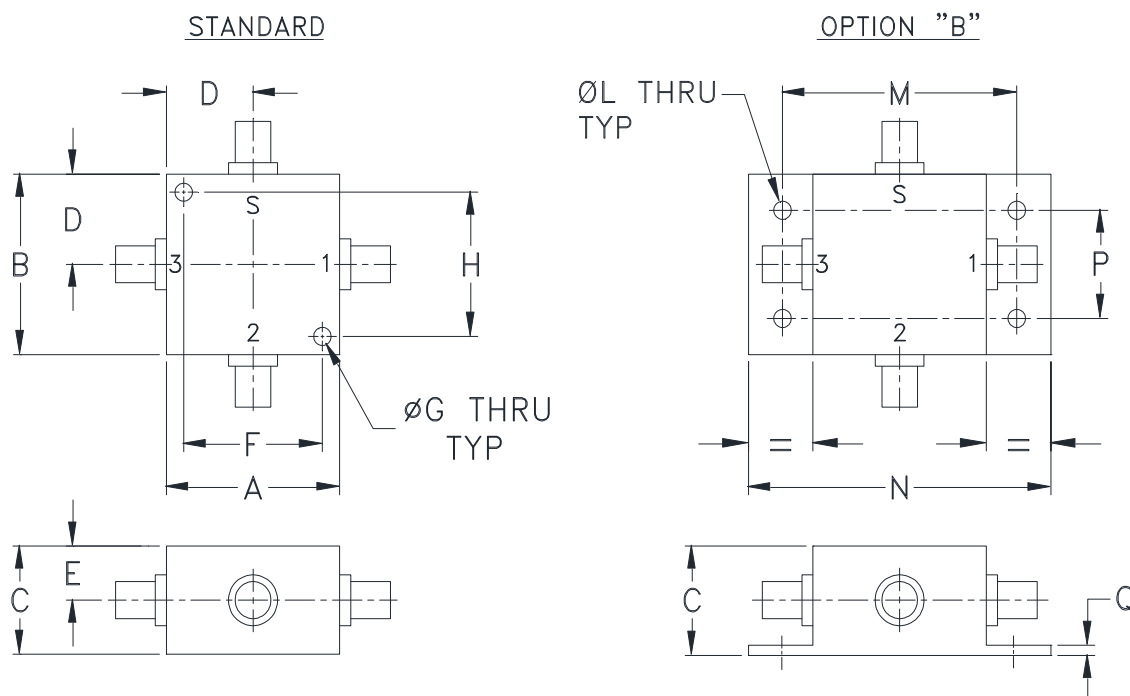
Typical Performance Data

FREQUENCY LO=70MHz (MHz)		CONVERSION LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE (I&Q) (deg.)	FREQUENCY (MHz)		DC OFFSET (mV)
RF	I&Q				LO	RF	
70.30	0.30	6.10	0.19	89.81	67.00	67.10	-0.01
70.44	0.44	6.08	0.18	89.97	67.32	67.42	-0.01
70.58	0.58	6.13	0.21	89.88	67.63	67.73	-0.02
70.73	0.73	6.12	0.19	89.84	67.95	68.05	-0.01
70.87	0.87	6.13	0.16	89.83	68.26	68.36	-0.02
71.01	1.01	6.07	0.18	89.80	68.58	68.68	-0.02
71.15	1.15	6.10	0.18	89.92	68.89	68.99	-0.02
71.29	1.29	6.10	0.17	89.91	69.21	69.31	-0.02
71.43	1.43	6.13	0.20	89.93	69.53	69.63	-0.02
71.58	1.58	6.12	0.17	89.98	69.84	69.94	-0.02
71.72	1.72	6.10	0.18	89.71	70.16	70.26	-0.02
71.86	1.86	6.10	0.19	89.87	70.47	70.57	-0.02
72.00	2.00	6.09	0.17	89.85	70.79	70.89	-0.02
72.14	2.14	6.10	0.19	89.95	71.11	71.21	-0.02
72.28	2.28	6.11	0.20	89.81	71.42	71.52	-0.02
72.43	2.43	6.10	0.19	89.89	71.74	71.84	-0.02
72.57	2.57	6.11	0.18	89.96	72.05	72.15	-0.02
72.71	2.71	6.11	0.18	89.86	72.37	72.47	-0.02
72.85	2.85	6.10	0.20	89.82	72.68	72.78	-0.02
73.00	3.00	6.11	0.19	89.89	73.00	73.10	-0.02

Typical Performance Curves



Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
J17	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
J17	.75 (19.05)	.07 (1.78)	75.0

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.
- Mounting bracket available on request. Add suffix B to part number
- For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.



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