

7.2 TO 8.4 GHz DIRECT SATELLITE I/Q DEMODULATOR

MODEL: IRO708LI3Q (TRI-BAND, X)

FEATURES

- Downlink..... 7.2 to 7.7 GHz
Uplink..... 7.9 to 8.4 GHz
- Direct I/Q demodulation DC to 250 MHz (50 ohms)
- Quadrature output accuracy 35 dB
- Linear dynamic range 35 dB
(2.5 mV DC-offset voltage,
150 mV linear output voltage)

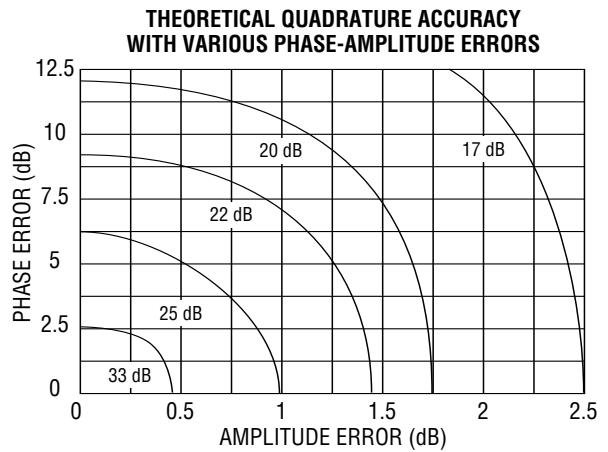
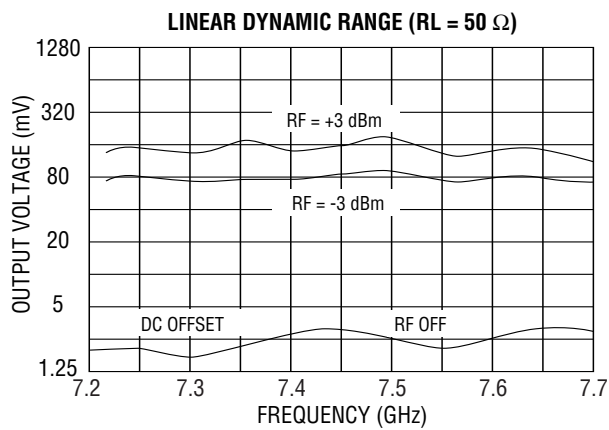
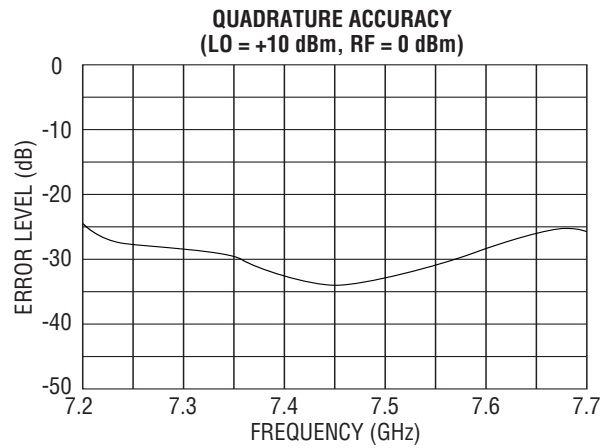
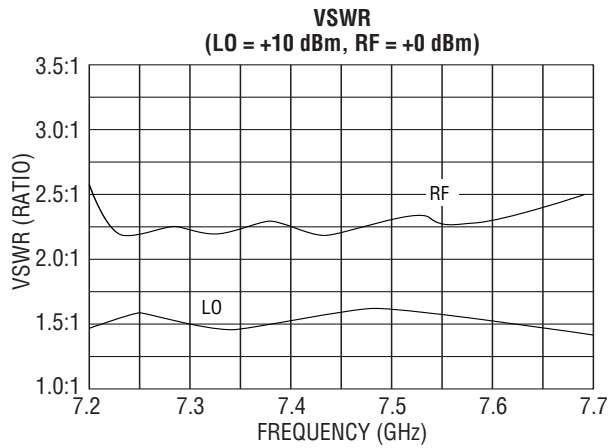


High data rate I/Q modulated microwave signals are often demodulated by one direct conversion to baseband using a phase-locked oscillator. However, in order to preserve low BER the quadrature accuracy and signal-to-noise ratio (including residual DC offset voltage) must be high. Recently at MITEQ, the electrical and physical symmetry of our microwave mixer baluns and quadrature couplers have been improved to yield LO-to-RF isolation exceeding 45 dB with very flat I/Q amplitude and phase response. These mixer qualities insure the low BER and also provide a low output VSWR interface for system baseband low-pass filters. This demodulator is an ideal complement to a similar construction I/Q linear modulator available from MITEQ.

ELECTRICAL SPECIFICATIONS

INPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
RF frequency range		GHz	7.2		8.4
RF VSWR	RF = +16 dBm	Ratio		2:1	2.5:1
RF power at 1 dB compression		dBm		+5	
LO frequency range		GHz	7.2		8.4
LO power range		dBm	+10		+13
LO VSWR		Ratio		1.5:1	1.8:1
TRANSFER CHARACTERISTICS	CONDITION	UNITS	MIN.	TYP.	MAX.
Conversion loss (I or Q output)	RF = 0 dBm	dB		9.5	10.5
Maximum linear output voltage	LO = +10 dBm, RF = +3 dBm	mV		150	
Maximum saturated output voltage	LO = +10 dBm, RF = +10 dBm	mV		400	
Maximum DC offset voltage	LO = +10 dBm, RF off	mV		2.5	5
Quadrature phase accuracy		Degrees		3	5
Quadrature amplitude accuracy		dB		0.5	0.75
LO-to-RF isolation		dB	25	30	
OUTPUT PARAMETERS	CONDITION	UNITS	MIN.	TYP.	MAX.
I/Q frequency range	0.5 dB bandwidth		DC		250
I/Q VSWR (Ref. = 50 ohms)	I/Q = 125 MHz	Ratio		1.4:1	

IR0708LI3Q TYPICAL TEST DATA

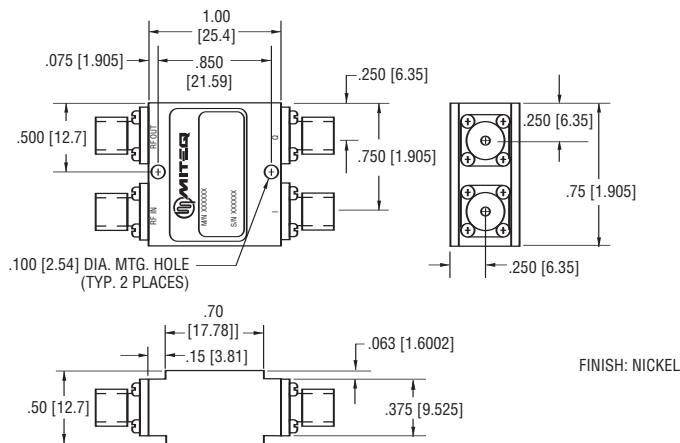


MAXIMUM RATINGS

Specification temperature +25°C
 Operating temperature -54 to +85°C
 Storage temperature -65 to +125°C

NOTE: Test data supplied at 25°C; conversion loss, phase and amplitude balance.

OUTLINE DRAWING



NOTE: All dimensions shown in brackets [] are in millimeters.

