

Surface Mount I&Q Demodulator

50Ω 104 to 176 MHz

Maximum Ratings

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

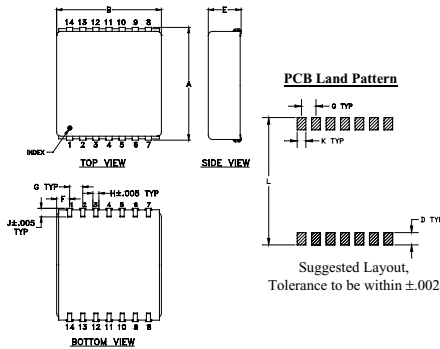
Pin Connections

LO (carrier)	2
RF (signal)	9
I (0°)(ref.)	4
Q (90°)*	11
GROUND	1,3,5,6,7,8,10,12,13,14

* Q=+90° for LO<RF

Q=-90° for LO>RF

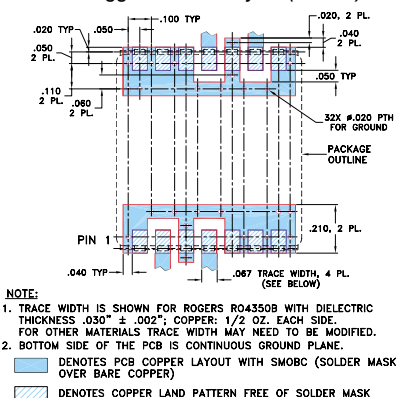
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K	L	wt.
.870	.800	—	.100	.250	.100	.100	.047	.065	.065	.890	grams
22.09	20.32	—	2.54	6.35	2.54	2.54	1.19	1.65	1.65	22.60	4.0

Demo Board MCL P/N: TB-21 Suggested PCB Layout (PL-209)



Features

- shielded metal case with J-leads
- excellent 3rd & 5th order harmonic suppression
- good amplitude & phase unbalance
- aqueous washable

Applications

- communication systems



CASE STYLE: BG291

PRICE: \$ 54.95 ea. QTY (1-9)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

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

Demodulator Electrical Specifications

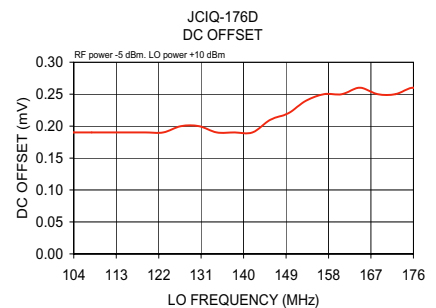
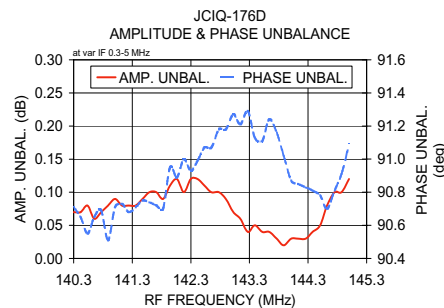
MODEL NO.	FREQUENCY (MHz)				CONVERSION LOSS (dB)			AMPLITUDE UNBALANCE (dB)		PHASE UNBALANCE (Deg.)		HARMONIC SUPPRESSION (dBc)			
	RF (SIGNAL)	LO (CARRIER)	I&Q									3XI/Q	5XI/Q		
	f _r	f _l	Min.	Max.	$\bar{x}$	σ	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.
JCIQ-176D	104	176	DC	5	5.5	0.1	7.0	0.15	0.6	2	5	52	40	65	50

Notes:

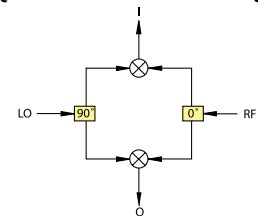
1. Operating LO Power: 10±0.5 dBm
2. 1 dB Compression at +4 dBm RF input
3. DC offset 1mV typ.
4. Conversion Loss=RF power, dBm - (I+Q) power, dBm

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Amplitude Unbalance (dB)	Phase (I&Q) (deg.)	Frequency (MHz)		DC Offset (mV)
LO=140MHz	RF				LO	RF	
140.30	0.30	5.67	0.07	90.71	96.00	96.10	0.18
140.54	0.54	5.61	0.08	90.55	100.00	100.10	0.19
140.77	0.77	5.56	0.07	90.69	104.00	104.10	0.19
141.01	1.01	5.55	0.09	90.71	107.79	107.89	0.19
141.24	1.24	5.57	0.08	90.68	115.37	115.47	0.19
141.48	1.48	5.55	0.09	90.75	119.16	119.26	0.19
141.71	1.71	5.55	0.10	90.72	122.95	123.05	0.19
141.95	1.95	5.54	0.11	90.95	126.74	126.84	0.20
142.18	2.18	5.55	0.10	91.00	134.32	134.42	0.19
142.42	2.42	5.54	0.12	90.99	138.11	138.21	0.19
142.78	2.78	5.55	0.10	91.18	141.90	142.00	0.19
143.03	3.03	5.55	0.07	91.27	145.68	145.78	0.21
143.27	3.27	5.55	0.04	91.29	153.26	153.36	0.24
143.52	3.52	5.56	0.04	91.11	157.05	157.15	0.25
143.77	3.77	5.56	0.03	91.16	160.84	160.94	0.25
144.01	4.01	5.55	0.03	90.87	164.63	164.73	0.26
144.26	4.26	5.56	0.03	90.83	172.21	172.31	0.25
144.51	4.51	5.56	0.05	90.78	176.00	176.10	0.26
144.75	4.75	5.55	0.10	90.81	180.00	180.10	0.25
145.00	5.00	5.56	0.12	91.09	184.00	184.10	0.26



I&Q demodulation block diagram



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RF/IF MICROWAVE COMPONENTS

REV. B
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JCIQ-176D
DJ/VV/CP
080501