

Surface Mount I&Q Demodulator

50Ω 104 to 176 MHz

JCIQ-176D+ JCIQ-176D



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.

Maximum Ratings

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

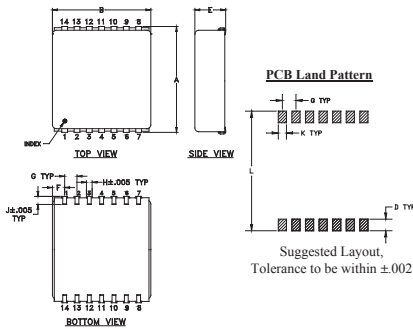
Permanent damage may occur if any of these limits are exceeded.

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

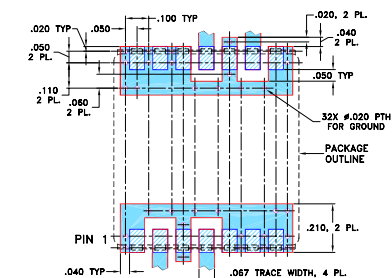
Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G	
.870	.800	--	.100	.250	.100	.100	
22.10	20.32	--	2.54	6.35	2.54	2.54	
H	J	K	L				wt
.047	.065	.065	.890				grams
1.19	1.65	1.65	22.61				4.0

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



- NOTE:
- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
 - BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

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

Applications

- communication systems

Demodulator Electrical Specifications

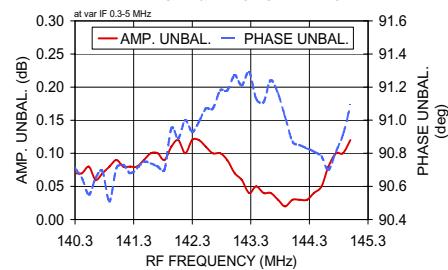
MODEL NO.	FREQUENCY (MHz)				CONVERSION LOSS (dB)			AMPLITUDE UNBALANCE (dB)		PHASE UNBALANCE (Deg.)		HARMONIC SUPPRESSION (dBc)					
	RF (SIGNAL)		LO (CARRIER)		Min.	Max.	\bar{x}	σ	Max.	Typ.	Max.	with reference to 90°		3XI/Q		5XI/Q	
	f _r	f _l	I&Q									Typ.	Min.	Typ.	Min.		
JCIQ-176D	104	176	DC	5	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

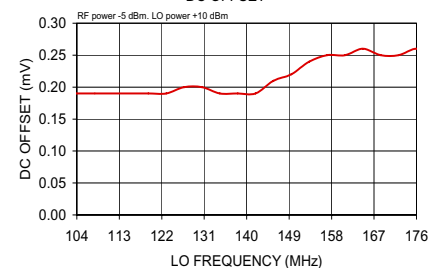
Typical Performance Data

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

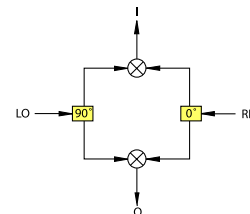
JCIQ-176D
AMPLITUDE & PHASE UNBALANCE



JCIQ-176D
DC OFFSET



I&Q demodulation block diagram



For detailed performance specs
& shipping online see web site

Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED

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