

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

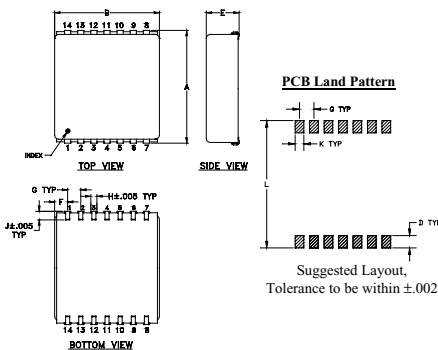
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
LO/RF Power	50mW
I&Q Current	40mA

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

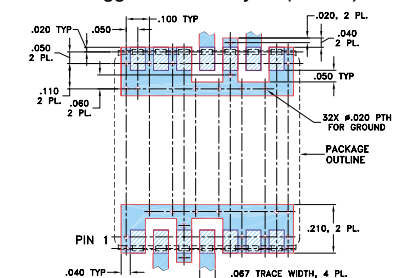
Outline Drawing



Outline Dimensions (inch/mm)

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

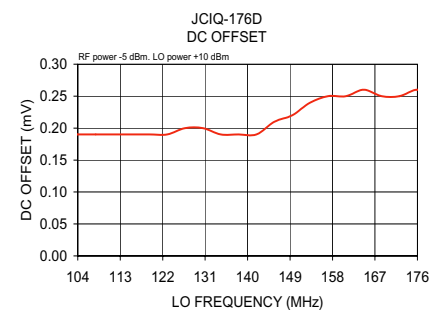
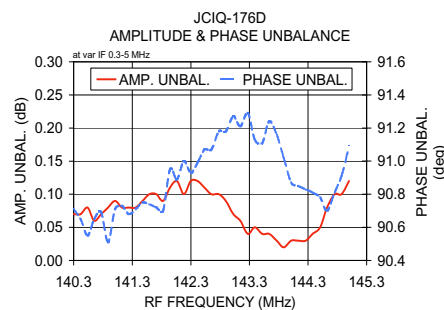
Demodulator Electrical Specifications

MODEL NO.	FREQUENCY (MHz)		CONVERSION LOSS (dB)			AMPLITUDE UNBALANCE (dB)		PHASE UNBALANCE (Deg.)		HARMONIC SUPPRESSION (dBc)					
	RF (SIGNAL)		I&Q			with reference to 90°		with reference to 90°		3XI/Q		5XI/Q			
	f _i	f _u	Min.	Max.	\bar{x}	σ	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

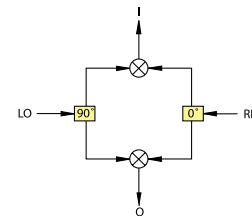
- Notes:
1. Operating LO Power: 10±0.5 dBm
 2. 1 dB Compression at +4 dBm RF input
 3. DC offset 1mV typ.
 4. Conversion Loss=RF power, dBm - (I+Q) power, dBm

Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)		Amplitude Unbalance (dB)	Phase (I&Q) (deg.)	Frequency (MHz)		DC Offset (mV)
	LO=140MHz RF	I&Q			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

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DJ/VV/CP
080501