

50Ω

868 to 895 MHz

Maximum Ratings

Operating Temperature	-40°C to 85°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.	

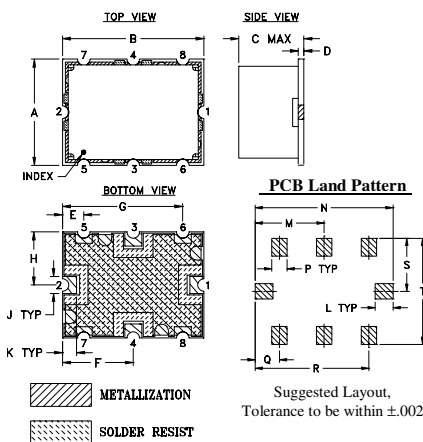
Pin Connections

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

*Q=+90° for LO<RF

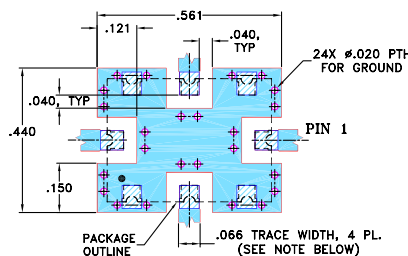
Q=-90° for LO>RF

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	J	K
.38	.50	.23	.020	.075	.250	.425	.187	.060	.050
9.65	12.70	5.84	0.51	1.91	6.35	10.80	4.75	1.52	1.27
L	M	N	P	Q	R	S	T	wt.	
.070	.270	.540	.060	.095	.445	.208	.415	grams	
1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54	0.8	

Demo Board MCL P/N: TB-459+
Suggested PCB Layout (PL-280)

NOTE: 1. 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.
2. 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

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-Circuit's 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp

Features

- low conversion loss, 6.4dB typ.
- excellent 3rd and 5th order harmonic suppression
- good amplitude & phase unbalance
- good VSWR all ports, RF 1.35:1 typ., LO 1.3:1 typ., I&Q 1.35:1 typ.
- shielded case

Applications

- cellular
- radar and communication systems



CASE STYLE: TTT1289

+RoHS Compliant

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

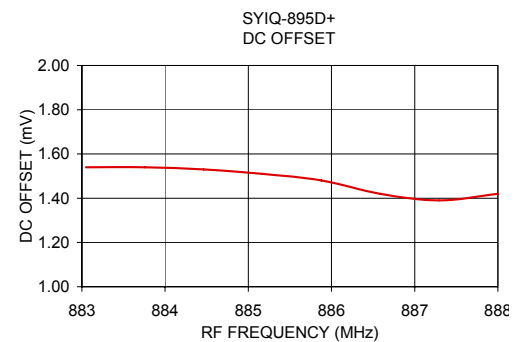
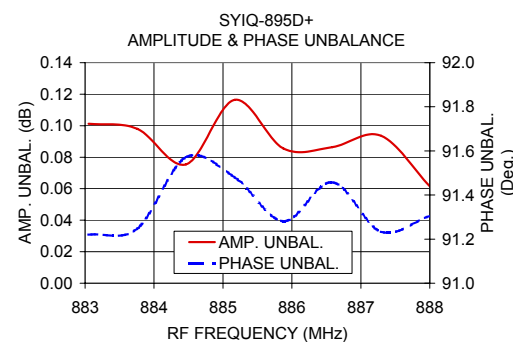
Demodulator Electrical Specifications

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	
f _L	f _U	Min.	Max.	$\overline{X}$	σ	Max.	Typ.	Max.	Typ.	Max.		Typ.	Min.	Typ.	Min.
868	895	DC	5	6.4	0.10	7.5	0.15	0.4	1.5	4.0		45	35	64	50

1. Operating LO power: 10±1dBm
2. 1dB Compression: +5 dBm typical.
3. DC offset, 1.5 mV 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.)	DC Offset (mV)
LO=883MHz	RF I&Q				
883.05	0.05	6.37	0.10	91.22	1.54
883.76	0.76	6.38	0.10	91.25	1.54
884.46	1.46	6.37	0.08	91.57	1.53
885.17	2.17	6.37	0.12	91.48	1.51
885.88	2.88	6.39	0.09	91.28	1.48
886.59	3.59	6.41	0.09	91.46	1.42
887.29	4.29	6.43	0.09	91.23	1.39
888.00	5.00	6.41	0.06	91.31	1.42



I&Q demodulation block diagram

