

Surface Mount I&Q Modulator

50Ω

868 to 895 MHz

SYIQ-895M+



CASE STY: TTT1289

PRICE: \$7.95 ea. QTY. (1-9)

+RoHS Compliant

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

Maximum Ratings

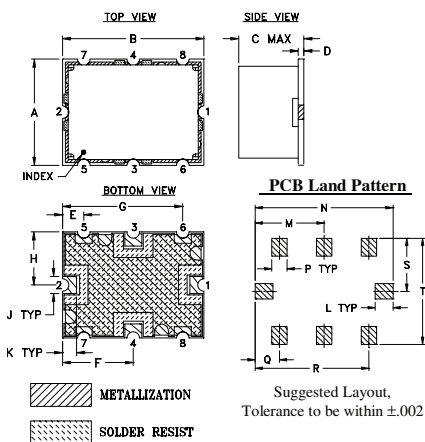
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
LO Power	50mW
I&Q Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

Pin Connections

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

*Q= I +90° for lower sideband suppression

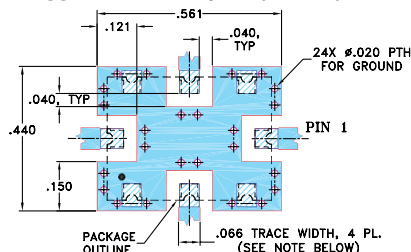
Outline Drawing



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

Features

- low conversion loss, 6.4dB typ.
- excellent 3rd and 5th order harmonic suppression
- good carrier and sideband rejections
- 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

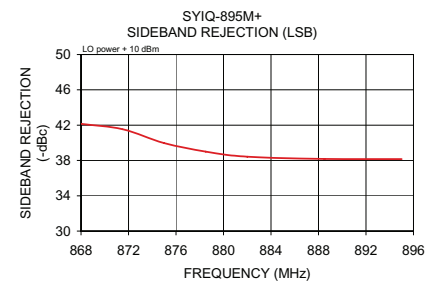
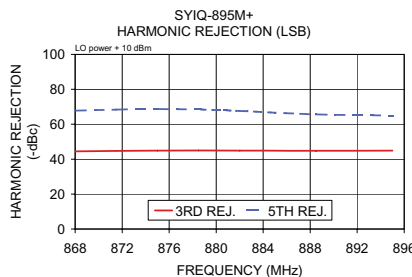
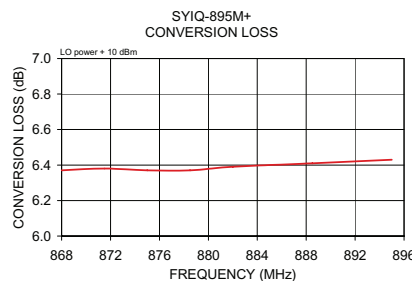
Modulator Electrical Specifications

FREQUENCY (MHz)				CONVERSION LOSS (dB)			CARRIER REJECTION (-dBc)		SIDE BAND REJECTION (-dBc)		HARMONIC SUPPRESSION (-dBc)			
RF (SIGNAL)		LO (CARRIER)		I&Q							3XI/Q		5XI/Q	
f _L	f _U	Min.	Max.	σ	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
868	895	DC	5				6.4	0.10	7.5		38	30	39	30
											45	35	64	50

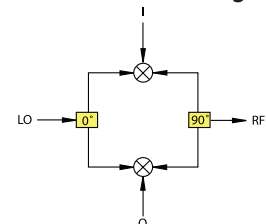
1. Operating LO power: 10±1dBm
2. 1dB Compression: 1 dBm typical.
3. Conversion Loss: (I + Q) power, dBm - RF power, dBm.
4. Carrier and sideband rejections measured at -5dBm I/Q power.

Typical Performance Data

Carrier Freq. (MHz)	Conversion Loss		Sideband Rejection (x)		Carrier Rejection (x)		3rd Harmonic Suppression (x)		5th. Harmonic Suppression (x)		DC Offset (mV)
	σ (dB)	σ (dB)	LSB (-dBc)	USB (-dBc)	LSB (-dBc)	USB (-dBc)	LSB (-dBc)	USB (-dBc)	LSB (-dBc)	USB (-dBc)	
868.00	6.37	0.06	42.15	42.93	36.93	37.03	44.46	59.83	67.77	64.01	1.54
871.50	6.38	0.06	41.54	41.56	37.35	37.41	44.73	59.66	68.39	63.72	1.54
875.00	6.37	0.07	39.97	40.22	37.95	37.98	44.92	58.95	68.72	63.65	1.53
878.50	6.37	0.07	39.00	39.39	38.67	38.64	44.96	58.43	68.44	63.72	1.51
882.00	6.39	0.07	38.42	38.89	39.42	39.38	44.90	57.98	67.57	63.89	1.48
888.50	6.41	0.06	38.17	38.55	39.85	40.83	44.84	55.82	65.63	63.68	1.42
895.00	6.43	0.07	38.16	38.50	40.01	40.00	44.89	52.30	64.99	62.73	1.39



I&Q modulation block diagram



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



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