Surface Mount

Frequency Mixer

LRMS-1MHJ+
LRMS-1MHJ

Level 13 (LO Power +13dBm) 2 to 500 MHz



CASE STYLE: QQQ569

+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
RF Power	200mW
IF Current	40mA

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

Pin Connections

LO	1
RF	4
IF	5
GROUND	2,3,6

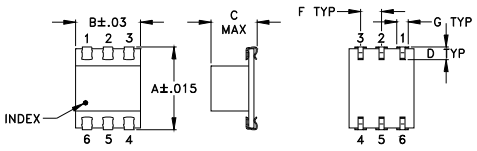
Features

- low conversion loss, 6.13 dB typ.
- excellent L-R isolation, 44 dB typ.
- aqueous washable
- J-leads for strain relief

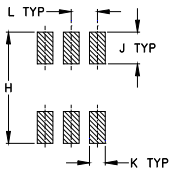
Applications

- VHF/UHF
- instrumentation

Outline Drawing



PCB Land Pattern



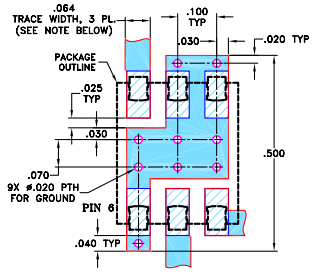
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.390	.31	.225	.060	--	.100	.045
9.91	7.87	5.72	1.52	--	2.54	1.14

H	J	K	L	M	wt
.420	.120	.060	.100	--	grams
10.67	3.05	1.52	2.54	--	0.50

Demo Board MCL P/N: TB-44+
Suggested PCB Layout (PL-083)



NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; 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

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)						IP3 at center band (dBm)
		Mid-Band m			Total Range	L		M		U		L		M		U		
LO/RF f_L-f_U	IF	$\overline{X}$	σ	Max.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.
2-500	DC-500	6.13	.08	7.0	8.0	58	45	44	25	30	20	55	40	36	25	28	17	23

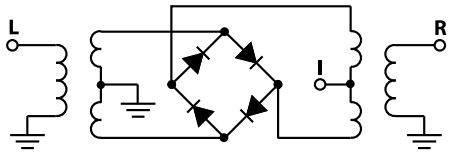
1 dB COMP.: +9 dBm typ.

L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U]
m= mid band [2f_L to f_U/2]

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	VSWR RF Port (:1)	Frequency (MHz)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR LO Port (:1)
RF	LO	LO +13dBm	LO +13dBm		LO +13dBm	LO +13dBm	LO +13dBm
2.10	32.10	7.12	2.48	10.50	72.10	51.18	1.82
4.10	34.10	6.54	2.67	14.50	69.04	48.42	1.82
6.10	36.10	6.35	2.78	20.50	66.13	45.46	1.81
10.10	40.10	6.24	2.84	24.50	64.29	43.96	1.81
14.10	44.10	6.13	2.85	30.50	62.15	42.08	1.81
18.10	48.10	6.17	2.82	35.00	61.00	40.87	1.81
20.10	50.10	6.17	2.81	40.10	59.59	39.68	1.82
25.10	55.10	6.15	2.77	50.10	57.26	37.80	1.83
50.10	80.10	6.19	2.65	80.10	52.29	33.74	1.81
100.10	130.10	6.19	2.37	105.10	49.20	31.29	1.81
125.10	155.10	6.21	2.28	155.10	45.02	28.06	1.84
150.10	180.10	6.20	2.15	205.10	41.68	25.76	1.84
175.10	205.10	6.28	2.06	255.10	38.45	24.37	1.90
200.10	230.10	6.33	2.00	305.10	35.47	23.37	1.95
250.10	280.10	6.35	1.85	330.10	34.14	23.10	1.99
300.10	330.10	6.41	1.75	355.10	33.10	23.00	1.98
350.10	380.10	6.52	1.68	405.10	31.53	22.77	2.05
400.10	430.10	6.52	1.58	430.10	30.84	22.89	2.07
425.10	455.10	6.59	1.53	455.10	30.16	23.02	2.03
500.00	470.00	6.67	1.52	470.00	29.64	23.13	2.08

Electrical Schematic



Notes
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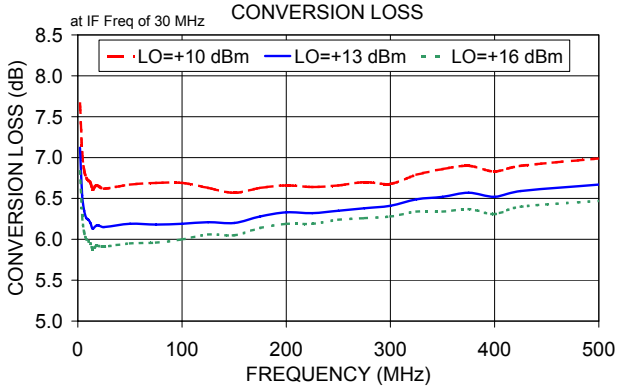
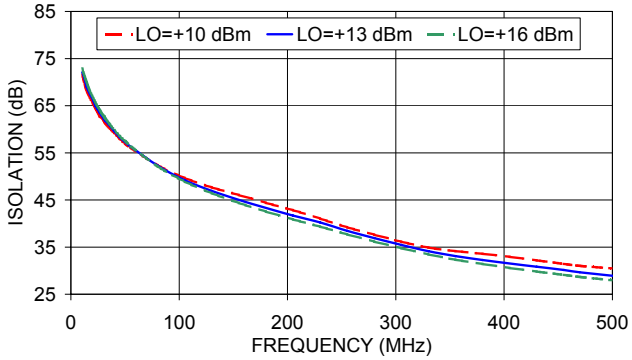
Performance Charts

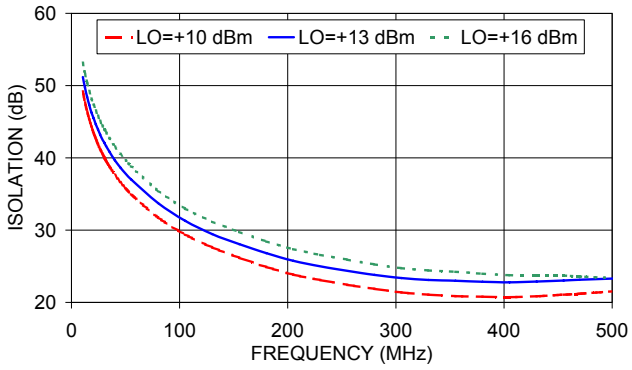
LRMS-1MHJ
CONVERSION LOSS
at IF Freq of 30 MHz



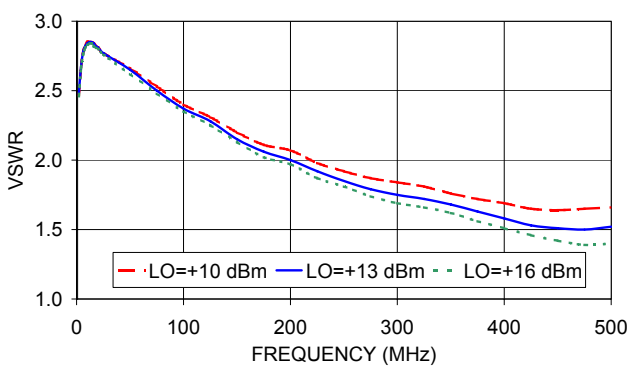
LRMS-1MHJ
L-R ISOLATION



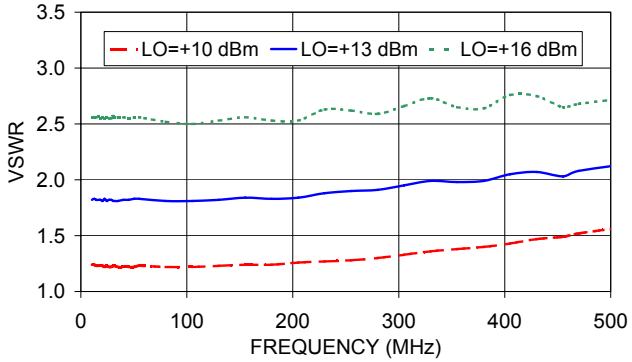
LRMS-1MHJ
L-I ISOLATION



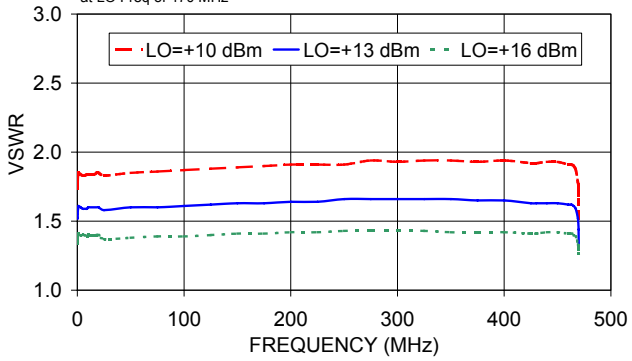
LRMS-1MHJ
RF VSWR



LRMS-1MHJ
LO VSWR



LRMS-1MHJ
IF VSWR
at LO Freq of 470 MHz



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