

High Reliability Mixer

TUF-R2MHSM+

Level 13 (LO Power +13 dBm) 50 to 1000 MHz

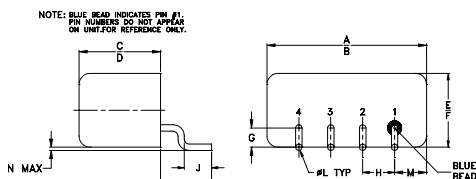
Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

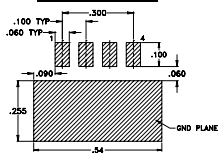
Pin Connections

LO	4
RF	1
IF	2
GROUND	3
CASE GROUND	3

Outline Drawing



PCB Land Pattern



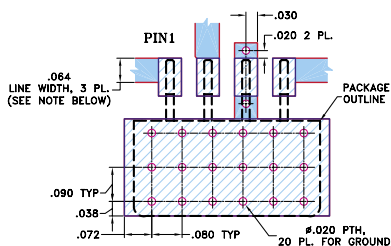
Suggested Layout,
Tolerance to be within ± 0.002

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.50	.48	.255	.240	.23	.21	.06
12.70	12.19	6.48	6.10	5.84	5.33	1.52

H	J	K	L	M	N	wt
.100	.09	.16	.020	.09	.005	grams
2.54	2.29	4.06	0.51	2.29	0.13	1.9

Demo Board MCL PIN: TB-201 Suggested PCB Layout (PL-081)



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

Features

- hermetically sealed ceramic quad
- low conversion loss, 6.0 dB typ.
- high isolation L-R, 50 dB typ; L-I isolation, 42 dB typ.
- wideband, 50-1000 MHz
- rugged welded construction
- shielded metal case

Applications

- VHF/UHF
- cellular
- ISM/GSM

Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 at center band (dBm)
		L	M	U	L	M	U	
LO/RF $f_c - f_u$	Mid-Band m $\bar{X}$ σ Max. Total Range Max.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ.
50-1000 DC-1000	6.0 0.1 7.5 9.0	58 40	50 33	42 30	52 40	42 28	32 21	19

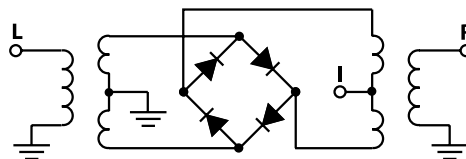
1 dB COMP.: +9 dBm typ.

L = 50-100 MHz M = 100-500 MHz U = upper range [$f_u/2$ to f_u]m = mid band [$2f_c$ to $f_u/2$]

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
50.10	80.10	6.12	59.14	51.59	1.08	2.29
130.10	160.10	6.01	55.25	46.07	1.05	2.36
210.10	240.10	5.92	52.62	43.85	1.12	2.38
250.10	280.10	5.93	52.04	43.21	1.13	2.26
330.10	360.10	5.93	49.85	41.03	1.18	2.30
410.10	440.10	5.97	48.97	39.17	1.21	2.34
450.10	480.10	5.97	47.51	37.58	1.23	2.30
490.10	520.10	6.02	45.84	36.19	1.25	2.35
530.10	560.10	6.09	44.76	34.80	1.28	2.34
570.10	600.10	6.14	44.42	34.15	1.31	2.39
650.10	680.10	6.23	45.44	33.34	1.38	2.38
690.10	720.10	6.28	45.00	32.35	1.36	2.43
730.10	760.10	6.42	45.66	31.27	1.35	2.43
770.10	800.10	6.55	44.65	30.54	1.29	2.48
850.10	880.10	6.72	43.70	29.60	1.30	2.47
890.10	920.10	6.90	42.70	29.01	1.29	2.49
930.10	960.10	6.95	42.15	28.45	1.37	2.47
970.10	1000.10	6.95	41.63	28.03	1.48	2.49
990.10	1020.10	6.94	41.43	27.96	1.51	2.50
1030.10	1060.10	6.98	41.63	28.11	1.65	2.55

Electrical Schematic



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Page 1 of 2

Performance Charts

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