

# Frequency Mixer

Level 10 (LO Power +10 dBm) 2 to 600 MHz

## TUF-1LHSM+



CASE STYLE: NNN150  
PRICE: \$10.30 ea. QTY (10)

**+RoHS Compliant**

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
RF Power	50mW
IF Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

### Pin Connections

LO	4
RF	1
IF	2
GROUND	3
CASE GROUND	3

### Features

- low conversion loss, 6.0 dB typ.
- high L-R & L-I isolation, 50 dB typ.
- rugged welded construction

### Applications

- VHF/UHF
- defense & federal communications

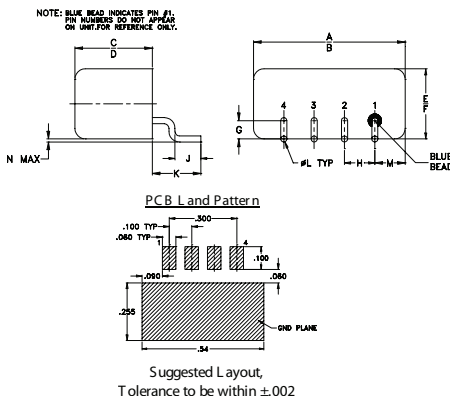
### Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 @ CENTER BAND (dBm)
		L	M	U	L	M	U	
2-600	6.0	70	50	42	65	45	41	17

1 dB COMP: +5 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  $f_U/2$ ]

### Outline Drawing



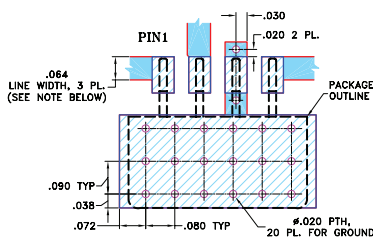
### Outline Dimensions (inch/mm)

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)

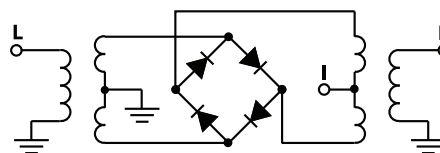


- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.  
■ DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
■ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
2.00	32.00	6.28	67.01	1.47	2.80
4.00	34.00	5.95	65.93	1.27	2.68
5.00	35.00	5.89	65.47	1.23	2.65
10.00	40.00	5.80	63.93	1.14	2.48
20.00	50.00	5.82	61.72	1.12	2.53
50.00	80.00	5.82	56.12	1.11	2.47
59.87	89.87	5.78	54.83	1.11	2.35
100.00	70.00	5.77	51.13	1.12	2.37
117.74	87.74	5.79	50.12	1.15	2.32
175.61	145.61	5.69	47.32	1.18	2.26
200.00	170.00	5.73	46.57	1.21	2.33
233.48	203.48	5.70	45.24	1.25	2.27
291.36	261.36	5.69	43.94	1.27	2.24
300.00	270.00	5.68	43.65	1.31	2.29
349.23	319.23	5.71	42.63	1.35	2.28
407.10	337.10	5.70	41.85	1.40	2.28
464.97	434.97	5.72	40.61	1.45	2.29
522.84	492.84	5.77	39.23	1.49	2.33
580.71	550.71	5.84	38.82	1.51	2.33
600.00	570.00	5.87	38.87	1.53	2.31

### Electrical Schematic



For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

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