

Frequency Mixer

TUF-1HSM+

Level 17 (LO Power +17 dBm) 2 to 600 MHz



CASE STYLE: NNN150
PRICE: \$12.45 ea. QTY (1-9)

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

Pin Connections

LO	4
RF	1
IF	2
GROUND	3
CASE GROUND	3

Features

- low conversion loss, 5.90 dB typ.
- high IP3, 26 dB typ.
- excellent L-R isolation, 50 dB typ.; L-I, 48 dB typ.
- rugged welded construction

Applications

- VHF/UHF
- defense & federal communications

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

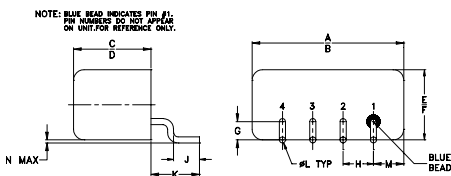
Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 @ CENTER BAND (dBm)										
		L	M	U	L	M	U											
LO/RF f_L-f_U	Mid-Band m \bar{X} σ Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.										
2-600	DC-600	5.90	0.18	7.0	8.0	68	50	50	30	43	25	62	45	48	30	33	22	26

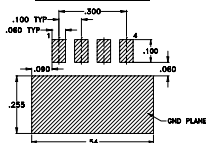
1 dB COMP.: +14 dBm typ.

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



PCB Land Pattern



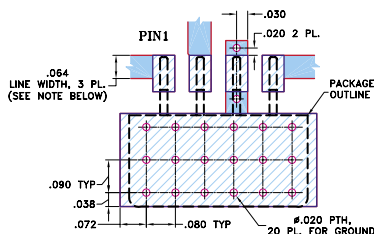
Suggested Layout, Tolerance to be within ±0.002

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)

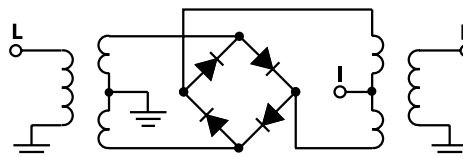


- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.030 ± 0.002 ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 - 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	6.30	62.98	1.22	1.67
5.00	35.00	5.95	62.06	1.10	1.60
10.00	40.00	5.92	60.47	1.03	1.63
20.00	50.00	5.91	57.14	1.02	1.61
34.13	64.13	5.81	53.27	1.04	1.58
50.00	80.00	5.72	50.24	1.06	1.57
66.26	96.26	5.66	48.03	1.07	1.55
82.33	52.33	5.71	46.33	1.08	1.54
100.00	70.00	5.63	44.99	1.09	1.57
130.52	100.52	5.61	43.18	1.10	1.55
162.65	132.65	5.61	41.46	1.10	1.55
200.00	170.00	5.60	40.12	1.08	1.60
259.04	229.04	5.42	38.10	1.07	1.67
307.24	277.24	5.62	37.54	1.06	1.70
355.43	325.43	5.86	37.41	1.05	1.76
387.56	357.56	5.92	36.35	1.04	1.82
435.76	405.76	5.81	35.35	1.05	1.84
483.95	453.95	6.08	36.44	1.08	1.87
500.00	470.00	6.27	36.27	1.09	1.90
600.00	570.00	6.18	36.36	1.09	1.89

Electrical Schematic



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RF/IF MICROWAVE COMPONENTS

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