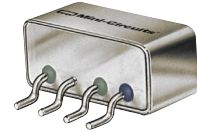


Frequency Mixer

TUF-5SM+

Level 7 (LO Power +7 dBm) 20 to 1500 MHz



CASE STYLE: NNN150

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, 5.7 dB typ.
- high L-R isolation, 42 dB typ.
- wideband, 20 to 1500 MHz
- rugged welded construction

Applications

- satellite distribution
- cellular
- ISM/GSM

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

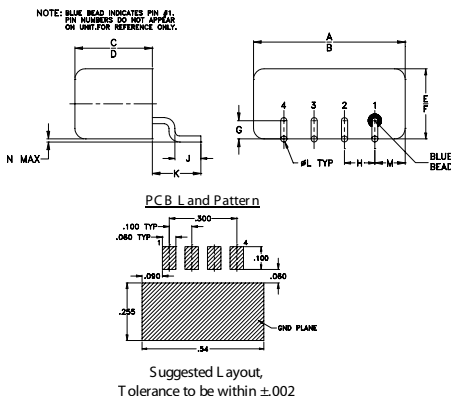
Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 @ CENTER BAND (dBm)										
		L	M	U	L	M	U											
20-1500	DC-1500	5.7	0.04	9.0	9.0	54	40	42	30	39	25	40	25	32	18	23	8	12

1 dB COMP: +1 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

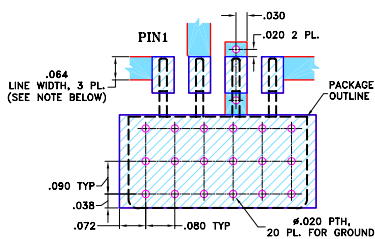


Outline Dimensions (inch/mm)

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

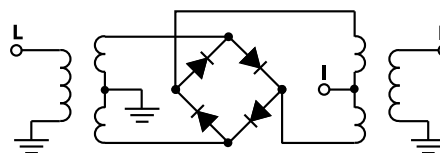
Notes

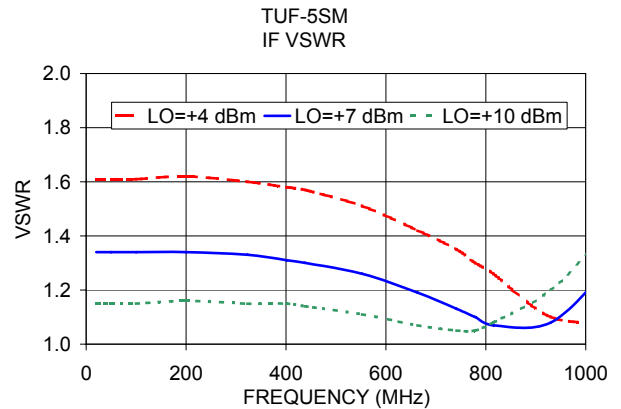
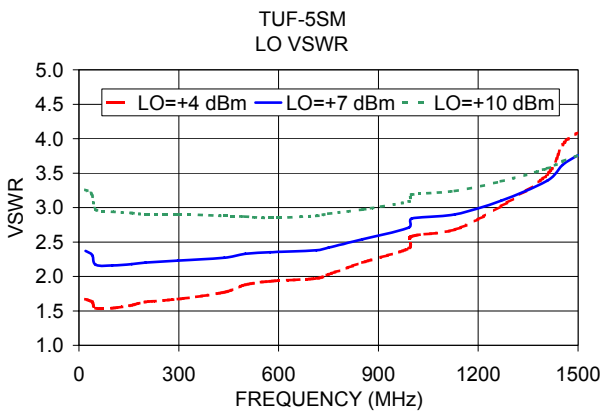
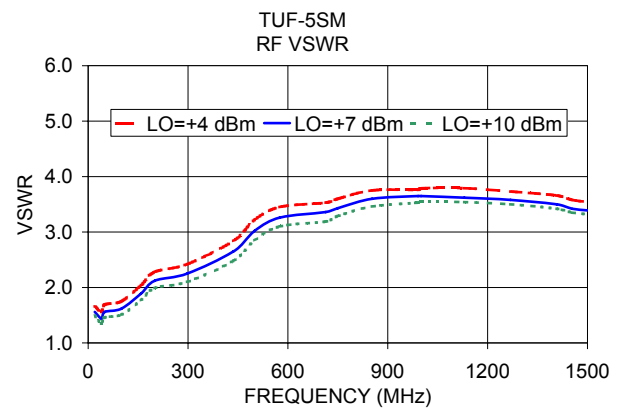
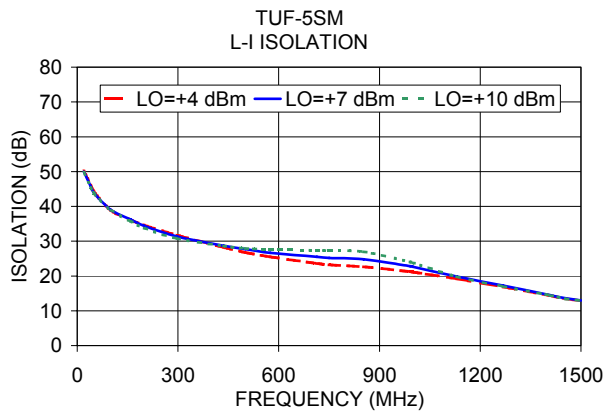
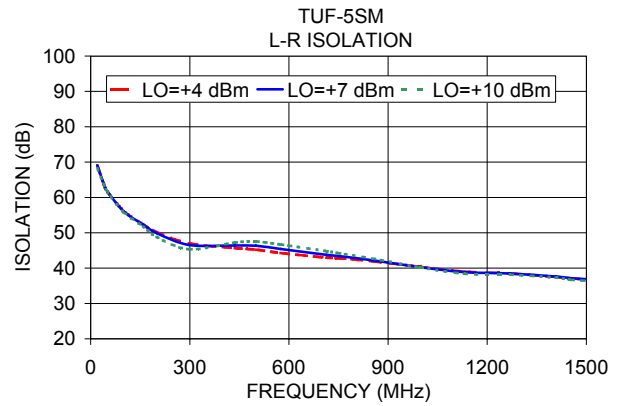
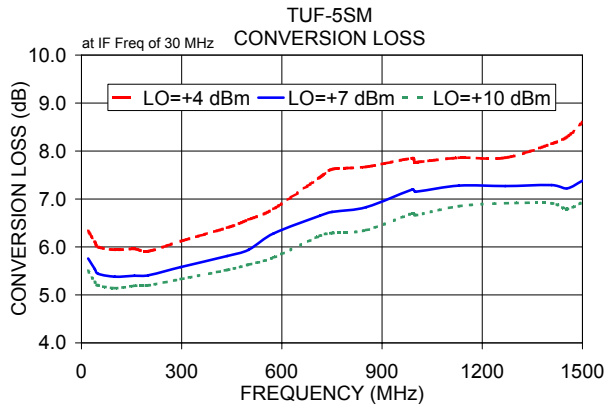
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Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
20.00	50.00	5.76	69.06	1.56	2.37
40.00	70.00	5.54	63.75	1.44	2.31
50.00	80.00	5.44	61.73	1.56	2.17
100.00	70.00	5.38	56.05	1.62	2.16
158.75	128.75	5.40	52.30	1.89	2.18
200.00	170.00	5.41	49.90	2.12	2.20
297.50	267.50	5.58	46.54	2.25	2.23
436.25	406.25	5.81	46.39	2.65	2.27
500.00	470.00	5.94	46.35	3.02	2.33
575.00	545.00	6.28	45.43	3.26	2.35
713.75	683.75	6.65	43.76	3.36	2.38
750.00	720.00	6.73	43.43	3.43	2.42
852.50	822.50	6.83	42.21	3.60	2.54
991.25	961.25	7.20	40.31	3.65	2.71
1000.00	970.00	7.15	40.23	3.65	2.84
1130.00	1100.00	7.28	38.87	3.62	2.90
1268.75	1238.00	7.27	38.46	3.58	3.10
1407.50	1377.50	7.29	37.61	3.50	3.39
1453.75	1423.75	7.22	37.14	3.42	3.62
1500.00	1470.00	7.38	36.87	3.39	3.76

Electrical Schematic





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