

Frequency Mixer

TUF-1HSM+

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



Generic photo used for illustration purposes only
CASE STYLE: NNN150

+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	200mW
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, 5.90 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

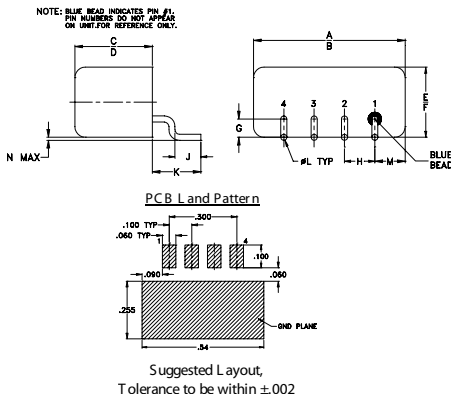
Electrical Specifications

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. Total Range 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

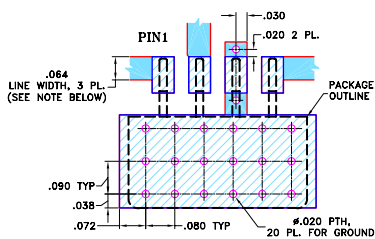


Outline Dimensions (inch/mm)

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)



- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

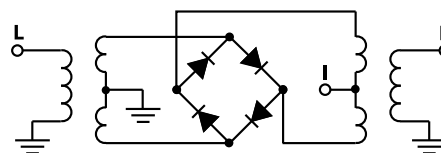
Notes

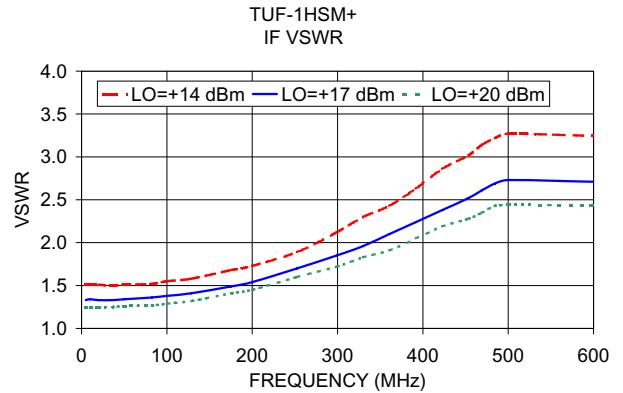
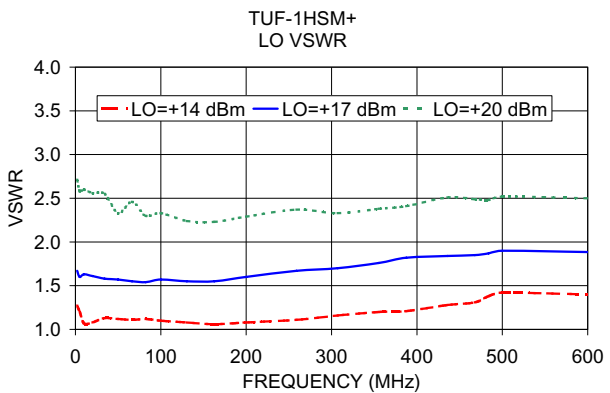
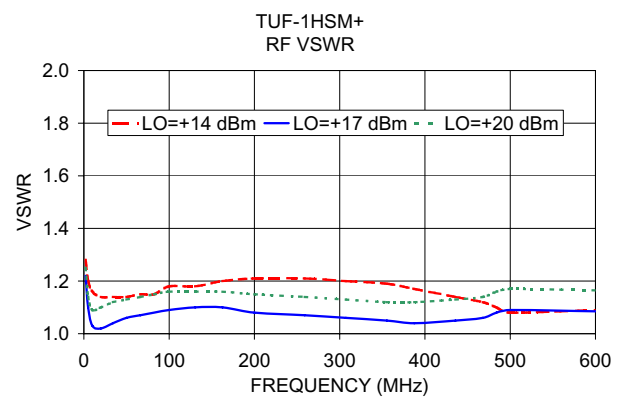
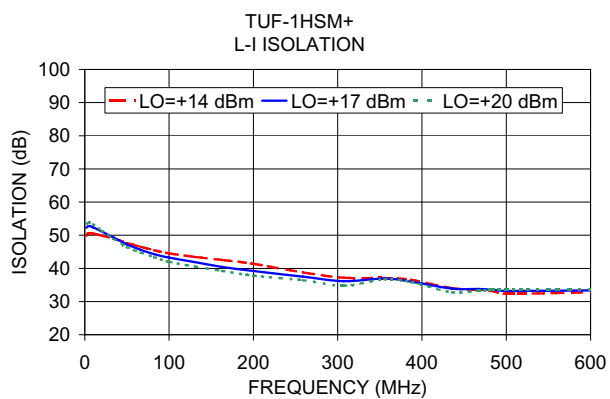
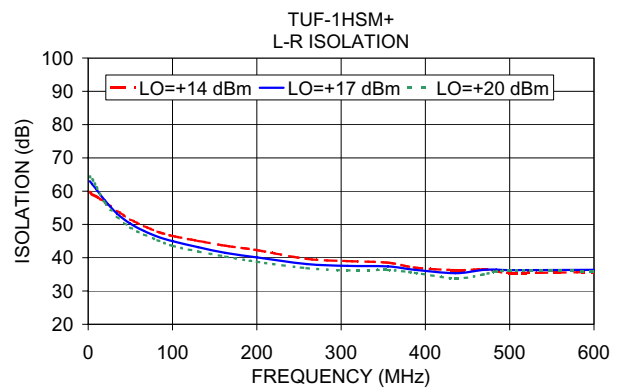
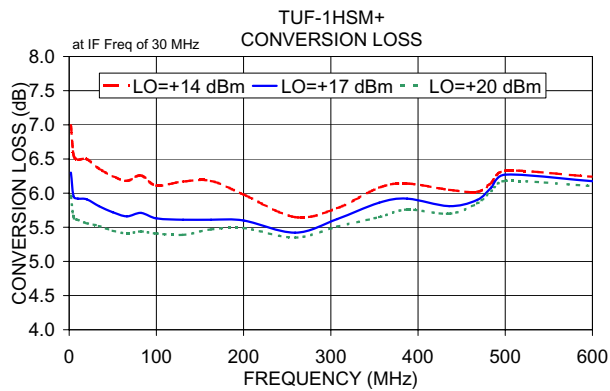
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Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
		LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
2.00	32.00	6.30	62.98	52.28	1.22
5.00	35.00	5.95	62.06	52.79	1.10
10.00	40.00	5.92	60.47	52.35	1.03
20.00	50.00	5.91	57.14	51.13	1.02
34.13	64.13	5.81	53.27	49.30	1.04
50.00	80.00	5.72	50.24	47.27	1.06
66.26	96.26	5.66	48.03	45.61	1.07
82.33	52.33	5.71	46.33	44.27	1.08
100.00	70.00	5.63	44.99	43.26	1.09
130.52	100.52	5.61	43.18	41.91	1.10
162.65	132.65	5.61	41.46	40.45	1.10
200.00	170.00	5.60	40.12	39.22	1.08
259.04	229.04	5.42	38.10	37.51	1.07
307.24	277.24	5.62	37.54	36.13	1.06
355.43	325.43	5.86	37.41	36.94	1.05
387.56	357.56	5.92	36.35	35.99	1.04
435.76	405.76	5.81	35.35	33.91	1.05
483.95	453.95	6.08	36.44	33.54	1.08
500.00	470.00	6.27	36.27	33.21	1.09
600.00	570.00	6.18	36.36	33.38	1.09

Electrical Schematic





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