

High Reliability Mixer

Level 13 (LO Power +13 dBm) 20 to 1500 MHz

Maximum Ratings

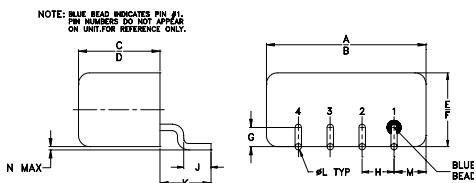
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

Permanent damage may occur if any of these limits are exceeded.

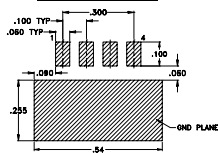
Pin Connections

LO	4
RF	1
IF	2
GROUND	3
CASE GROUND	3

Outline Drawing



PCB L and Pattern



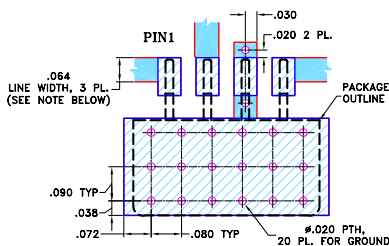
Suggested Layout,
Tolerance to be within $\pm .002$

Outline Dimensions ($\frac{\text{inch}}{\text{mm}}$)

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	0.013	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, 7.0 dB typ.
- high L-R isolation, 50 dB typ.
- rugged welded construction
- shielded metal case

Applications

- cellular
- satellite distribution
- GSM/ISM

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)						IP3 at center band (dBm)
LO/Rf	IF	Mid-Band			Total Range Max.	L		M		U		L		M		U		
		$\bar{X}$	σ	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	
20-1500	DC-650	7.0	0.1	8.5	9.0	60	45	50	35	46	28	40	27	32	20	22	9	17

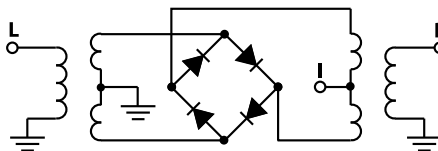
1 dB COMP.: +9 dBm typ.

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 $f_U/2$]

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
10.10	40.10	6.00	70.08	49.74	1.35	2.55
70.10	100.10	6.00	62.17	42.24	1.08	2.25
190.10	220.10	5.84	56.45	37.92	1.11	2.33
250.10	280.10	5.87	54.61	36.28	1.16	2.25
370.10	400.10	5.95	52.51	33.84	1.34	2.29
430.10	460.10	6.21	51.59	32.94	1.43	2.31
550.10	580.10	6.35	50.54	31.60	1.71	2.32
610.10	640.10	6.45	49.72	31.29	1.87	2.33
730.10	760.10	6.92	50.28	30.05	2.32	2.35
790.10	820.10	7.09	49.34	29.63	2.60	2.37
850.10	880.10	7.36	49.37	28.90	2.89	2.32
910.10	940.10	7.42	47.53	27.61	3.02	2.29
1090.10	1120.10	7.57	46.40	24.47	3.56	2.45
1150.10	1180.10	7.58	46.36	23.76	3.64	2.42
1210.10	1240.10	7.56	46.96	22.98	3.56	2.44
1270.10	1300.10	7.60	48.20	22.45	3.67	2.42
1330.10	1360.10	7.63	48.73	21.61	3.45	2.43
1390.10	1420.10	7.43	49.00	20.58	3.41	2.44
1450.10	1480.10	7.54	47.41	19.42	3.26	2.41
1510.10	1540.10	7.48	39.40	18.85	2.98	2.41

Electrical Schematic



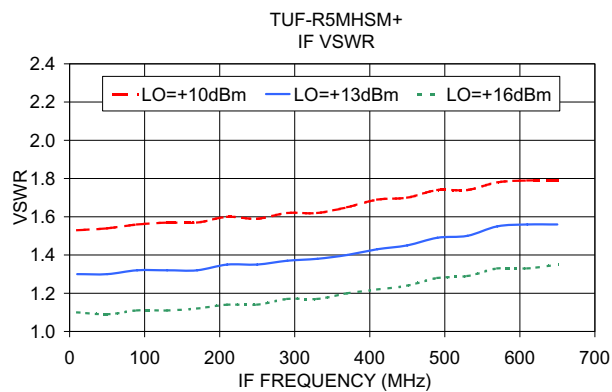
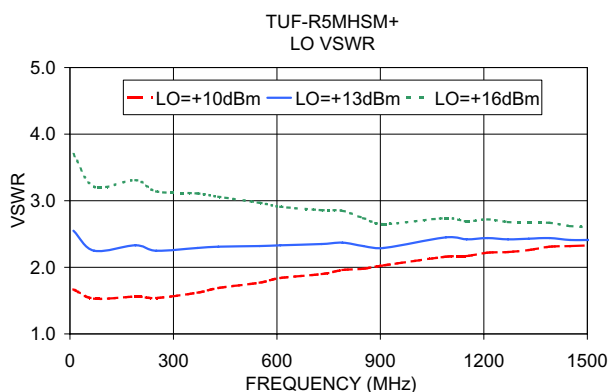
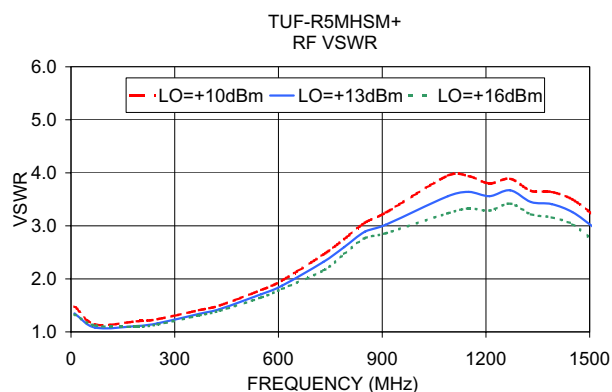
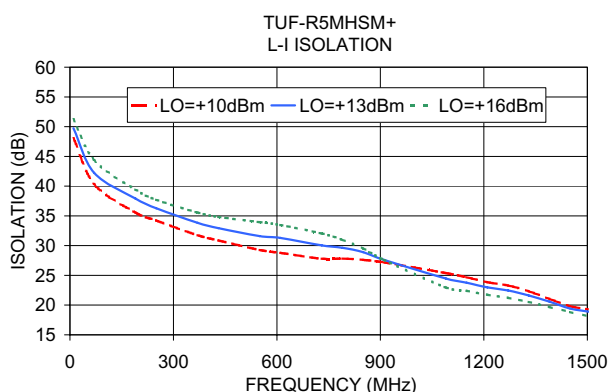
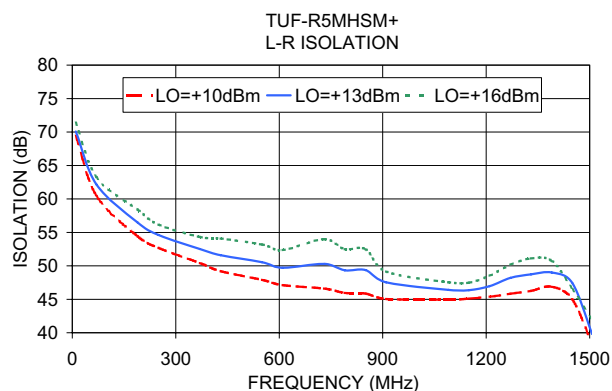
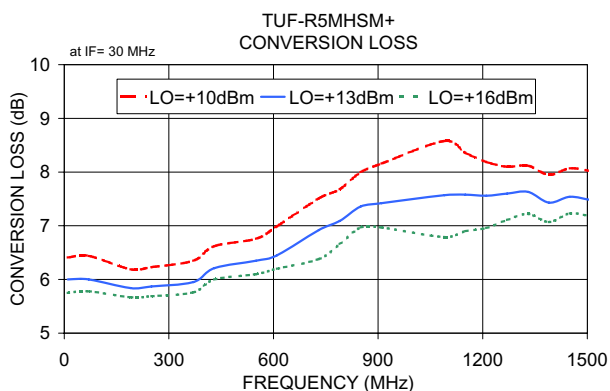
CASE STYLE: NNN150
PRICE: \$16.10 ea. QTY. (1-9)

+ 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.

Performance Charts

TUF-R5MHSM+



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IF/RF MICROWAVE COMPONENTS

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