

# Surface Mount High Reliability Mixer

## TUF-R1SM+

Level 7 (LO Power +7 dBm) 5 to 600 MHz



CASE STYLE: NNN150

### Maximum Ratings

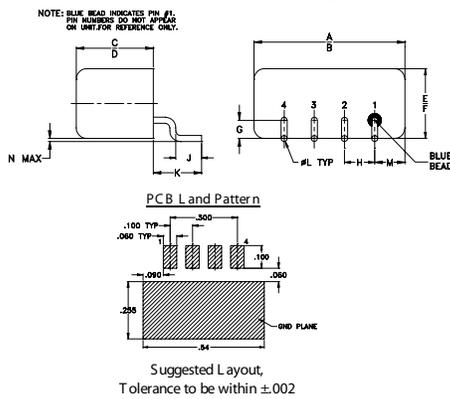
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

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

### Pin Connections

LO	4
RF	1
IF	2
GROUND	3
CASE GROUND	3

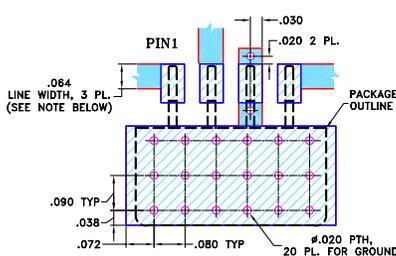
### Outline Drawing



### 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

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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### Features

- hermetically sealed ceramic quad
- low conversion loss, 5.9 dB typ.
- excellent isolation L-R, 50 dB typ; L-I, 48 dB typ.
- rugged welded construction
- shielded metal case

### Applications

- VHF/UHF
- FM radio
- defense & federal communications

### Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 at center band (dBm)						
		L	M	U	L	M	U							
5-600	DC-600	60	45	50	32	42	26	60	43	48	34	40	25	16

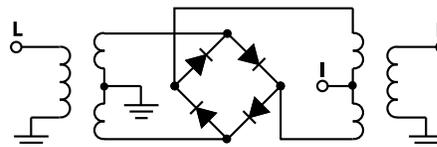
1 dB COMP.: +1 dBm typ.

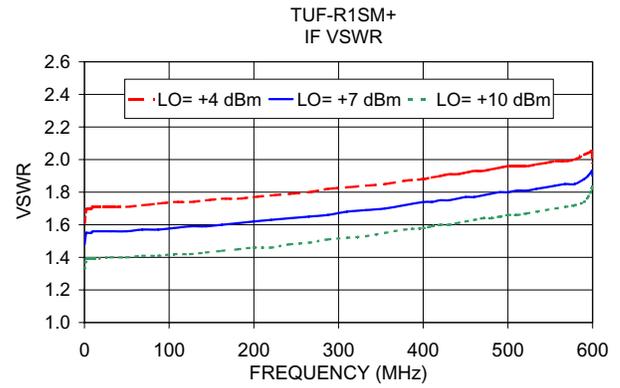
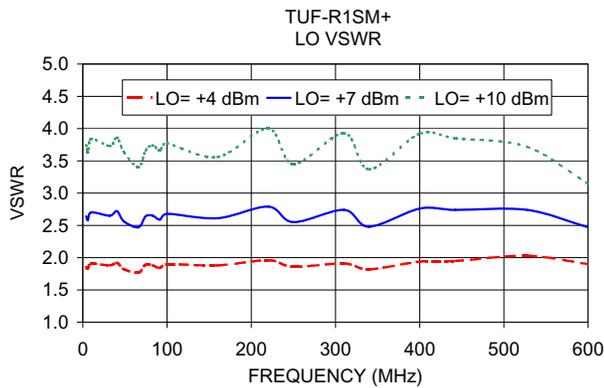
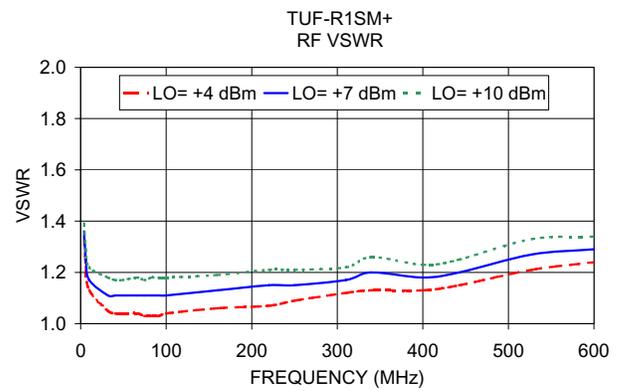
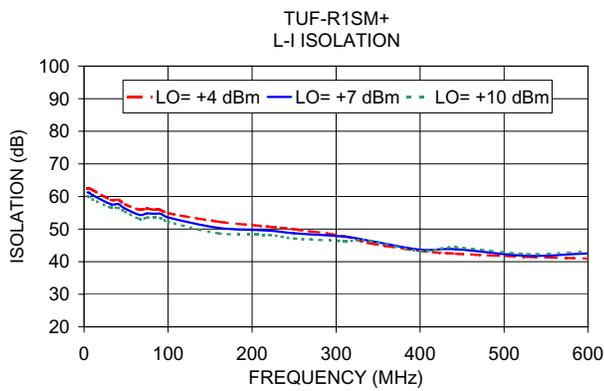
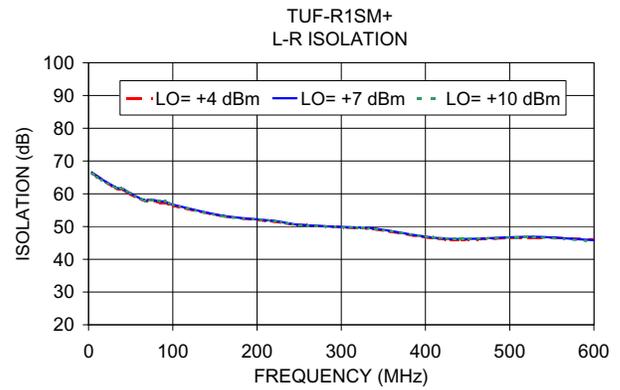
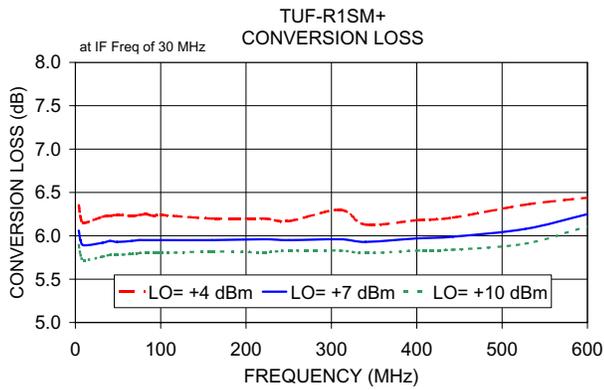
L = low range [ $f_L$  to  $10 f_L$ ] M = mid range [ $10 f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]  
m = mid band [ $2f_L$  to  $f_U/2$ ]

### Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
4.00	34.00	6.06	66.56	1.36	2.64
6.00	36.00	5.95	66.02	1.25	2.58
10.00	40.00	5.89	65.37	1.17	2.70
32.00	62.00	5.92	61.99	1.11	2.65
40.50	70.50	5.94	61.46	1.11	2.72
49.00	79.00	5.93	60.24	1.11	2.56
66.00	96.00	5.94	58.07	1.11	2.47
74.50	104.50	5.95	58.24	1.11	2.64
83.00	113.00	5.95	57.74	1.11	2.65
91.50	121.50	5.95	57.54	1.11	2.59
100.00	130.00	5.95	56.70	1.11	2.68
160.00	190.00	5.95	53.29	1.13	2.61
220.00	250.00	5.96	51.73	1.15	2.79
250.00	280.00	5.95	50.55	1.15	2.55
310.00	340.00	5.96	49.80	1.17	2.74
340.00	370.00	5.93	49.37	1.20	2.48
400.00	430.00	5.97	46.91	1.18	2.76
442.50	472.50	5.99	46.17	1.20	2.74
527.50	557.50	6.08	46.85	1.27	2.74
600.00	630.00	6.25	45.82	1.29	2.47

### Electrical Schematic





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