

Frequency Mixer

Level 13 (LO Power +13 dBm) 50 to 1000 MHz

TUF-2MHSM+



CASE STYLE: NNN150
PRICE: \$12.20 ea. QTY (10)

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, 6.0 dB typ.
- high L-R & L-I isolation, 47 dB typ.
- wideband, 50 to 1000 MHz
- rugged welded construction

Applications

- VHF/UHF
- 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)
LO/RF	IF	Mid-Band m			Total Range Max.	L		M		U		L		M		U		Typ.
		$\bar{X}$	σ	Max.		Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.			
50-1000	DC-1000	6.0	0.25	7.5	9.0	58	40	47	30	37	25	55	35	47	20	32	18	19

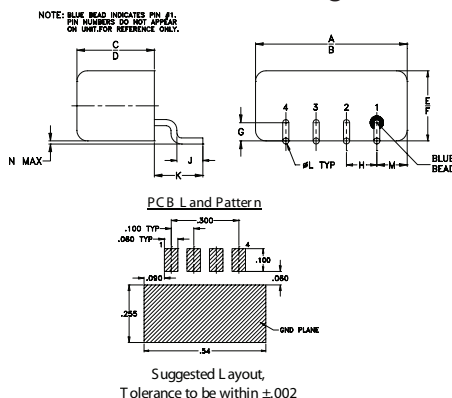
1 dB COMP.: +9 dBm typ.

L = 50-100 MHz M = 100-500 MHz 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
50.00	80.00	5.81	57.10	55.26	1.03	2.51
100.00	70.00	5.85	51.37	49.62	1.05	2.39
129.17	99.17	5.79	49.27	47.63	1.07	2.41
200.00	170.00	5.74	46.10	44.54	1.10	2.28
208.33	178.33	5.73	45.84	44.23	1.13	2.36
287.50	257.50	5.70	43.58	42.34	1.17	2.26
340.28	310.28	5.67	42.34	40.78	1.19	2.29
366.67	336.67	5.69	41.82	40.13	1.21	2.28
445.83	415.83	5.72	40.63	37.78	1.26	2.29
498.61	468.61	5.75	39.34	36.04	1.28	2.29
500.00	470.00	5.75	39.33	36.00	1.29	2.28
551.39	521.39	5.86	38.49	34.15	1.33	2.32
630.56	600.56	5.90	38.05	32.59	1.38	2.35
683.33	653.33	6.06	38.00	31.67	1.41	2.33
709.72	679.72	6.12	38.21	31.02	1.43	2.30
788.89	758.89	6.33	38.31	29.48	1.49	2.44
868.06	838.06	6.58	37.78	28.55	1.53	2.37
947.22	917.27	6.88	37.88	27.56	1.60	2.48
973.61	943.61	6.98	37.84	27.05	1.62	2.49
1000.00	970.00	7.05	37.64	26.57	1.64	2.45

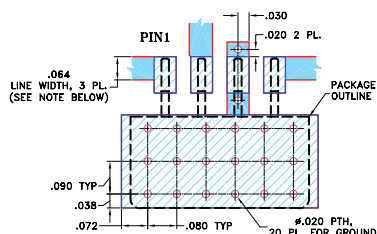
Outline Drawing



Outline Dimensions (inch)

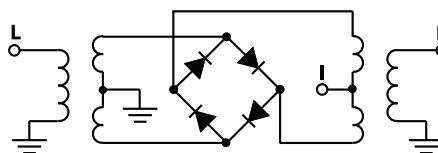
A	B	C	D	E	F	G
.50	.48	.255	.240	.23	.21	.06
12.70	12.19	6.48	6.10	5.84	5.33	1.52
H	J	K	L	M	N	wt
.100	.09	.16	.020	.09	.005	grams
2.54	2.29	4.06	0.51	2.29	0.13	1.9

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

Electrical Schematic



Mini-Circuits®
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs
& shopping online see web site

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IF/RF MICROWAVE COMPONENTS

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