

Plug-In

# Frequency Mixer

## TUF-5H+

Level 17 (LO Power +17 dBm) 20 to 1500 MHz



### 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

- wideband, 20 to 1500 MHz
- low conversion loss, 7.5 dB typ.
- high L-R isolation, 50 dB typ.
- rugged welded construction

### Applications

- satellite distribution
- cellular
- GSM/ISM

CASE STYLE: B02  
PRICE: \$17.70 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.

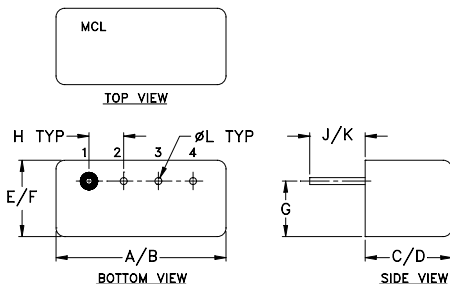
### Electrical Specifications

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-1000	7.50	0.17	8.5	9.0	62	55	50	40	38	25	40	25	29	18	20	8	20

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



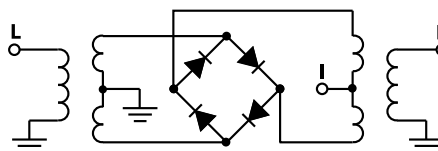
### Outline Dimensions (inch/mm)

A	B	C	D	E	F
.480	.500	.240	.255	.210	.230
12.19	12.70	6.10	6.48	5.33	5.84
G	H	J	K	L	wt
.16	.100	.14	.20	.020	grams
4.06	2.54	3.56	5.08	0.51	1.9

### 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	6.69	76.70	54.80	1.64
50.00	80.00	6.37	69.50	48.00	1.53
110.00	140.00	5.99	65.00	43.50	1.61
200.00	230.00	5.98	61.10	39.10	1.64
320.00	350.00	6.13	58.30	36.40	1.80
500.00	530.00	6.49	56.50	33.60	1.94
635.00	665.00	6.96	50.80	31.50	2.02
740.00	770.00	7.59	47.20	30.20	2.32
845.00	875.00	8.29	46.10	29.80	2.73
950.00	980.00	8.38	44.20	28.60	3.05
1000.00	1030.00	8.21	41.40	27.80	3.16
1055.00	1085.00	7.97	38.90	27.10	3.29
1100.00	1130.00	7.98	36.60	25.20	3.59
1200.00	1230.00	7.63	37.20	24.10	3.70
1250.00	1280.00	7.55	36.30	22.90	3.65
1300.00	1330.00	7.47	35.00	21.70	3.58
1350.00	1380.00	7.23	34.50	21.10	3.45
1400.00	1730.00	7.30	34.00	19.90	3.21
1470.00	1500.00	7.17	33.80	19.30	3.06
1500.00	1470.00	7.21	33.30	17.00	2.92

### Electrical Schematic



**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp).

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