

Frequency Mixer WIDE BAND

SIM-193H+

Level 17 (LO Power +17 dBm) 7.3 to 19 GHz



CASE STYLE: HV1195
PRICE: \$14.95 ea. QTY (10)

+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost
Reel Size Devices/Reel
7" 10, 20, 50, 100, 200, 500

Maximum Ratings

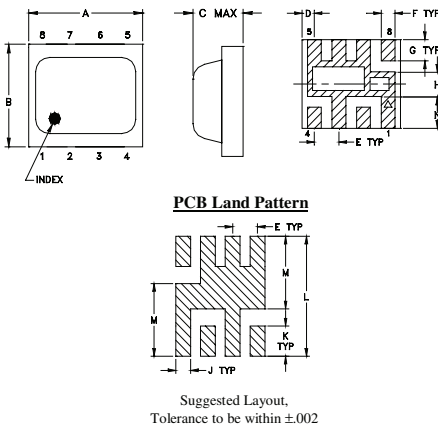
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	120mW

For extended temperature range, consult factory.
Permanent damage may occur if any of these limits are exceeded.

Pin Connections

LO	8
RF	4
IF	2
GROUND	1,3,5,6,7

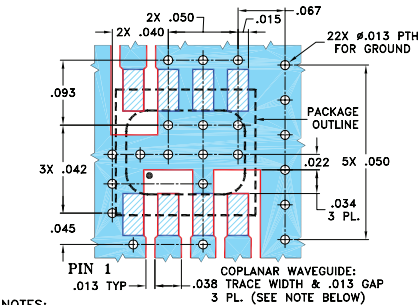
Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.200	.180	.087	.025	.050	.028	.043
5.08	4.57	2.21	0.64	1.27	0.71	1.09
H	J	K	L	M	N	wt
.050	.030	.060	0.238	0.144	0.065	grams
1.27	0.76	1.52	6.05	3.66	1.65	0.08

Demo Board MCL P/N: TB-458+ Suggested PCB Layout (PL-284)



NOTES:

- COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- 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

- wide bandwidth, 7.3 to 19 GHz
- low conversion loss, 6.2 dB typ.
- high L-R isolation, 33 dB typ.
- excellent IF BW, DC to 7.5 GHz
- LTCC double balanced mixer
- tiny size, low profile, 0.08"
- useable as up and down converter
- aqueous washable
- protected under U.S Patent 7,027,795

Applications

- fixed satellite
- mobile
- radio location

Electrical Specifications at 25°C

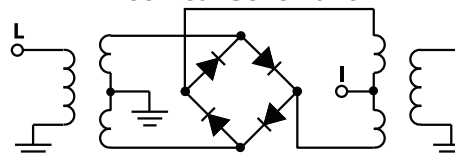
Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range, LO/RF		7.3	—	19	GHz
Frequency Range, IF		DC	—	7.5	GHz
Conversion Loss ¹	7.3-10	—	8.6	10.5	dB
	10-15	—	7.6	10.0	
	15-18	—	9.7	11.8	
	18-19	—	10.0	13.0	
LO to RF Isolation	7.3-10	24	32	—	dB
	10-15	20	28	—	
	15-18	16	21	—	
	18-19	20	26	—	
LO to IF Isolation	7.3-10	13	18	—	dB
	10-15	13	18	—	
	15-18	8	11	—	
	18-19	12	17	—	
IP3	7.3-10	—	17	—	dBm
	10-15	—	19	—	
	15-18	—	16	—	
	18-19	—	25	—	
RF Input Power at 1 dB Compression	7.3-19	—	+14	—	dBm

1. Conversion loss at 30 MHz IF.

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	LO +17dBm	LO	LO +17dBm	LO	LO +17dBm	LO	LO +17dBm	LO	LO +17dBm
7300.10	7330.00	7.07	42.48	17.69	4.20	10.62				
8500.10	8530.00	8.48	37.26	22.30	4.64	3.67				
9000.10	9030.00	8.13	41.03	21.66	4.38	3.72				
9500.10	9530.00	7.44	43.94	20.41	4.15	3.39				
10000.10	10030.00	6.54	44.16	20.71	3.79	3.26				
11000.10	11030.00	6.32	40.24	19.18	2.23	2.34				
11500.10	11530.00	5.89	38.41	18.90	2.17	3.62				
12000.10	12030.00	5.81	37.27	18.55	2.39	2.98				
12500.10	12530.00	5.74	34.00	20.03	2.23	2.03				
13000.10	13030.00	6.00	32.41	20.42	1.39	2.90				
14000.10	14030.00	6.89	33.02	20.39	2.29	3.72				
14500.10	14530.00	7.16	32.23	22.45	3.00	2.84				
15000.10	15030.00	7.02	30.11	24.95	3.34	2.77				
15500.10	15530.00	7.39	25.82	22.24	2.22	3.08				
16000.10	16030.00	8.48	21.35	16.00	2.67	3.72				
16500.10	16530.00	8.95	21.99	14.20	3.74	2.73				
17000.10	17030.00	8.62	26.46	14.84	3.61	2.14				
17500.10	17530.00	8.32	29.85	19.38	4.43	2.36				
18000.10	18030.00	8.47	31.75	24.25	4.67	1.44				
19000.10	19030.00	9.02	25.80	24.87	2.89	1.62				

Electrical Schematic



Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED
The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com
IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shipping online see web site

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