

Non-Catalog Model

Frequency Mixer

TUF-860LH

Level 10 (LO Power +10 dBm)

Important Note

This is a non-catalog model and can be manufactured on specific request.
Pricing and delivery information can be supplied upon request.



Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : B02

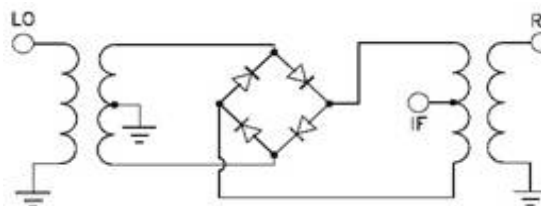
ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	800		1050	MHz
	RF (fL to fU)	800		1050	MHz
	IF	0		250	MHz
Conversion Loss			6.3	7.9	dB
LO-RF Isolation		25	35		dB
LO-IF Isolation		18	27		dB
1 dB Comp. Input Power			+5		dBm

Note: Non-hermetic

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

PIN CONNECTIONS	
LO	4
RF	1
IF	2
GROUND	3

Electrical Schematics



Frequency Mixer

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Typical Performance Data

RF (MHz)	LO (MHz)	CONVERSION LOSS (dB)			LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
		@LO (dBm)				@LO (dBm)			@LO (dBm)		
		+7	+10	+13		+7	+10	+13	+7	+10	+13
800.0	770.0	5.36	5.19	5.03	800.0	40.9	42.2	41.8	30.2	32.6	34.9
819.7	789.7	5.43	5.24	5.07	819.7	40.1	41.4	40.7	29.2	31.7	34.0
839.5	809.5	5.56	5.32	5.09	839.5	38.6	39.9	39.4	28.3	31.0	33.2
846.1	816.1	5.59	5.32	5.08	846.1	38.0	39.4	38.9	27.9	30.7	33.0
859.2	829.2	5.59	5.29	5.01	859.2	36.8	38.3	38.1	27.5	30.2	32.4
879.0	848.9	5.70	5.21	4.94	879.0	35.3	36.8	36.9	26.7	29.6	31.9
892.1	862.1	5.65	5.13	4.88	892.1	34.4	35.9	36.2	26.3	29.1	31.4
898.7	868.7	5.67	5.14	4.88	898.7	34.0	35.4	35.7	26.1	28.8	31.3
918.4	888.4	5.74	5.24	4.98	918.4	33.0	34.3	34.5	25.6	28.0	30.6
938.2	908.2	5.82	5.35	5.09	938.2	32.2	33.6	33.8	25.0	27.4	29.9
944.7	914.7	5.85	5.39	5.14	944.7	32.0	33.3	33.5	24.9	27.1	29.6
957.9	927.9	6.03	5.50	5.28	957.9	31.5	32.8	33.1	24.7	26.5	29.0
977.6	947.6	6.11	5.57	5.33	977.6	30.6	32.0	32.4	24.1	25.9	28.2
990.8	960.8	6.26	5.59	5.34	990.8	30.2	31.6	31.9	23.8	25.5	27.7
997.4	967.4	6.31	5.71	5.34	997.4	29.9	31.4	31.7	23.7	25.3	27.4
1000.0	970.0	6.37	5.71	5.34	1000.0	29.8	31.3	31.6	23.6	25.1	27.3
1017.1	987.1	6.72	5.87	5.42	1017.1	29.4	30.7	31.0	23.4	24.5	26.6
1036.8	1006.8	7.11	6.03	5.47	1036.8	29.0	30.4	30.8	23.0	23.8	25.7
1043.4	1013.4	7.18	6.07	5.49	1043.4	28.9	30.2	30.6	22.9	23.7	25.4
1050.0	1020.0	7.23	6.09	5.49	1050.0	28.9	30.2	30.6	22.8	23.5	25.2

REV. X1
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060615
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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant

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Typical Performance Data

RF/LO (MHz)	RF VSWR (:1)			LO VSWR (:1)			IF (MHz)	IF VSWR (:1)			LO/RF (MHz)	max. DC output (mV)	DC Offset (mV)
	@LO (dBm)			@LO (dBm)				@LO (dBm)			@LO (dBm)		
	+7	+10	+13	+7	+10	+13		+7	+10	+13	+10		
800.0	1.14	1.04	1.03	1.81	2.33	3.16	1.0	1.99	1.67	1.51	800.0	-320.1	1.05
818.8	1.16	1.06	1.03	1.83	2.33	3.15	2.0	1.99	1.67	1.51	819.7	-307.3	1.57
838.8	1.19	1.09	1.06	1.91	2.39	3.18	5.0	1.99	1.68	1.51	839.5	-295.5	2.02
845.0	1.20	1.11	1.08	1.90	2.37	3.15	10.0	2.00	1.68	1.51	846.1	-289.4	2.16
857.5	1.23	1.14	1.10	1.92	2.39	3.17	20.0	2.02	1.69	1.52	859.2	-282.7	2.50
877.5	1.28	1.19	1.15	1.97	2.46	3.24	40.0	2.03	1.70	1.53	878.9	-279.4	2.76
890.0	1.32	1.24	1.19	2.00	2.47	3.24	50.0	2.04	1.71	1.53	892.1	-279.3	2.73
896.3	1.34	1.25	1.21	2.02	2.50	3.27	67.0	2.05	1.72	1.55	898.7	-279.2	2.64
915.0	1.39	1.30	1.27	2.03	2.51	3.29	86.0	2.06	1.74	1.57	918.4	-289.2	2.55
935.0	1.46	1.39	1.33	2.06	2.52	3.27	100.0	2.08	1.75	1.58	938.2	-295.7	2.66
941.3	1.49	1.40	1.35	2.06	2.52	3.28	112.0	2.10	1.76	1.60	944.7	-294.7	2.68
953.8	1.52	1.44	1.40	2.07	2.55	3.34	125.0	2.12	1.78	1.61	957.9	-285.8	2.79
972.5	1.60	1.51	1.48	2.10	2.57	3.34	139.0	2.13	1.80	1.63	977.6	-274.8	2.93
986.3	1.66	1.58	1.53	2.11	2.57	3.33	158.0	2.15	1.82	1.66	990.8	-269.9	3.07
992.5	1.68	1.60	1.56	2.13	2.59	3.35	175.0	2.17	1.84	1.69	997.4	-269.7	3.37
1000.0	1.72	1.64	1.59	2.13	2.57	3.33	198.0	2.20	1.88	1.72	1000.0	-269.0	3.39
1017.5	1.82	1.72	1.68	2.13	2.54	3.26	217.0	2.24	1.91	1.75	1017.1	-270.0	3.87
1037.5	1.90	1.81	1.77	2.16	2.57	3.32	237.0	2.28	1.95	1.79	1036.8	-271.2	4.38
1043.8	1.94	1.84	1.80	2.16	2.57	3.32	243.0	2.29	1.96	1.80	1043.4	-274.0	4.44
1050.0	1.96	1.86	1.83	2.17	2.59	3.35	250.0	2.31	1.97	1.81	1050.0	-276.5	4.35

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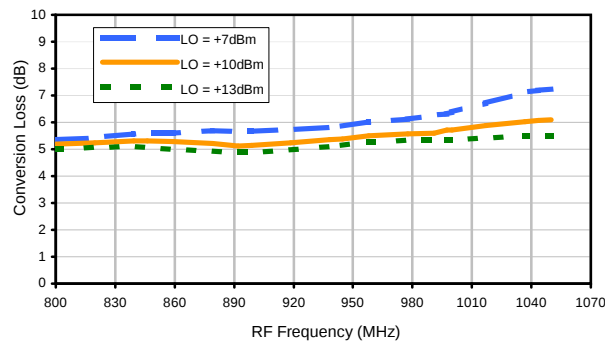


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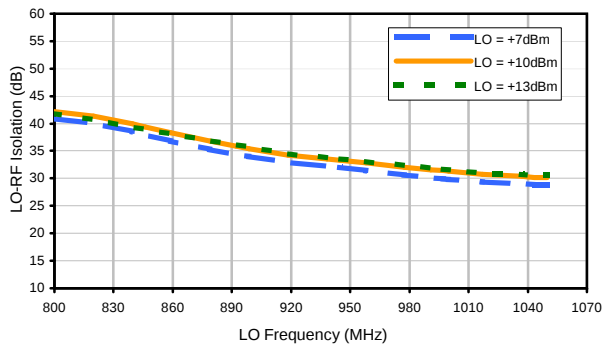


Typical Performance Curves

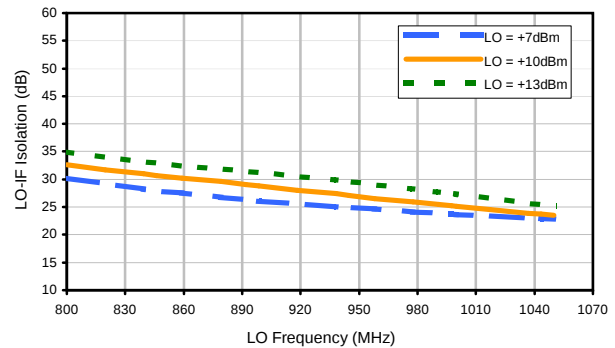
Conversion Loss



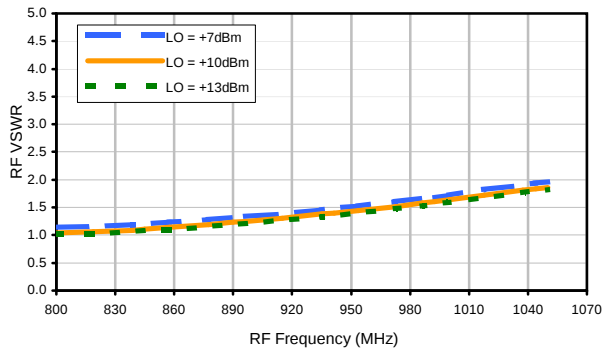
LO-RF Isolation



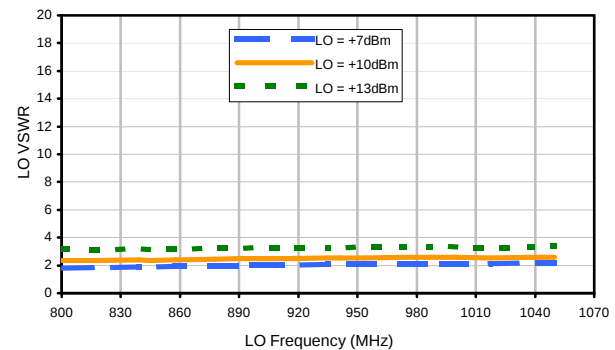
LO-IF Isolation



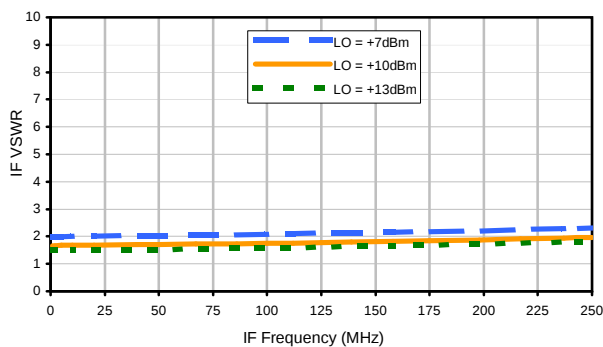
RF VSWR



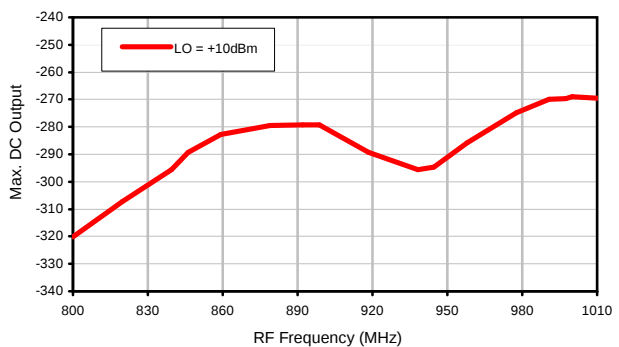
LO VSWR



IF VSWR



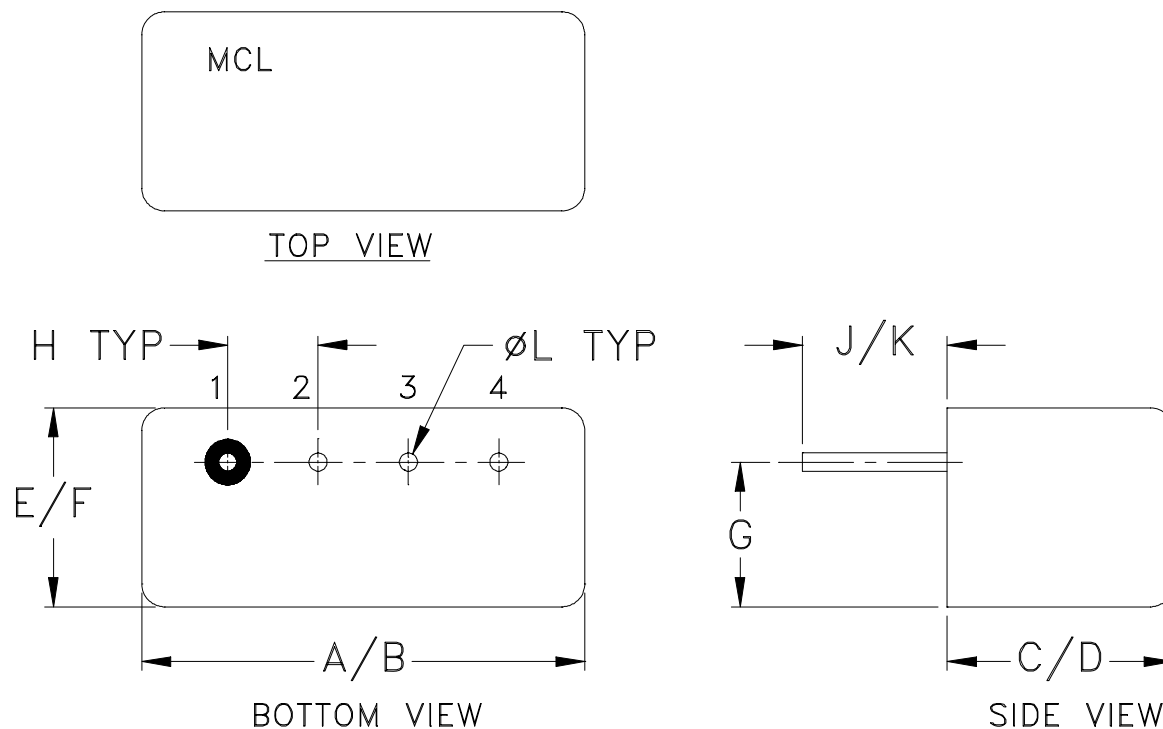
Max. DC Output



B02

B13

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	WT, GRAM
B02	.480 (12.19)	.500 (12.70)	.240 (6.10)	.255 (6.48)	.210 (5.33)	.230 (5.84)	.16 (4.06)	.100 (2.54)	.14 (3.56)	.20 (5.08)	.020 (.51)	1.9
B13			.390 (9.91)	.405 (10.29)								2.3

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Header material: C.R.S.
Pin material: #52 alloy.
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver.
- Tolerance on pin diameter $\pm .005$ inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.



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Mini-Circuits ISO 9001 & ISO 14001 Certified



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A



Environmental Specifications

ENV30

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D