

Frequency Mixer

TFM-ED6598/1

Level 17 (LO Power +17 dBm)

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



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

CASE STYLE : B13

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (f _L to f _U)	20		2190	MHz
	RF (f _L to f _U)	20		2190	MHz
	IF	90		1515	MHz
Conversion Loss	mid band		6.8		dB
	Total Range		7.4		dB
LO-RF Isolation	Low Range		47		dB
	Mid Range		42		dB
	Upper Range		35		dB
LO-IF Isolation	Low Range		35		dB
	Mid Range		33		dB
	Upper Range		29		dB

Note: Low Range = [f_L to 10f_L] Mid Range = [10f_L to f_U/2] Upper Range = [f_U/2 to f_U]
mid band = [2f_L to f_U/2]

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

PIN CONNECTIONS	
LO	4
RF	1
IF	2
GROUND	3

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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)		
		+14	+17	+20		+14	+17	+20	+14	+17	+20
20.0	50.0	7.86	7.56	7.36	50.0	39.1	43.8	47.8	30.3	32.6	35.0
50.0	80.0	7.37	7.07	6.87	80.0	41.6	46.5	50.1	31.8	34.7	37.3
169.4	199.4	7.27	6.97	6.87	199.4	45.1	49.5	52.6	33.6	37.2	39.9
337.7	367.7	7.36	7.06	6.86	367.7	45.7	47.1	48.1	34.5	37.1	37.5
506.1	536.1	7.30	7.00	6.80	536.1	41.7	43.3	43.9	35.9	36.4	36.2
674.5	704.5	7.29	6.99	6.89	704.5	40.1	41.1	41.2	34.3	34.0	33.6
842.8	872.8	6.58	6.18	6.08	872.8	38.8	39.8	39.6	33.5	32.6	31.9
1000.0	1030.0	6.75	6.45	6.35	1030.0	38.7	39.4	39.1	32.0	30.4	29.4
1011.2	1041.2	6.83	6.53	6.43	1041.2	38.6	39.4	39.0	32.1	30.2	29.1
1179.6	1209.6	7.49	7.09	6.79	1209.6	36.1	37.2	37.3	31.6	29.2	27.9
1347.9	1377.9	7.83	7.33	7.13	1377.9	36.1	37.5	38.0	31.2	28.8	27.5
1500.0	1530.0	7.86	7.56	7.26	1530.0	34.5	36.3	37.6	30.8	28.7	27.3
1516.3	1546.3	8.11	7.61	7.31	1546.3	33.7	36.0	37.2	30.8	28.5	27.0
1600.0	1630.0	8.04	7.74	7.54	1630.0	34.2	36.2	37.2	31.1	28.7	27.1
1670.0	1700.0	8.41	8.01	7.71	1700.0	33.2	35.0	36.3	31.4	29.1	27.5
1684.7	1714.7	8.49	7.89	7.59	1714.7	33.0	34.7	35.9	31.6	28.9	27.3
1800.0	1830.0	8.95	8.35	8.05	1830.0	32.3	33.9	34.9	32.4	29.4	27.5
1853.1	1883.1	8.96	8.36	8.06	1883.1	32.2	33.5	34.5	32.8	29.9	28.2
2021.4	2051.4	8.66	8.06	7.76	2051.4	31.0	32.1	32.7	34.0	31.4	30.0
2189.8	2219.8	8.41	7.91	7.61	2219.8	30.4	31.0	31.1	38.3	35.5	33.6

Frequency Mixer

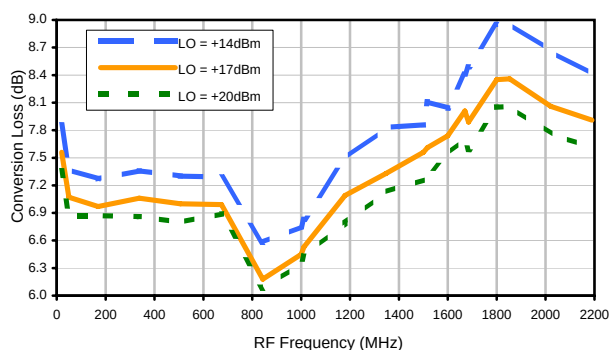
TFM-ED6598/1

Typical Performance Data

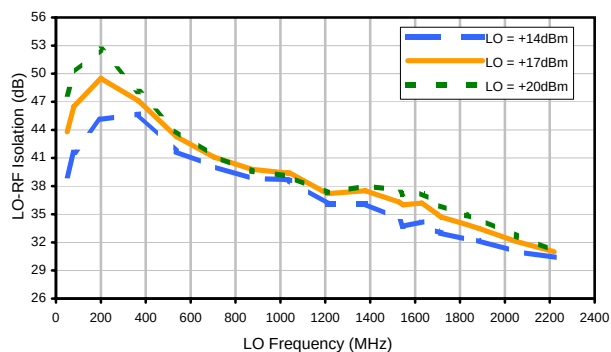
RF/LO (MHz)	RF VSWR (:1)			LO VSWR (:1)			IF (MHz)	IF VSWR (:1)		
	@LO (dBm)			@LO (dBm)				@LO (dBm)		
	+14	+17	+20	+14	+17	+20		+14	+17	+20
50.0	1.50	1.54	1.58	1.84	2.61	3.64	89.9	1.21	1.35	1.44
80.0	1.19	1.25	1.30	1.75	2.55	3.57	178.8	1.17	1.30	1.39
199.4	1.02	1.10	1.17	1.67	2.43	3.26	267.7	1.17	1.30	1.38
367.7	1.17	1.18	1.22	1.59	2.20	3.01	300.0	1.17	1.30	1.38
536.1	1.30	1.30	1.31	1.43	1.99	2.68	356.6	1.17	1.30	1.38
704.5	1.41	1.39	1.38	1.31	1.82	2.40	445.5	1.17	1.29	1.37
872.8	1.59	1.55	1.53	1.27	1.59	2.14	500.0	1.16	1.28	1.36
1030.0	1.68	1.62	1.59	1.23	1.35	1.81	534.4	1.15	1.27	1.35
1041.2	1.70	1.64	1.60	1.25	1.37	1.85	623.3	1.11	1.22	1.29
1209.6	2.08	1.97	1.91	1.28	1.23	1.67	712.2	1.08	1.17	1.23
1377.9	2.58	2.43	2.32	1.37	1.38	1.71	801.1	1.07	1.13	1.19
1530.0	2.76	2.61	2.49	1.51	1.61	1.89	889.9	1.10	1.14	1.19
1546.3	2.76	2.61	2.49	1.52	1.62	1.94	978.8	1.13	1.16	1.21
1630.0	2.80	2.65	2.55	1.59	1.78	2.16	1000.0	1.13	1.16	1.21
1700.0	2.80	2.65	2.55	1.66	1.92	2.35	1067.7	1.13	1.15	1.19
1714.7	2.76	2.61	2.55	1.64	1.94	2.37	1156.6	1.15	1.15	1.18
1830.0	2.88	2.72	2.58	1.81	2.20	2.80	1245.5	1.17	1.15	1.16
1883.1	2.84	2.68	2.58	1.87	2.30	2.88	1334.4	1.18	1.14	1.13
2051.4	2.65	2.46	2.35	2.18	2.68	3.44	1423.3	1.24	1.16	1.13
2219.8	2.49	2.32	2.18	2.46	3.16	3.86	1512.2	1.30	1.22	1.17

Typical Performance Curves

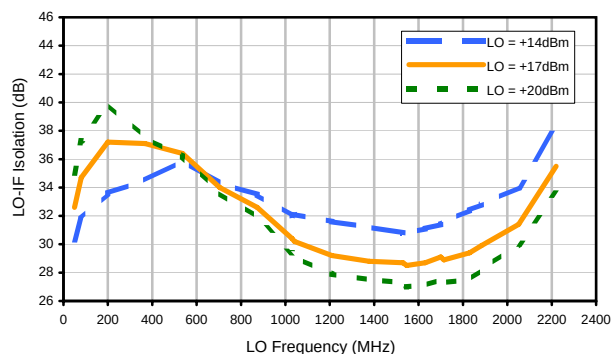
Conversion Loss



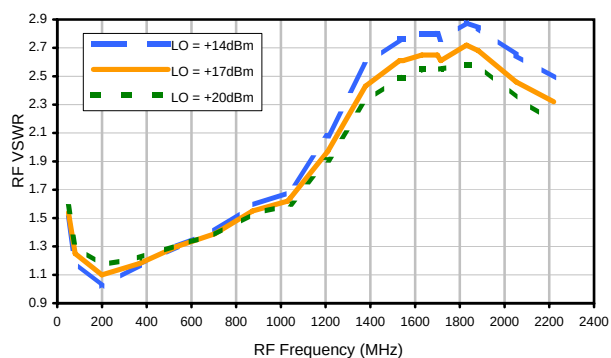
LO-RF Isolation



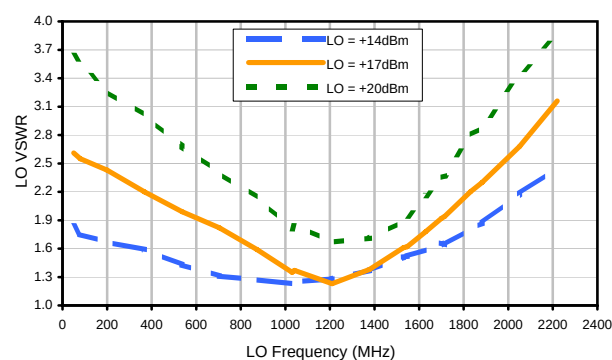
LO-IF Isolation



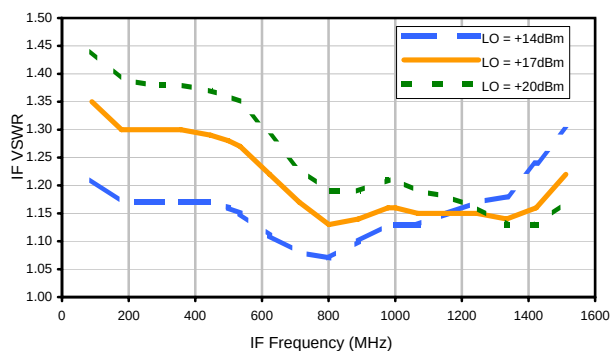
RF VSWR



LO VSWR



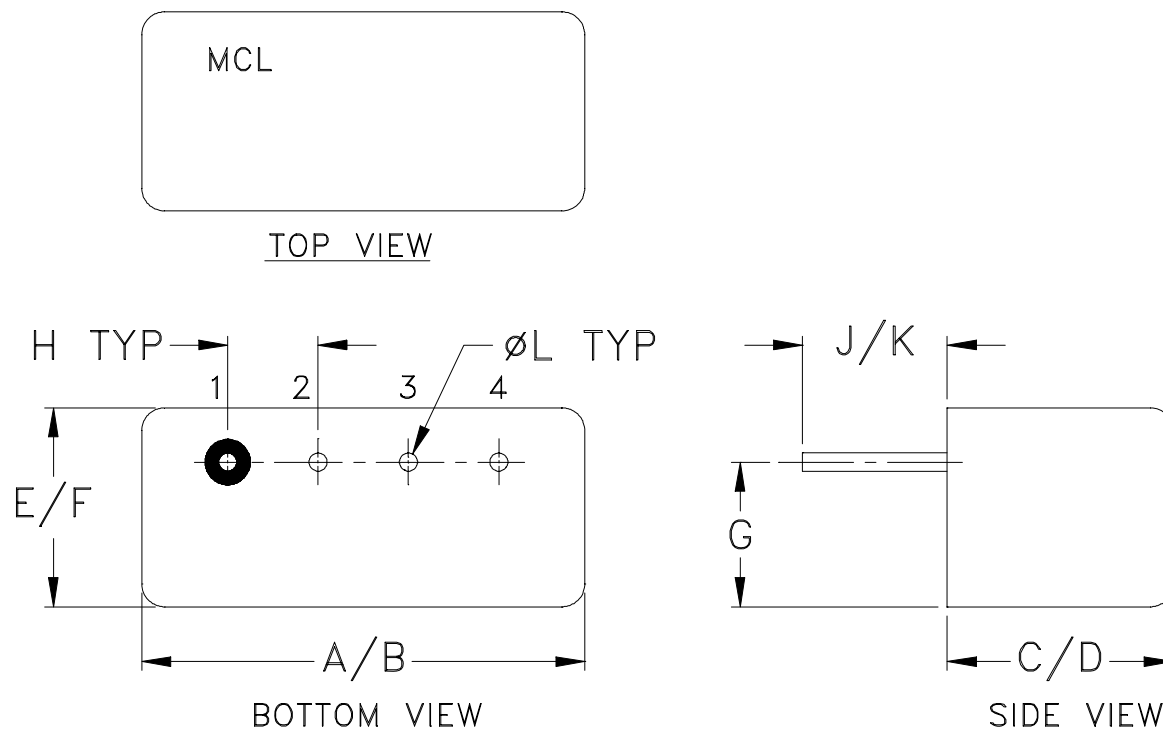
IF VSWR



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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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



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Specification	Test/Inspection Condition	Reference/Spec
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D