COAXIAL

I/Q Mixer

ZMIQ-653H-E+

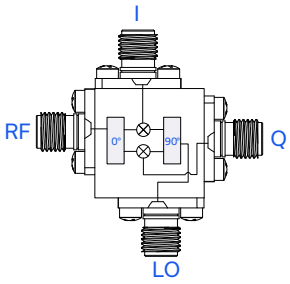
50Ω LO Power +18 dBm 18 to 65 GHz 1.85mm Female/2.92mm Female

THE BIG DEAL

- Super Wideband RF & LO, 18 to 65 GHz
- Excellent IF bandwidth, DC to 20 GHz
- High L-R Isolation, 42 dB typ.
- Excellent Input IP3, +25 dBm typ.
- Usable as Up & Down Converter

Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



APPLICATIONS

- 5G mmW and Back Haul Radio
- Test and Measurement
- Satellite Communications
- Radar, EW and ESM Defense Systems

PRODUCT OVERVIEW

Mini-Circuits' ZMIQ-653H-E+ coaxial frequency mixer provides an RF and LO frequency range from 18 to 65 GHz and an IF frequency range from DC to 20 GHz. This device is usable as I and Q modulator/demodulator, image reject mixer and single-sideband mixer. The mixer comes housed in a rugged, 1.85 mm / 2.92 mm connectorized housing suitable for assembled systems and lab use.

The ZMIQ-653H-E+ contains Mini-Circuits' SMIQ-653H-DG+ and is suitable for performance evaluation of the I/Q mixer die.

KEY FEATURES

Feature	Advantages
Wide bandwidth, 18 to 65 GHz	Useful in wideband systems and narrowband systems; covers wide variety of standard bands including K, Ka and V band.
Wide I/Q bandwidth, DC to 20 GHz	Usable in first and second down converter applications. Can be used as IQ modulator/demodulator or with external 90 deg hybrids for single sideband up conversion or image reject down conversion.*
High Isolation, L-R, 42 dB typ.	Preserves signal integrity from input to output and reduces undesired signal responses that can interfere with system performance.
High IP3, +25 dBm typ.	Minimizes third order intermodulation distortion and enables high-dynamic range.
1.85mm-F connectorized housing for RF & LO ports and 2.92mm-F for I & Q ports	Ideal for assembled systems and lab use. High-frequency connector mates with 1.85mm and 2.4mm.

* See application configuration on page #7.

ELECTRICAL SPECIFICATIONS[1] AT +25°C AND LO POWER AT +18dBm[2]

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range, RF		18	—	65	GHz
Frequency Range, LO		18	—	65	GHz
Frequency Range, I/Q		DC	—	20	GHz
Conversion Loss[3]	18 - 65	—	14	19	dB
LO to RF Isolation	18 - 65	—	42	—	dB
LO to I/Q Isolation	18 - 65	—	33	—	dB
RF Input at 1 dB Compression	18 - 65	—	+10	—	dBm
Single Sideband Rejection[4]	18 - 65	—	24	—	dBc
Amplitude Unbalance	18 - 65	—	0.6	—	dB
Phase Unbalance (relative to 90°)	18 - 65	—	5	—	deg
Input IP3	18 - 65	—	+25	—	dBm

1. Performance measured as a Down Converter unless otherwise specified.
2. LO power range: +17 to +19 dBm. See data plots for performance variation over LO power.
3. Conversion Loss at 200 MHz IF, measured at I and Q ports. Increases with IF frequency.
   Conversion Loss= RF Power (dBm)-Power at I/Q-Port (dBm)
4. Up Converter, I/Q=200 MHz, measured use external I/Q quadrature hybrid (ADQ-32+).

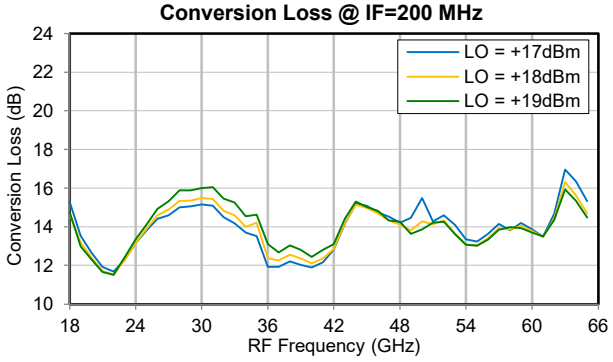
ABSOLUTE MAXIMUM RATINGS[5]

Parameter	Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C
RF/LO Power	24 dBm
DC Current	32 mA

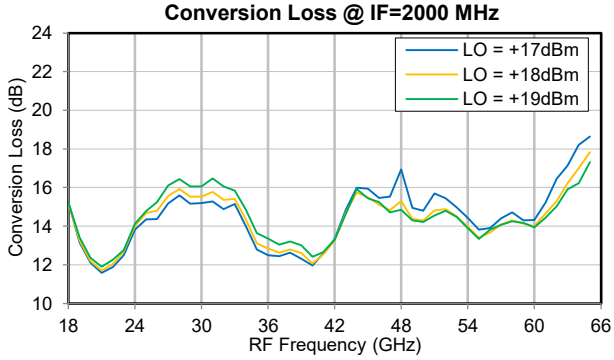
5. Permanent damage may occur if any of these limits are exceeded.

TYPICAL PERFORMANCE CHARTS

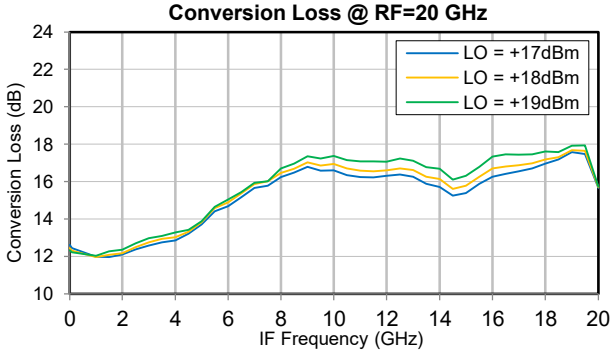
Conversion Loss @ IF=200 MHz



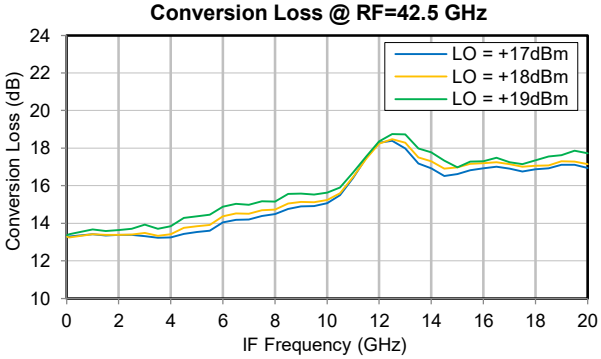
Conversion Loss @ IF=2000 MHz



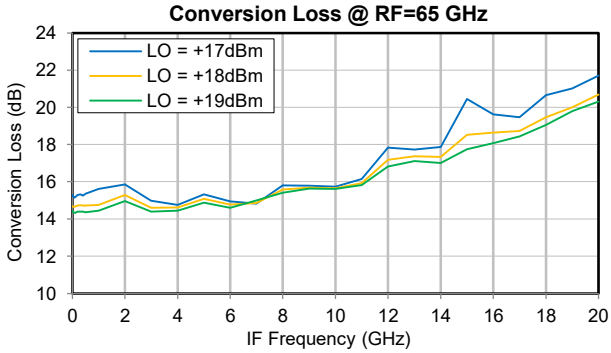
Conversion Loss @ RF=20 GHz



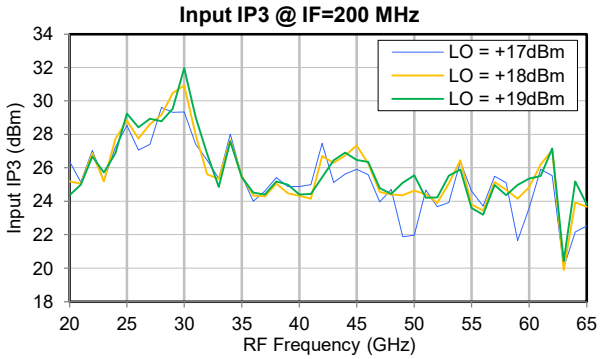
Conversion Loss @ RF=42.5 GHz



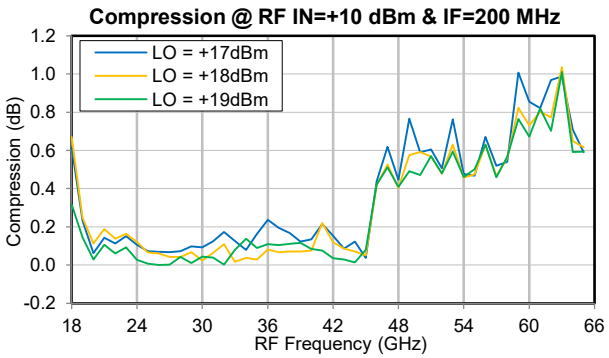
Conversion Loss @ RF=65 GHz



Input IP3 @ IF=200 MHz



Compression @ RF IN=+10 dBm & IF=200 MHz



I/Q Mixer

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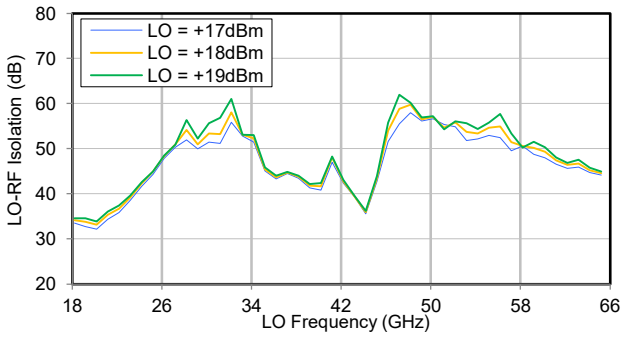
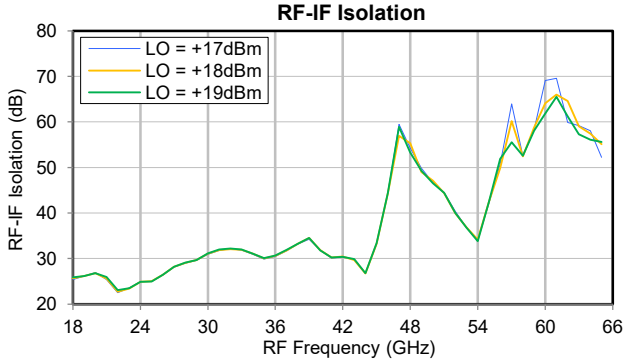
50Ω LO Power +18 dBm 18 to 65 GHz 1.85mm Female/2.92mm Female

TYPICAL PERFORMANCE CHARTS

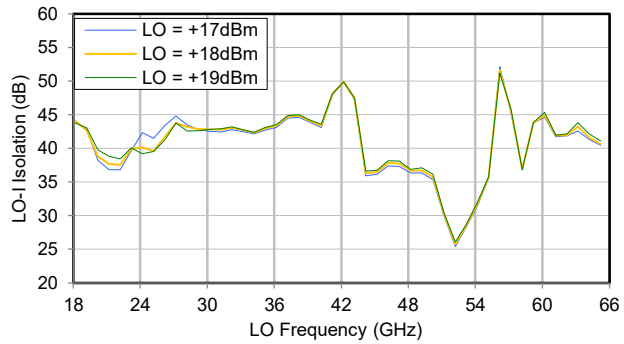
LO-RF Isolation



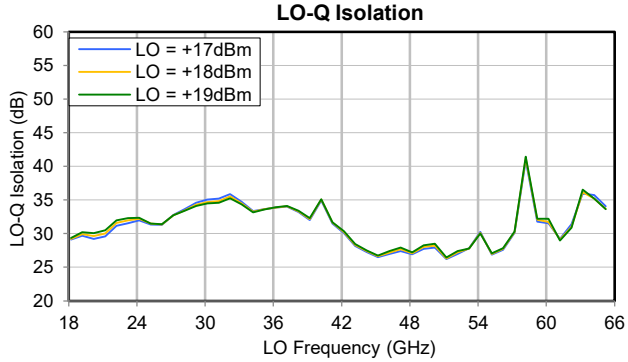
RF-IF Isolation



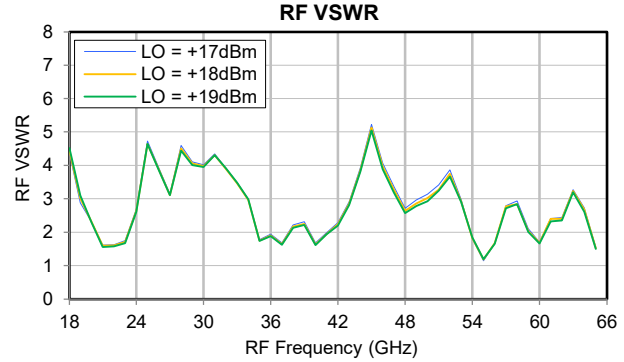
LO-I Isolation



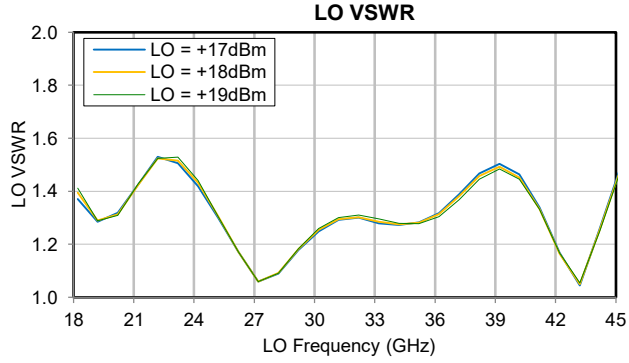
LO-Q Isolation



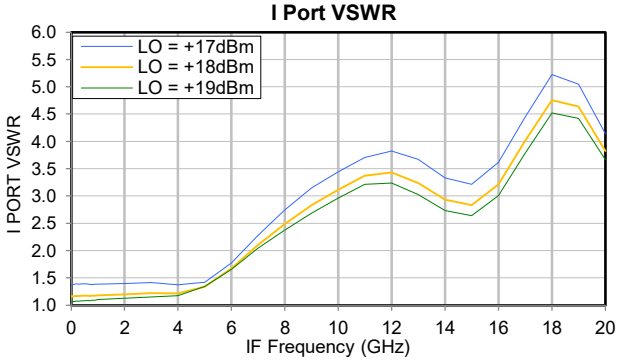
RF VSWR



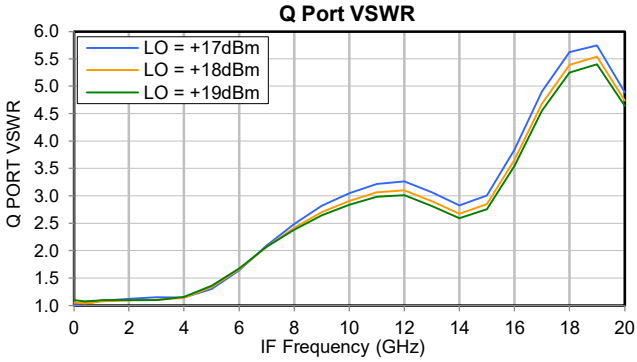
LO VSWR



I Port VSWR



Q Port VSWR



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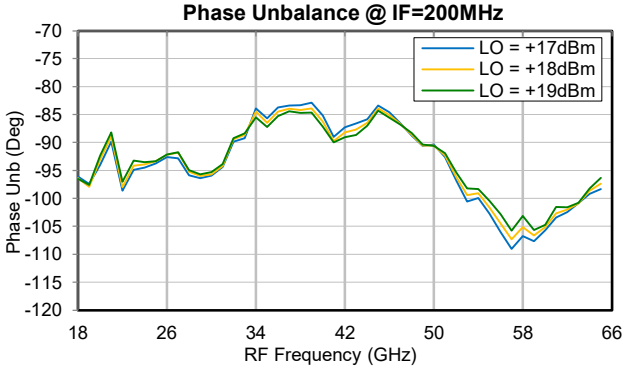
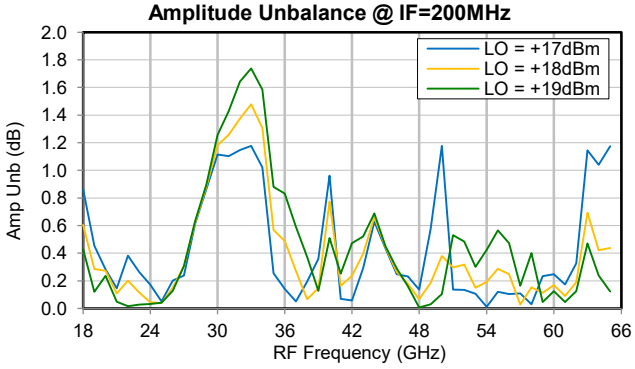
50Ω LO Power +18 dBm 18 to 65 GHz 1.85mm Female/2.92mm Female

TYPICAL PERFORMANCE CHARTS

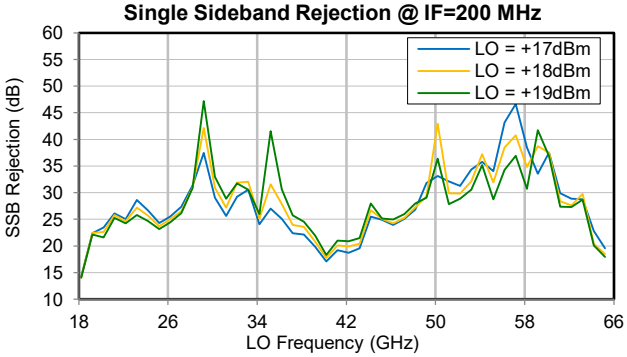
Phase Unbalance @ IF=200MHz



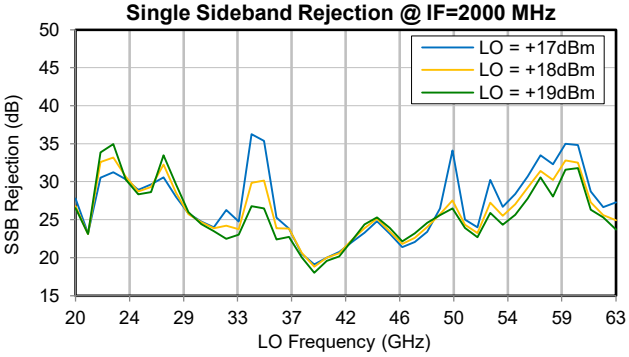
Amplitude Unbalance @ IF=200MHz



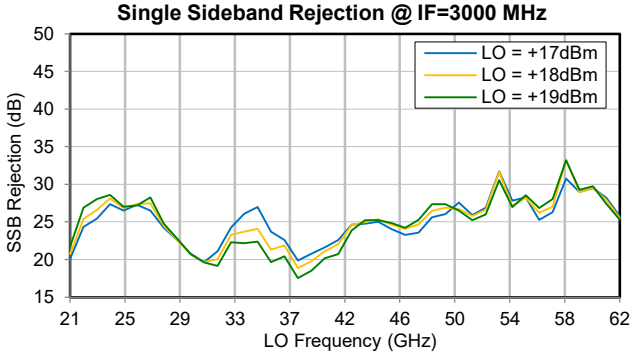
Single Sideband Rejection @ IF=200 MHz



Single Sideband Rejection @ IF=2000 MHz



Single Sideband Rejection @ IF=3000 MHz



I/Q Mixer

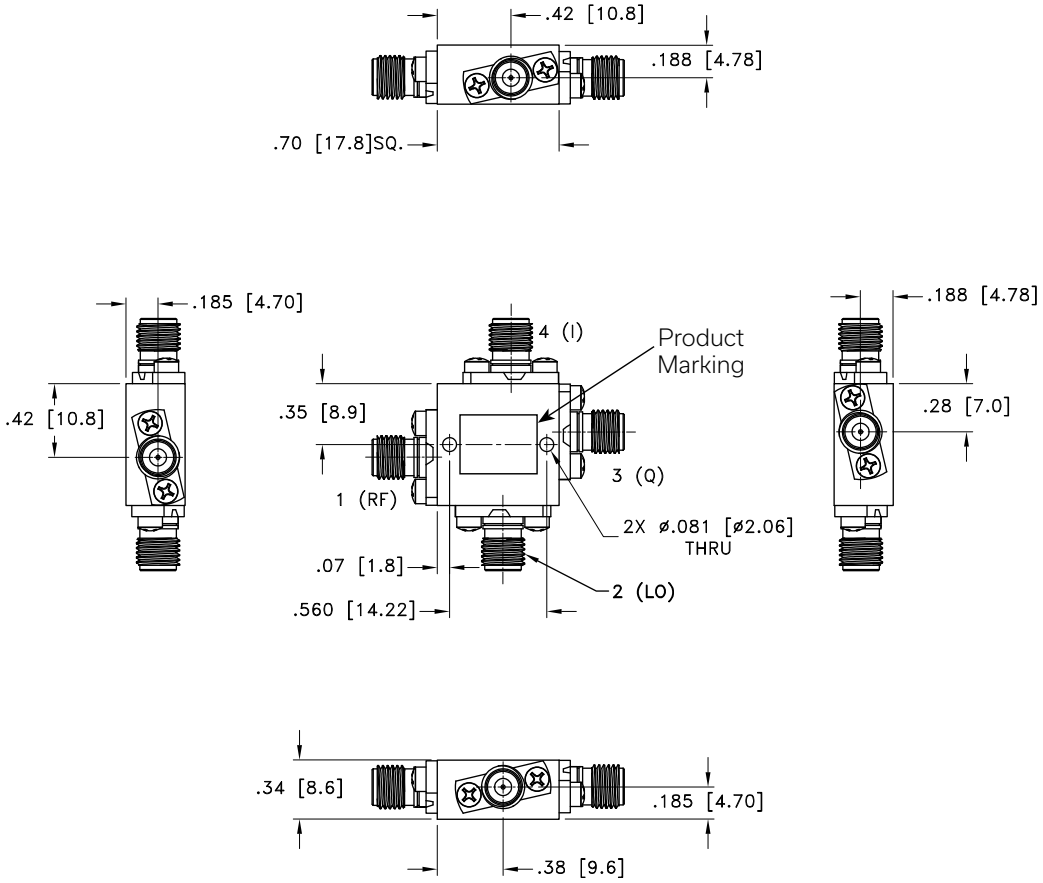
ZMIQ-653H-E+

50Ω LO Power +18 dBm 18 to 65 GHz 1.85mm Female/2.92mm Female

COAXIAL CONNECTIONS

Description	RF PORT	LO PORT	Q PORT	I PORT
Connector Type	1.85mm-F	1.85mm-F	2.92mm-F	2.92mm-F
Port Marking on case style drawing	1	2	3	4

CASE STYLE DRAWING



Weight: 28 grams
Dimensions are in inches [mm]. Tolerances: 2 Pl.±.03; 3 Pl. ±.015 inches

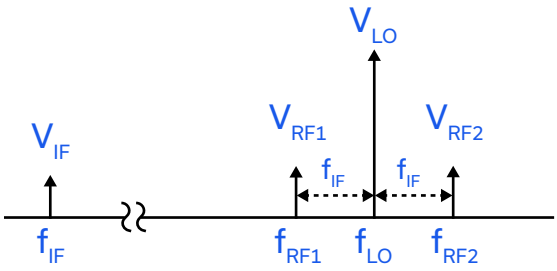
PRODUCT MARKING*: ZMIQ-653H-E+

*Marking may contain other features or characters for internal lot control.

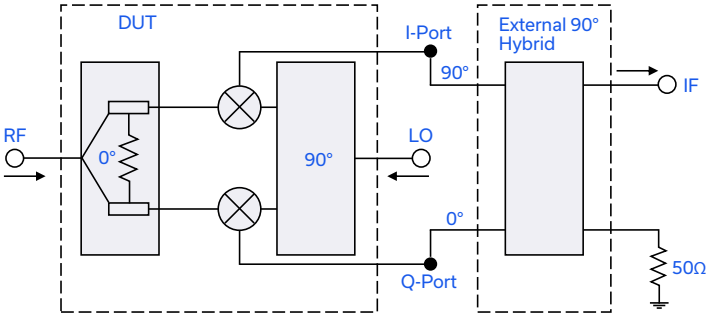
APPLICATION CONFIGURATION FOR IMAGE REJECT AND SINGLE SIDE BAND MIXER

In Image Reject Downconverter or Single Sideband Upconverter applications an external 90° Hybrid is needed. Refer to Mini-Circuits extensive portfolio of 90° Hybrids.

IMAGE REJECT MIXER APPLICATION



Spectral representation of Signals

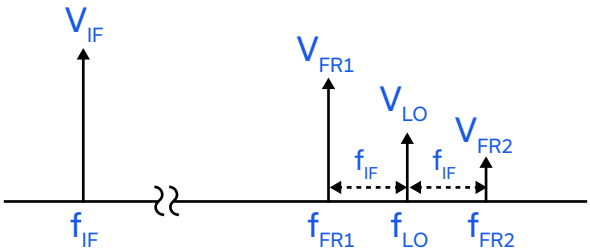


Block Diagram of Image Reject Mixer

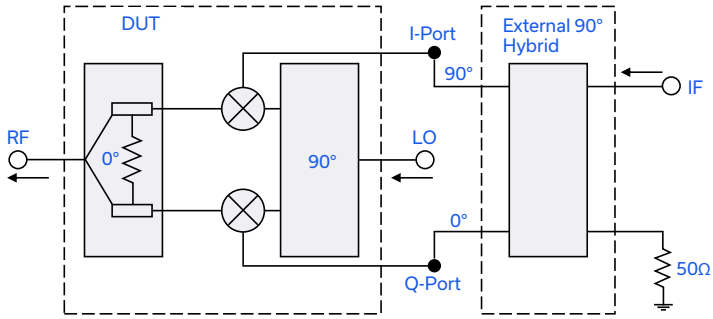
If f_{RF1} is the desired signal and f_{RF2} is the image, connect the I port of DUT to the 90° port of the external hybrid and the Q port to the 0° port of the hybrid. This will send the f_{RF2}-f_{LO} IF signal to the terminated output of the external 90° hybrid and desired IF signal f_{LO}- f_{RF1} to IF port.

If f_{RF2} is the desired signal and f_{RF1} is the image signal, connect the I port of DUT to the 0 deg port of the external 90° hybrid and the Q port to the 90° port of the external hybrid. This will send f_{LO}- f_{RF1} IF signal to the terminated output of the external 90° hybrid and desired IF signal f_{RF2}- f_{LO} to IF port.

SINGLE SIDE BAND (SSB) UPCONVERTER APPLICATION



Spectral representation of Signals



Block Diagram of Single Sideband Upconverter Mixer

For upper side band (f_{RF2}= f_{LO}+ f_{IF}) selection connect the I port to the 90° port of the external 90° hybrid and the Q port to the 0° port of the external hybrid. This will send the lower sideband band signal (f_{RF1}= f_{LO}- f_{IF}) to the isolation resistor of the 0° RF splitter in DUT and upper sideband (f_{RF2}= f_{LO}+ f_{IF}) to output RF port.

For lower side band (f_{RF1}= f_{LO}- f_{IF}) selection connect the I port to the 0° port of the external 90° hybrid and the Q port to the 90° port of the hybrid. This will send the upper sideband band signal (f_{RF2}= f_{LO}+ f_{IF}) to the isolation resistor of the 0° RF splitter in DUT and lower sideband (f_{RF1}= f_{LO}- f_{IF}) to out of RF port.

Refer to Mini-Circuits blog, I&Q Mixers, Image Reject Down-Conversion & Single Sideband (SSB) Up-Conversion for a detailed explanation.

I/Q Mixer

ZMIQ-653H-E+

50Ω LO Power +18 dBm 18 to 65 GHz 1.85mm Female/2.92mm Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data	Data Table Swept Graphs
Case Style	UK3208
RoHs Status	Compliant
Environmental Ratings	ENV131

NOTES

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.

B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.

C. The parts covered by this specification document are subject to Mini-Circuits 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-Circuits' website at www.minicircuits.com/terms/viewterm.html

Typical Performance Data

RF (IN) (GHz)	LO (GHz)	CONVERSION LOSS IF FIXED @IF(OUT)=200MHz (dB) @LO (dBm)		
		+17	+18	+19
18.0	18.2	15.27	14.66	14.74
19.0	19.2	13.54	13.19	12.99
20.0	20.2	12.66	12.41	12.30
21.0	21.2	11.92	11.71	11.66
22.0	22.2	11.69	11.52	11.52
23.0	23.2	12.26	12.27	12.40
24.0	24.2	13.15	13.16	13.36
25.0	25.2	13.82	13.90	14.11
26.0	26.2	14.41	14.60	14.93
27.0	27.2	14.59	14.89	15.32
28.0	28.2	15.01	15.34	15.88
29.0	29.2	15.05	15.35	15.89
30.0	30.2	15.15	15.48	16.00
31.0	31.2	15.08	15.44	16.06
32.0	32.2	14.50	14.82	15.46
33.0	33.2	14.17	14.60	15.25
34.0	34.2	13.70	14.00	14.53
35.0	35.2	13.52	14.21	14.62
36.0	36.2	11.92	12.36	13.11
37.0	37.2	11.93	12.26	12.66
38.0	38.2	12.20	12.56	13.04
39.0	39.2	12.02	12.35	12.81
40.0	40.2	11.90	12.11	12.43
41.0	41.2	12.16	12.35	12.79
42.0	42.2	12.82	12.86	13.10
43.0	43.2	14.16	14.19	14.42
44.0	44.2	15.19	15.14	15.30
45.0	45.2	15.08	14.97	15.02
46.0	46.2	14.74	14.68	14.82
47.0	47.2	14.53	14.32	14.32
48.0	48.2	14.20	14.11	14.26
49.0	49.2	14.47	13.82	13.63
50.0	50.2	15.49	14.27	13.85
51.0	51.2	14.28	14.12	14.21
52.0	52.2	14.60	14.32	14.26
53.0	53.2	14.09	13.65	13.61
54.0	54.2	13.35	13.09	13.07
55.0	55.2	13.23	13.04	13.01
56.0	56.2	13.62	13.42	13.34
57.0	57.2	14.14	13.93	13.84
58.0	58.2	13.81	13.84	13.98
59.0	59.2	14.19	14.04	13.93
60.0	60.2	13.86	13.78	13.70
61.0	61.2	13.48	13.46	13.50
62.0	62.2	14.67	14.45	14.36
63.0	63.2	16.97	16.32	15.93
64.0	64.2	16.35	15.61	15.33
65.0	65.2	15.32	14.69	14.48

RF (IN) (GHz)	LO (GHz)	CONVERSION LOSS IF FIXED @IF(OUT)=2000MHz (dB) @LO (dBm)		
		+17	+18	+19
18.0	20.0	15.25	15.21	15.23
19.0	21.0	13.15	13.25	13.42
20.0	22.0	12.12	12.20	12.37
21.0	23.0	11.60	11.71	11.91
22.0	24.0	11.88	12.03	12.27
23.0	25.0	12.49	12.69	12.76
24.0	26.0	13.82	14.00	14.12
25.0	27.0	14.35	14.68	14.78
26.0	28.0	14.37	14.80	15.24
27.0	29.0	15.18	15.55	16.10
28.0	30.0	15.60	15.92	16.43
29.0	31.0	15.17	15.52	16.05
30.0	32.0	15.20	15.53	16.06
31.0	33.0	15.28	15.77	16.47
32.0	34.0	14.88	15.37	16.06
33.0	35.0	15.15	15.40	15.84
34.0	36.0	13.99	14.33	14.84
35.0	37.0	12.79	13.10	13.63
36.0	38.0	12.49	12.84	13.35
37.0	39.0	12.45	12.63	13.04
38.0	40.0	12.62	12.80	13.20
39.0	41.0	12.32	12.61	13.01
40.0	42.0	11.96	12.06	12.41
41.0	43.0	12.60	12.54	12.66
42.0	44.0	13.32	13.26	13.30
43.0	45.0	14.84	14.69	14.64
44.0	46.0	15.99	15.75	15.91
45.0	47.0	15.94	15.49	15.45
46.0	48.0	15.45	15.12	15.24
47.0	49.0	15.53	14.83	14.72
48.0	50.0	16.93	15.29	14.85
49.0	51.0	14.94	14.37	14.30
50.0	52.0	14.79	14.29	14.21
51.0	53.0	15.69	14.81	14.55
52.0	54.0	15.43	14.89	14.80
53.0	55.0	14.98	14.51	14.48
54.0	56.0	14.43	13.97	13.90
55.0	57.0	13.83	13.40	13.33
56.0	58.0	13.90	13.67	13.82
57.0	59.0	14.41	14.08	14.06
58.0	60.0	14.71	14.30	14.25
59.0	61.0	14.30	14.13	14.16
60.0	62.0	14.31	14.01	13.94
61.0	63.0	15.21	14.65	14.43
62.0	64.0	16.45	15.29	15.03
63.0	65.0	17.13	16.22	15.90
64.0	66.0	18.21	16.99	16.22
65.0	67.0	18.65	17.84	17.31

RF (IN) (GHz)	LO (GHz)	IP-3 INPUT @ IF(OUT)=200MHz (dBm) @LO (dBm)		
		+17	+18	+19
20.0	20.2	26.36	25.19	24.35
21.0	21.2	25.14	25.04	25.00
22.0	22.2	27.04	26.86	26.68
23.0	23.2	25.24	25.19	25.72
24.0	24.2	27.23	27.73	26.86
25.0	25.2	28.52	28.83	29.24
26.0	26.2	27.05	27.74	28.41
27.0	27.2	27.41	28.62	28.93
28.0	28.2	29.60	29.16	28.78
29.0	29.2	29.31	30.47	29.52
30.0	30.2	29.34	30.94	31.97
31.0	31.2	27.40	27.97	29.01
32.0	32.2	26.45	25.61	26.81
33.0	33.2	25.36	25.33	24.87
34.0	34.2	28.02	27.68	27.57
35.0	35.2	25.50	25.51	25.44
36.0	36.2	24.00	24.34	24.51
37.0	37.2	24.61	24.28	24.41
38.0	38.2	25.41	25.05	25.18
39.0	39.2	24.87	24.47	25.00
40.0	40.2	24.88	24.32	24.40
41.0	41.2	24.99	24.15	24.44
42.0	42.2	27.45	26.69	25.43
43.0	43.2	25.12	26.29	26.44
44.0	44.2	25.62	26.73	26.91
45.0	45.2	25.90	27.33	26.46
46.0	46.2	25.58	26.26	26.35
47.0	47.2	23.97	24.55	24.77
48.0	48.2	24.70	24.40	24.43
49.0	49.2	21.88	24.36	25.10
50.0	50.2	21.97	24.63	25.54
51.0	51.2	24.67	24.41	24.20
52.0	52.2	23.67	23.90	24.23
53.0	53.2	23.91	25.07	25.52
54.0	54.2	26.36	26.45	25.89
55.0	55.2	24.60	23.81	23.60
56.0	56.2	23.71	23.44	23.20
57.0	57.2	25.48	25.14	24.96
58.0	58.2	25.11	24.68	24.36
59.0	59.2	21.64	24.14	24.98
60.0	60.2	23.60	24.84	25.35
61.0	61.2	25.91	26.20	25.50
62.0	62.2	25.54	27.05	27.16
63.0	63.2	20.05	19.89	20.43
64.0	64.2	22.16	23.92	25.18
65.0	65.2	22.53	23.67	23.81

RF (IN) (GHz)	LO (GHz)	COMPRESSION @RF IN=+10dBm (dB) @LO (dBm)		
		+17	+18	+19
18.0	18.2	0.62	0.67	0.32
19.0	19.2	0.23	0.25	0.14
20.0	20.2	0.06	0.11	0.03
21.0	21.2	0.14	0.19	0.11
22.0	22.2	0.11	0.14	0.06
23.0	23.2	0.15	0.16	0.09
24.0	24.2	0.11	0.12	0.03
25.0	25.2	0.07	0.07	0.01
26.0	26.2	0.07	0.06	0.00
27.0	27.2	0.07	0.04	0.00
28.0	28.2	0.07	0.04	0.04
29.0	29.2	0.10	0.07	0.01
30.0	30.2	0.09	0.02	0.04
31.0	31.2	0.13	0.06	0.04
32.0	32.2	0.17	0.11	0.00
33.0	33.2	0.13	0.02	0.08
34.0	34.2	0.08	0.04	0.14
35.0	35.2	0.16	0.03	0.09
36.0	36.2	0.24	0.08	0.11
37.0	37.2	0.20	0.07	0.10
38.0	38.2	0.17	0.07	0.11
39.0	39.2	0.12	0.07	0.12
40.0	40.2	0.13	0.08	0.08
41.0	41.2	0.21	0.22	0.08
42.0	42.2	0.15	0.12	0.04
43.0	43.2	0.09	0.09	0.03
44.0	44.2	0.12	0.07	0.01
45.0	45.2	0.04	0.05	0.08
46.0	46.2	0.44	0.42	0.42
47.0	47.2	0.62	0.53	0.51
48.0	48.2	0.45	0.40	0.41
49.0	49.2	0.77	0.58	0.49
50.0	50.2	0.59	0.59	0.47
51.0	51.2	0.60	0.57	0.57
52.0	52.2	0.51	0.48	0.48
53.0	53.2	0.76	0.63	0.59
54.0	54.2	0.48	0.46	0.46
55.0	55.2	0.47	0.47	0.50
56.0	56.2	0.67	0.63	0.63
57.0	57.2	0.52	0.47	0.46
58.0	58.2	0.54	0.56	0.57
59.0	59.2	1.01	0.82	0.76
60.0	60.2	0.85	0.73	0.67
61.0	61.2	0.82	0.80	0.82
62.0	62.2	0.97	0.77	0.70
63.0	63.2	0.99	1.04	1.01
64.0	64.2	0.71	0.65	0.59
65.0	65.2	0.59	0.62	0.59

Typical Performance Data

IF (OUT) (GHz)	LO (GHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=20000MHz (dB) @LO (dBm)		
		+17	+18	+19
0.01	20.0	12.61	12.44	12.31
0.1	20.1	12.44	12.31	12.22
1.0	21.0	11.97	11.97	12.04
1.5	21.5	11.97	12.07	12.27
2.0	22.0	12.09	12.17	12.35
2.5	22.5	12.38	12.49	12.69
3.0	23.0	12.58	12.74	12.98
3.5	23.5	12.75	12.93	13.10
4.0	24.0	12.86	13.03	13.28
4.5	24.5	13.20	13.31	13.41
5.0	25.0	13.71	13.82	13.88
5.5	25.5	14.41	14.58	14.64
6.0	26.0	14.68	14.88	15.04
6.5	26.5	15.16	15.36	15.42
7.0	27.0	15.65	15.86	15.93
7.5	27.5	15.77	16.01	16.02
8.0	28.0	16.23	16.46	16.70
8.5	28.5	16.47	16.68	16.95
9.0	29.0	16.78	17.03	17.35
9.5	29.5	16.57	16.86	17.23
10.0	30.0	16.60	16.94	17.37
10.5	30.5	16.35	16.69	17.14
11.0	31.0	16.23	16.58	17.07
11.5	31.5	16.21	16.55	17.07
12.0	32.0	16.31	16.59	17.07
12.5	32.5	16.37	16.70	17.22
13.0	33.0	16.25	16.60	17.11
13.5	33.5	15.87	16.26	16.77
14.0	34.0	15.71	16.14	16.68
14.5	34.5	15.24	15.60	16.10
15.0	35.0	15.39	15.78	16.30
15.5	35.5	15.87	16.25	16.79
16.0	36.0	16.25	16.70	17.33
16.5	36.5	16.41	16.80	17.45
17.0	37.0	16.55	16.87	17.44
17.5	37.5	16.70	16.97	17.45
18.0	38.0	16.96	17.18	17.60
18.5	38.5	17.18	17.29	17.58
19.0	39.0	17.58	17.68	17.92
19.5	39.5	17.47	17.64	17.93
20.0	40.0	15.66	15.68	15.72

IF (OUT) (GHz)	LO (GHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=42500MHz (dB) @LO (dBm)		
		+17	+18	+19
0.01	42.49	13.27	13.27	13.37
0.1	42.4	13.30	13.25	13.42
1.0	41.5	13.41	13.42	13.67
1.5	41.0	13.35	13.38	13.59
2.0	40.5	13.39	13.38	13.63
2.5	40.0	13.38	13.40	13.70
3.0	39.5	13.31	13.48	13.93
3.5	39.0	13.23	13.33	13.70
4.0	38.5	13.25	13.41	13.84
4.5	38.0	13.43	13.75	14.27
5.0	37.5	13.53	13.85	14.38
5.5	37.0	13.61	13.91	14.46
6.0	36.5	14.05	14.36	14.87
6.5	36.0	14.17	14.53	15.03
7.0	35.5	14.19	14.50	14.98
7.5	35.0	14.38	14.69	15.17
8.0	34.5	14.49	14.73	15.16
8.5	34.0	14.75	15.05	15.56
9.0	33.5	14.89	15.13	15.58
9.5	33.0	14.92	15.11	15.52
10.0	32.5	15.07	15.24	15.63
10.5	32.0	15.49	15.60	15.90
11.0	31.5	16.41	16.46	16.70
11.5	31.0	17.48	17.44	17.56
12.0	30.5	18.29	18.23	18.36
12.5	30.0	18.39	18.48	18.74
13.0	29.5	17.98	18.29	18.72
13.5	29.0	17.17	17.49	17.97
14.0	28.5	16.92	17.29	17.78
14.5	28.0	16.51	16.91	17.33
15.0	27.5	16.61	16.98	16.97
15.5	27.0	16.82	17.16	17.28
16.0	26.5	16.92	17.19	17.30
16.5	26.0	17.00	17.24	17.48
17.0	25.5	16.91	17.14	17.25
17.5	25.0	16.75	17.00	17.13
18.0	24.5	16.86	17.05	17.34
18.5	24.0	16.92	17.07	17.55
19.0	23.5	17.10	17.30	17.62
19.5	23.0	17.10	17.28	17.86
20.0	22.5	16.94	17.14	17.72

IF (OUT) (GHz)	LO (GHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=65000MHz (dB) @LO (dBm)		
		+17	+18	+19
0.01	64.99	15.28	14.68	14.43
0.03	64.97	15.19	14.65	14.36
0.05	64.95	15.19	14.64	14.34
0.07	64.93	15.15	14.64	14.33
0.09	64.91	15.15	14.64	14.34
0.1	64.9	15.17	14.66	14.32
0.2	64.8	15.29	14.72	14.39
0.3	64.7	15.33	14.73	14.38
0.4	64.6	15.25	14.72	14.38
0.5	64.5	15.35	14.72	14.35
1.0	64.0	15.61	14.75	14.44
2.0	63.0	15.86	15.28	14.95
3.0	62.0	14.98	14.60	14.39
4.0	61.0	14.75	14.62	14.45
5.0	60.0	15.33	15.07	14.86
6.0	59.0	14.93	14.78	14.59
7.0	58.0	14.82	14.85	14.99
8.0	57.0	15.80	15.57	15.40
9.0	56.0	15.78	15.67	15.63
10.0	55.0	15.73	15.65	15.61
11.0	54.0	16.15	15.92	15.81
12.0	53.0	17.83	17.18	16.81
13.0	52.0	17.74	17.36	17.11
14.0	51.0	17.87	17.32	17.00
15.0	50.0	20.44	18.52	17.75
16.0	49.0	19.63	18.63	18.07
17.0	48.0	19.47	18.72	18.43
18.0	47.0	20.65	19.46	19.05
19.0	46.0	21.01	20.00	19.80
20.0	45.0	21.70	20.69	20.31

Typical Performance Data

LO (GHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-I/Q ISOLATION (dB) @LO (dBm)			LO-Q ISOLATION (dB) @LO (dBm)		
	+17	+18	+19	+17	+18	+19	+17	+18	+19
18.2	33.45	34.11	34.56	43.89	44.02	43.8	29.09	29.17	29.3
19.2	32.67	33.76	34.53	42.81	42.60	43.1	29.66	29.92	30.2
20.2	32.20	33.13	33.87	38.19	38.76	39.8	29.17	29.60	30.1
21.2	34.34	35.32	36.06	36.83	37.69	38.8	29.58	30.01	30.5
22.2	35.80	36.68	37.38	36.81	37.53	38.4	31.16	31.55	32.0
23.2	38.52	39.16	39.56	39.60	39.89	40.1	31.53	31.96	32.3
24.2	41.65	42.27	42.57	42.35	40.12	39.2	31.97	32.21	32.3
25.2	44.27	44.89	44.88	41.47	39.57	39.5	31.33	31.49	31.5
26.2	47.80	48.32	48.44	43.40	41.73	41.3	31.28	31.35	31.4
27.2	50.32	50.91	50.85	44.83	43.77	43.8	32.77	32.70	32.7
28.2	51.96	54.11	56.29	43.47	43.17	42.5	33.63	33.44	33.4
29.2	49.97	50.96	52.19	42.81	42.86	42.6	34.58	34.26	34.1
30.2	51.47	53.35	55.60	42.52	42.78	42.8	35.05	34.68	34.5
31.2	51.16	53.23	56.82	42.43	42.75	42.9	35.19	34.82	34.6
32.2	55.81	58.03	61.03	42.78	43.05	43.2	35.84	35.50	35.3
33.2	52.76	53.04	53.05	42.49	42.69	42.7	34.69	34.48	34.3
34.2	51.42	52.28	53.02	42.13	42.34	42.4	33.36	33.24	33.2
35.2	45.06	45.41	45.81	42.70	42.96	43.1	33.63	33.60	33.6
36.2	43.29	43.60	44.01	43.10	43.39	43.5	33.84	33.87	33.9
37.2	44.50	44.72	44.85	44.45	44.69	44.8	33.98	34.05	34.1
38.2	43.43	43.77	44.01	44.60	44.85	45.0	33.18	33.29	33.4
39.2	41.32	41.77	42.14	43.83	44.03	44.2	32.00	32.14	32.3
40.2	40.76	41.62	42.35	43.09	43.32	43.6	34.93	35.03	35.1
41.2	46.98	48.04	48.21	47.95	48.11	48.1	31.49	31.62	31.7
42.2	42.33	42.74	43.06	49.94	49.90	49.9	30.05	30.21	30.3
43.2	39.29	39.40	39.52	47.18	47.34	47.5	28.15	28.30	28.4
44.2	35.55	35.88	36.16	35.89	36.31	36.6	27.24	27.38	27.5
45.2	42.68	43.39	43.90	36.15	36.49	36.7	26.47	26.61	26.7
46.2	51.61	53.97	55.76	37.36	37.79	38.1	26.93	27.17	27.4
47.2	55.48	58.81	61.97	37.27	37.71	38.1	27.40	27.67	27.9
48.2	58.01	59.79	60.19	36.33	36.65	36.9	26.89	27.07	27.2
49.2	56.15	56.47	56.90	36.33	36.72	37.1	27.74	28.01	28.3
50.2	56.59	57.07	57.21	35.34	35.71	36.1	27.91	28.17	28.5
51.2	55.30	54.65	54.25	29.92	30.14	30.3	26.21	26.33	26.4
52.2	54.85	55.85	56.03	25.39	25.74	26.1	26.96	27.20	27.4
53.2	51.81	53.70	55.61	28.30	28.48	28.7	27.79	27.76	27.8
54.2	52.13	53.36	54.36	31.36	31.66	32.0	30.25	30.08	30.0
55.2	52.90	54.62	55.78	35.59	35.70	35.8	26.86	26.98	27.0
56.2	52.45	54.91	57.69	52.15	51.68	51.2	27.58	27.70	27.8
57.2	49.54	51.43	53.32	45.3	45.5	45.8	30.12	30.21	30.3
58.2	50.56	50.57	50.20	37.0	36.8	36.8	40.86	41.22	41.5
59.2	48.72	50.15	51.52	43.78	43.79	43.84	31.78	32.03	32.2
60.2	47.96	49.27	50.29	44.63	44.85	45.32	31.51	31.72	32.2
61.2	46.54	47.38	48.00	41.71	41.88	41.93	29.18	29.10	29.0
62.2	45.64	46.40	46.79	41.87	41.96	42.16	31.39	31.01	30.9
63.2	45.91	46.69	47.51	42.59	43.23	43.81	35.95	36.14	36.5
64.2	44.71	45.20	45.75	41.32	41.62	42.14	35.73	35.17	35.2
65.2	44.13	44.55	44.91	40.41	40.64	41.11	34.05	33.65	33.6

RF (IN) (GHz)	LO (GHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+17	+18	+19
18.0	18.2	25.39	25.66	25.91
19.0	19.2	26.19	26.17	26.19
20.0	20.2	26.92	26.82	26.83
21.0	21.2	25.39	25.63	25.97
22.0	22.2	22.56	22.76	23.12
23.0	23.2	23.54	23.46	23.48
24.0	24.2	24.89	24.90	24.91
25.0	25.2	24.98	25.02	25.01
26.0	26.2	26.36	26.45	26.47
27.0	27.2	28.16	28.24	28.24
28.0	28.2	28.99	29.02	29.11
29.0	29.2	29.60	29.69	29.71
30.0	30.2	30.98	31.09	31.15
31.0	31.2	31.81	31.90	31.99
32.0	32.2	32.15	32.10	32.23
33.0	33.2	31.86	31.90	32.00
34.0	34.2	30.97	31.06	31.10
35.0	35.2	29.92	30.01	30.12
36.0	36.2	30.46	30.62	30.65
37.0	37.2	31.73	31.81	31.92
38.0	38.2	33.19	33.26	33.28
39.0	39.2	34.26	34.55	34.54
40.0	40.2	31.89	31.86	31.81
41.0	41.2	30.09	30.27	30.24
42.0	42.2	30.40	30.48	30.41
43.0	43.2	29.75	29.71	29.90
44.0	44.2	26.71	26.71	26.80
45.0	45.2	33.29	33.29	33.38
46.0	46.2	44.29	44.29	44.38
47.0	47.2	59.44	56.95	58.90
48.0	48.2	54.25	55.31	53.25
49.0	49.2	49.81	48.97	49.28
50.0	50.2	46.70	47.09	46.56
51.0	51.2	44.54	44.34	44.42
52.0	52.2	40.39	39.94	40.03
53.0	53.2	36.77	36.83	36.78
54.0	54.2	34.2	34.2	33.8
55.0	55.2	42.2	42.4	42.5
56.0	56.2	50.7	49.8	51.9
57.0	57.2	64.0	60.1	55.6
58.0	58.2	52.5	52.4	52.6
59.0	59.2	58.3	58.8	58.0
60.0	60.2	69.1	64.1	61.8
61.0	61.2	69.6	66.0	65.6
62.0	62.2	59.9	64.6	61.2
63.0	63.2	59.2	59.0	57.3
64.0	64.2	58.1	57.4	56.1
65.0	65.2	52.3	55.1	55.6

Typical Performance Data

RF (IN) (GHz)	LO (GHz)	RF VSWR (:1) @LO (dBm)		
		+17	+18	+19
18.0	18.2	4.37	4.44	4.51
19.0	19.2	2.88	3.01	3.10
20.0	20.2	2.32	2.31	2.29
21.0	21.2	1.62	1.59	1.56
22.0	22.2	1.62	1.60	1.57
23.0	23.2	1.74	1.71	1.67
24.0	24.2	2.69	2.64	2.61
25.0	25.2	4.73	4.64	4.64
26.0	26.2	3.93	3.88	3.86
27.0	27.2	3.15	3.11	3.11
28.0	28.2	4.59	4.50	4.44
29.0	29.2	4.11	4.05	4.01
30.0	30.2	4.02	3.98	3.95
31.0	31.2	4.34	4.30	4.30
32.0	32.2	3.92	3.89	3.91
33.0	33.2	3.49	3.46	3.48
34.0	34.2	2.98	2.96	2.99
35.0	35.2	1.77	1.75	1.74
36.0	36.2	1.94	1.90	1.88
37.0	37.2	1.68	1.65	1.62
38.0	38.2	2.22	2.17	2.13
39.0	39.2	2.31	2.25	2.22
40.0	40.2	1.68	1.64	1.61
41.0	41.2	1.99	1.95	1.94
42.0	42.2	2.29	2.23	2.20
43.0	43.2	2.91	2.85	2.81
44.0	44.2	3.92	3.85	3.81
45.0	45.2	5.23	5.13	5.05
46.0	46.2	4.06	3.97	3.88
47.0	47.2	3.37	3.27	3.18
48.0	48.2	2.71	2.63	2.57
49.0	49.2	2.97	2.86	2.78
50.0	50.2	3.14	3.02	2.93
51.0	51.2	3.41	3.27	3.24
52.0	52.2	3.86	3.75	3.66
53.0	53.2	2.98	2.93	2.91
54.0	54.2	1.82	1.83	1.84
55.0	55.2	1.15	1.18	1.20
56.0	56.2	1.66	1.67	1.65
57.0	57.2	2.80	2.77	2.72
58.0	58.2	2.93	2.84	2.84
59.0	59.2	2.10	2.04	2.01
60.0	60.2	1.70	1.68	1.66
61.0	61.2	2.41	2.40	2.32
62.0	62.2	2.44	2.40	2.35
63.0	63.2	3.27	3.23	3.20
64.0	64.2	2.72	2.68	2.61
65.0	65.2	1.55	1.52	1.50

LO (GHz)	LO VSWR (:1) @LO (dBm)		
	+17	+18	+19
18.2	1.37	1.40	1.41
19.2	1.28	1.29	1.29
20.2	1.32	1.31	1.31
21.2	1.42	1.42	1.43
22.2	1.53	1.52	1.52
23.2	1.51	1.52	1.53
24.2	1.42	1.43	1.44
25.2	1.30	1.30	1.30
26.2	1.17	1.17	1.17
27.2	1.06	1.06	1.06
28.2	1.09	1.09	1.09
29.2	1.18	1.18	1.18
30.2	1.25	1.25	1.26
31.2	1.29	1.29	1.30
32.2	1.30	1.30	1.31
33.2	1.28	1.29	1.30
34.2	1.27	1.28	1.28
35.2	1.28	1.28	1.28
36.2	1.32	1.31	1.30
37.2	1.39	1.38	1.37
38.2	1.47	1.46	1.45
39.2	1.50	1.49	1.48
40.2	1.46	1.45	1.45
41.2	1.34	1.33	1.33
42.2	1.17	1.16	1.17
43.2	1.04	1.05	1.06
44.2	1.26	1.25	1.25
45.2	1.49	1.48	1.47

IF (OUT) (GHz)	Q PORT VSWR @LO=65000MHz (:1) @LO (dBm)		
	+17	+18	+19
0.01	1.02	1.05	1.10
0.02	1.02	1.05	1.09
0.03	1.02	1.05	1.09
0.04	1.02	1.05	1.09
0.05	1.02	1.05	1.09
0.06	1.02	1.05	1.09
0.07	1.02	1.05	1.09
0.08	1.02	1.05	1.09
0.09	1.02	1.05	1.09
0.1	1.03	1.05	1.09
0.2	1.04	1.04	1.08
0.3	1.04	1.04	1.08
0.4	1.04	1.04	1.08
0.5	1.05	1.04	1.08
0.6	1.05	1.05	1.08
0.7	1.06	1.05	1.08
0.8	1.07	1.06	1.09
0.9	1.07	1.06	1.09
1.0	1.08	1.07	1.09
2.0	1.12	1.09	1.10
3.0	1.15	1.10	1.10
4.0	1.14	1.14	1.15
5.0	1.30	1.33	1.36
6.0	1.64	1.65	1.67
7.0	2.10	2.07	2.07
8.0	2.48	2.41	2.38
9.0	2.82	2.70	2.64
10.0	3.04	2.91	2.84
11.0	3.21	3.06	2.98
12.0	3.26	3.10	3.01
13.0	3.06	2.90	2.81
14.0	2.83	2.68	2.59
15.0	3.01	2.85	2.75
16.0	3.84	3.66	3.55
17.0	4.90	4.68	4.55
18.0	5.62	5.39	5.25
19.0	5.74	5.54	5.40
20.0	4.88	4.73	4.64

IF (OUT) (GHz)	I PORT VSWR @LO=65000MHz (:1) @LO (dBm)		
	+17	+18	+19
0.01	1.37	1.16	1.06
0.02	1.38	1.16	1.06
0.03	1.38	1.16	1.06
0.04	1.38	1.16	1.06
0.05	1.38	1.16	1.06
0.06	1.38	1.16	1.06
0.07	1.38	1.16	1.06
0.08	1.38	1.16	1.06
0.09	1.38	1.16	1.06
0.1	1.38	1.16	1.06
0.2	1.39	1.17	1.07
0.3	1.39	1.17	1.07
0.4	1.39	1.17	1.08
0.5	1.39	1.17	1.08
0.6	1.39	1.17	1.08
0.7	1.38	1.17	1.08
0.8	1.38	1.17	1.09
0.9	1.38	1.17	1.09
1.0	1.38	1.18	1.10
2.0	1.39	1.19	1.13
3.0	1.42	1.22	1.15
4.0	1.37	1.21	1.17
5.0	1.42	1.34	1.34
6.0	1.77	1.67	1.66
7.0	2.28	2.10	2.05
8.0	2.74	2.48	2.37
9.0	3.15	2.83	2.69
10.0	3.44	3.11	2.96
11.0	3.71	3.37	3.21
12.0	3.82	3.43	3.24
13.0	3.67	3.24	3.02
14.0	3.33	2.93	2.73
15.0	3.21	2.83	2.64
16.0	3.62	3.21	3.01
17.0	4.44	4.01	3.78
18.0	5.23	4.76	4.52
19.0	5.05	4.64	4.42
20.0	4.14	3.82	3.66

IF (IN) (MHz)	LO (GHz)	SINGLE SIDEBAND REJECTION IF FIXED @IF(IN)=200MHz (dB) @LO (dBm)		
		+17	+18	+19
200	18.2	14.20	14.06	14.08
200	19.2	22.39	22.44	22.16
200	20.2	23.47	22.61	21.61
200	21.2	26.09	25.81	25.25
200	22.2	24.99	24.67	24.21
200	23.2	28.64	27.20	25.81
200	24.2	26.62	25.69	24.67
200	25.2	24.28	23.66	23.15
200	26.2	25.51	24.99	24.44
200	27.2	27.36	26.51	26.17
200	28.2	31.33	30.97	30.84
200	29.2	37.45	42.14	47.24
200	30.2	29.07	30.92	32.97
200	31.2	25.64	27.19	28.86
200	32.2	29.23	31.88	31.76
200	33.2	30.52	32.05	30.57
200	34.2	24.06	25.17	25.99
200	35.2	27.00	31.59	41.55
200	36.2	25.06	27.83	30.57
200	37.2	22.37	23.95	25.72
200	38.2	22.12	23.57	24.54
200	39.2	19.85	20.83	21.95
200	40.2	17.10	17.74	18.27
200	41.2	19.18	20.11	20.99
200	42.2	18.70	19.88	20.88
200	43.2	19.54	20.41	21.47
200	44.2	25.49	26.71	27.98
200	45.2	24.90	25.10	25.14
200	46.2	23.92	24.26	24.93
200	47.2	25.10	25.23	25.95
200	48.2	26.80	27.25	27.96
200	49.2	31.78	29.35	29.05
200	50.2	33.10	42.92	36.40
200	51.2	32.11	29.90	27.82
200	52.2	31.27	29.81	28.87
200	53.2	34.32	32.12	30.57
200	54.2	35.77	37.22	35.17
200	55.2	34.01	31.92	28.76
200	56.2	43.17	38.44	34.26
200	57.2	46.66	40.79	36.92
200	58.2	38.50	34.79	30.73
200	59.2	33.52	38.69	41.70
200	60.2	37.49	37.54	36.85
200	61.2	29.88	28.39	27.33
200	62.2	28.87	27.59	27.31
200	63.2	28.75	29.79	28.69
200	64.2	22.79	20.42	20.06
200	65.2	19.57	18.45	17.94

IF (IN) (MHz)	LO (GHz)	SINGLE SIDEBAND REJECTION IF FIXED @IF(IN)=2000MHz (dB) @LO (dBm)		
		+17	+18	+19
2000	20.0	27.77	26.77	26.54
2000	21.0	23.19	23.10	23.13
2000	22.0	30.51	32.58	33.87
2000	23.0	31.24	33.21	34.95
2000	24.0	30.33	30.63	30.25
2000	25.0	28.91	28.73	28.31
2000	26.0	29.63	29.31	28.62
2000	27.0	30.56	32.27	33.46
2000	28.0	28.02	28.54	29.63
2000	29.0	25.83	25.73	25.96
2000	30.0	24.78	24.66	24.40
2000	31.0	24.02	23.86	23.49
2000	32.0	26.29	24.21	22.49
2000	33.0	24.78	23.75	23.04
2000	34.0	36.27	29.83	26.78
2000	35.0	35.35	30.15	26.50
2000	36.0	25.25	23.87	22.39
2000	37.0	23.85	23.85	22.73
2000	38.0	20.50	20.65	20.06
2000	39.0	19.15	18.85	18.05
2000	40.0	19.99	19.99	19.60
2000	41.0	20.77	20.59	20.16
2000	42.0	22.05	22.38	22.26
2000	43.0	23.26	23.89	24.38
2000	44.0	24.82	25.14	25.31
2000	45.0	23.15	23.45	23.90
2000	46.0	21.38	21.80	22.16
2000	47.0	22.08	22.59	23.19
2000	48.0	23.42	24.03	24.58
2000	49.0	26.49	25.71	25.61
2000	50.0	34.10	27.54	26.49
2000	51.0	25.02	24.34	23.93
2000	52.0	24.01	23.24	22.67
2000	53.0	30.22	27.24	25.89
2000	54.0	26.71	25.50	24.34
2000	55.0	28.39	27.04	25.66
2000	56.0	30.69	29.23	27.79
2000	57.0	33.45	31.40	30.58
2000	58.0	32.27	30.22	28.02
2000	59.0	34.99	32.80	31.56
2000	60.0	34.83	32.49	31.78
2000	61.0	28.71	27.30	26.32
2000	62.0	26.65	25.58	25.30
2000	63.0	27.29	24.93	23.69

IF (IN) (MHz)	LO (GHz)	SINGLE SIDEBAND REJECTION IF FIXED @IF(IN)=3000MHz (dB) @LO (dBm)		
		+17	+18	+19
3000	21.0	20.07	20.69	21.67
3000	22.0	24.30	25.40	26.87
3000	23.0	25.44	26.59	28.02
3000	24.0	27.33	28.09	28.58
3000	25.0	26.50	26.82	27.02
3000	26.0	27.25	27.33	27.19
3000	27.0	26.50	27.49	28.25
3000	28.0	24.20	24.46	24.77
3000	29.0	22.58	22.60	22.76
3000	30.0	20.75	20.68	20.71
3000	31.0	19.68	19.63	19.58
3000	32.0	21.08	20.03	19.12
3000	33.0	24.25	23.24	22.26
3000	34.0	26.06	23.70	22.16
3000	35.0	26.96	24.08	22.37
3000	36.0	23.69	21.28	19.64
3000	37.0	22.56	21.86	20.41
3000	38.0	19.87	18.84	17.55
3000	39.0	20.74	19.79	18.48
3000	40.0	21.62	21.10	20.15
3000	41.0	22.59	22.01	20.70
3000	42.0	24.64	24.56	23.87
3000	43.0	24.74	24.94	25.21
3000	44.0	24.99	25.35	25.21
3000	45.0	24.02	24.63	24.84
3000	46.0	23.26	24.09	24.17
3000	47.0	23.57	24.64	25.26
3000	48.0	25.62	26.44	27.35
3000	49.0	26.03	26.87	27.36
3000	50.0	27.56	26.69	26.51
3000	51.0	25.88	25.75	25.20
3000	52.0	26.87	26.63	25.96
3000	53.0	31.70	31.61	30.55
3000	54.0	27.82	27.14	26.94
3000	55.0	28.22	28.19	28.55
3000	56.0	25.25	26.19	26.85
3000	57.0	26.28	27.01	28.02
3000	58.0	30.75	33.31	33.18
3000	59.0	28.94	28.91	29.24
3000	60.0	29.48	29.49	29.73
3000	61.0	28.21	27.88	27.39
3000	62.0	25.72	25.49	25.25

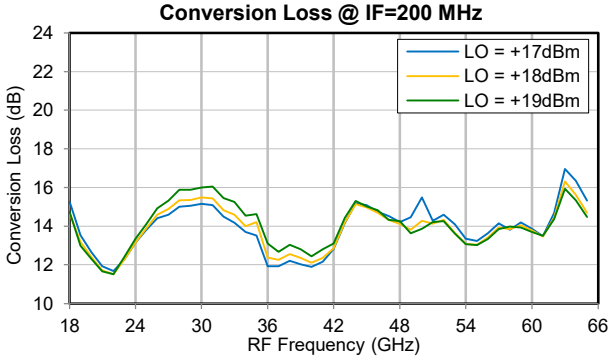
Typical Performance Data

RF (IN) (GHz)	LO (GHz)	AMPLIITUDE UNBALANCE IF FIXED @IF(OUT)=200MHz (dB) @LO (dBm)		
		+17	+18	+19
18.0	18.2	0.86	0.60	0.43
19.0	19.2	0.45	0.29	0.12
20.0	20.2	0.28	0.27	0.24
21.0	21.2	0.15	0.11	0.05
22.0	22.2	0.38	0.20	0.02
23.0	23.2	0.26	0.12	0.03
24.0	24.2	0.17	0.04	0.03
25.0	25.2	0.05	0.04	0.04
26.0	26.2	0.20	0.15	0.13
27.0	27.2	0.24	0.31	0.31
28.0	28.2	0.61	0.62	0.63
29.0	29.2	0.87	0.88	0.90
30.0	30.2	1.11	1.18	1.26
31.0	31.2	1.10	1.26	1.43
32.0	32.2	1.15	1.37	1.64
33.0	33.2	1.18	1.48	1.74
34.0	34.2	1.02	1.31	1.59
35.0	35.2	0.26	0.57	0.88
36.0	36.2	0.14	0.49	0.83
37.0	37.2	0.05	0.27	0.59
38.0	38.2	0.19	0.07	0.37
39.0	39.2	0.36	0.15	0.13
40.0	40.2	0.96	0.77	0.51
41.0	41.2	0.07	0.16	0.25
42.0	42.2	0.06	0.24	0.47
43.0	43.2	0.29	0.40	0.52
44.0	44.2	0.63	0.66	0.69
45.0	45.2	0.43	0.44	0.45
46.0	46.2	0.25	0.26	0.29
47.0	47.2	0.23	0.18	0.16
48.0	48.2	0.14	0.07	0.01
49.0	49.2	0.58	0.18	0.03
50.0	50.2	1.18	0.38	0.10
51.0	51.2	0.14	0.30	0.53
52.0	52.2	0.13	0.32	0.48
53.0	53.2	0.11	0.15	0.30
54.0	54.2	0.01	0.19	0.42
55.0	55.2	0.12	0.29	0.57
56.0	56.2	0.11	0.25	0.47
57.0	57.2	0.11	0.03	0.16
58.0	58.2	0.03	0.15	0.40
59.0	59.2	0.23	0.11	0.05
60.0	60.2	0.25	0.17	0.12
61.0	61.2	0.17	0.09	0.05
62.0	62.2	0.33	0.19	0.12
63.0	63.2	1.14	0.69	0.47
64.0	64.2	1.04	0.42	0.24
65.0	65.2	1.18	0.44	0.12

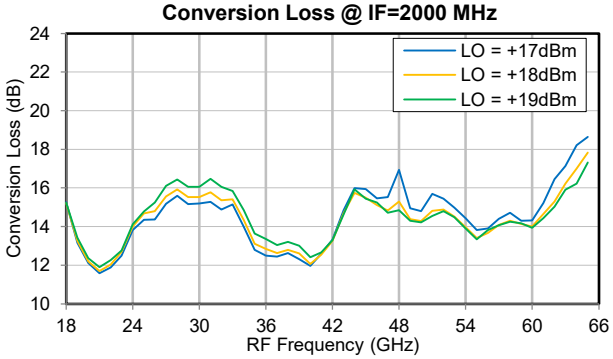
RF (IN) (GHz)	LO (GHz)	PHASE UNBALANCE IF FIXED @IF(OUT)=200MHz (Deg) @LO (dBm)		
		+17	+18	+19
18.0	18.2	-96.12	-96.39	-96.49
19.0	19.2	-97.40	-97.92	-97.61
20.0	20.2	-94.02	-93.09	-92.38
21.0	21.2	-89.84	-88.93	-88.20
22.0	22.2	-98.61	-98.00	-97.01
23.0	23.2	-94.88	-94.14	-93.24
24.0	24.2	-94.51	-93.93	-93.53
25.0	25.2	-93.76	-93.36	-93.36
26.0	26.2	-92.62	-92.21	-92.14
27.0	27.2	-92.84	-91.80	-91.77
28.0	28.2	-95.86	-95.24	-94.93
29.0	29.2	-96.38	-96.00	-95.69
30.0	30.2	-95.94	-95.69	-95.33
31.0	31.2	-94.38	-94.21	-93.89
32.0	32.2	-89.84	-89.40	-89.23
33.0	33.2	-89.24	-88.66	-88.37
34.0	34.2	-83.90	-84.50	-85.51
35.0	35.2	-85.66	-86.47	-87.23
36.0	36.2	-83.72	-84.48	-85.26
37.0	37.2	-83.38	-83.97	-84.40
38.0	38.2	-83.32	-84.20	-84.72
39.0	39.2	-82.82	-83.86	-84.67
40.0	40.2	-85.18	-86.25	-87.19
41.0	41.2	-88.99	-89.76	-89.96
42.0	42.2	-87.30	-88.22	-89.08
43.0	43.2	-86.58	-87.69	-88.66
44.0	44.2	-85.88	-86.48	-86.98
45.0	45.2	-83.39	-83.88	-84.27
46.0	46.2	-84.62	-85.12	-85.57
47.0	47.2	-86.60	-86.69	-86.84
48.0	48.2	-88.76	-88.59	-88.31
49.0	49.2	-90.62	-90.56	-90.36
50.0	50.2	-90.38	-90.56	-90.59
51.0	51.2	-92.61	-92.33	-91.94
52.0	52.2	-96.81	-96.14	-95.36
53.0	53.2	-100.59	-99.40	-98.24
54.0	54.2	-99.95	-99.08	-98.35
55.0	55.2	-102.75	-101.63	-100.45
56.0	56.2	-106.06	-104.52	-102.87
57.0	57.2	-109.03	-107.32	-105.75
58.0	58.2	-106.78	-105.13	-103.15
59.0	59.2	-107.67	-106.61	-105.65
60.0	60.2	-105.74	-105.17	-104.74
61.0	61.2	-103.45	-102.67	-101.53
62.0	62.2	-102.48	-101.97	-101.59
63.0	63.2	-100.85	-100.90	-100.77
64.0	64.2	-99.21	-98.61	-98.24
65.0	65.2	-98.36	-97.36	-96.32

Typical Performance Curves

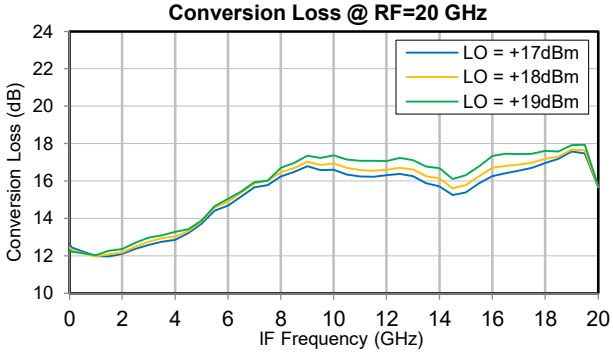
Conversion Loss @ IF=200 MHz



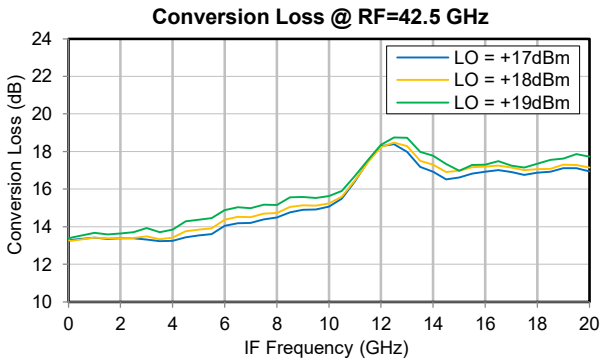
Conversion Loss @ IF=2000 MHz



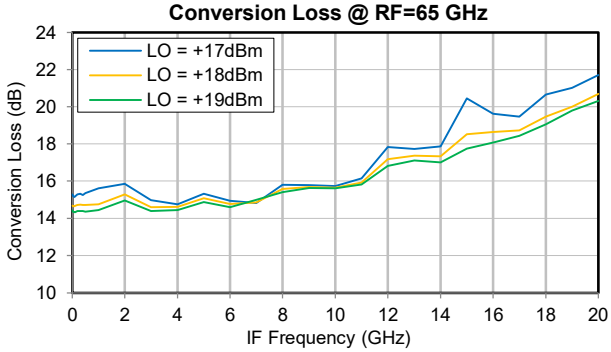
Conversion Loss @ RF=20 GHz



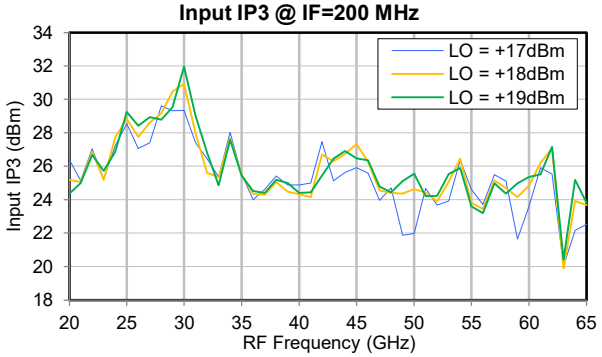
Conversion Loss @ RF=42.5 GHz



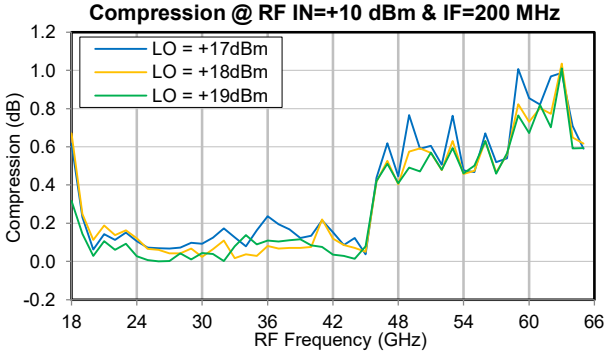
Conversion Loss @ RF=65 GHz



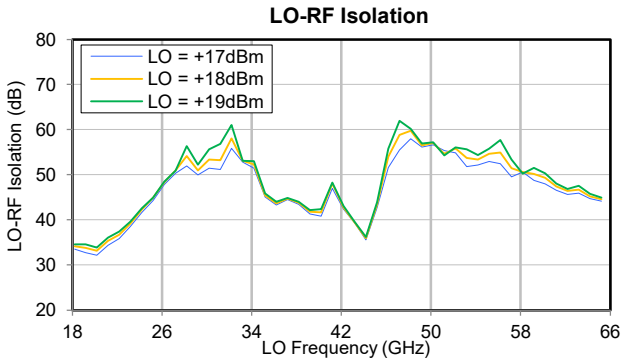
Input IP3 @ IF=200 MHz

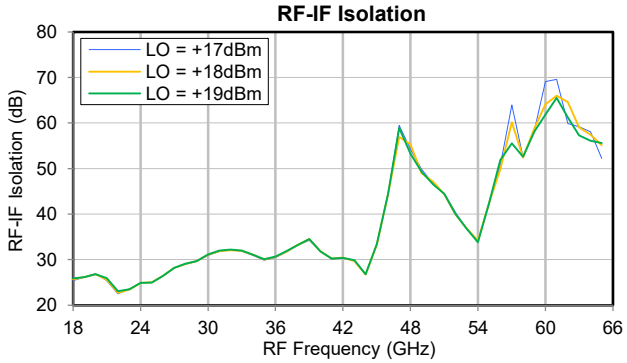


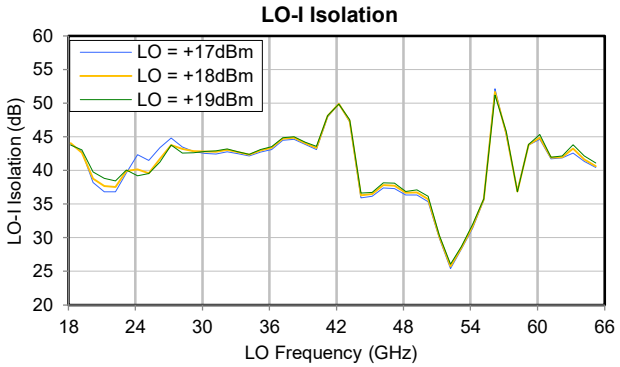
Compression @ RF IN=+10 dBm & IF=200 MHz

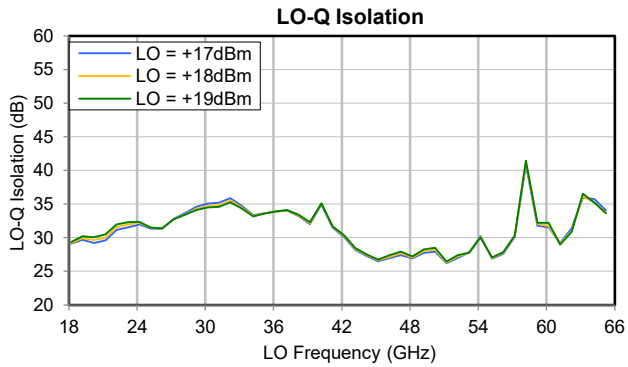


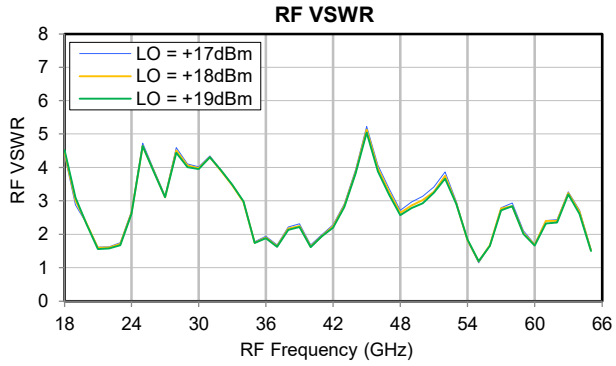
Typical Performance Curves

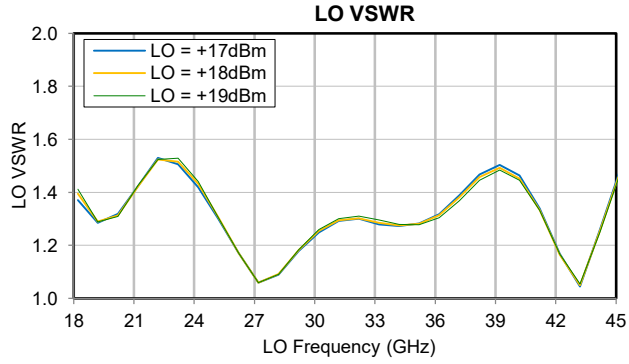


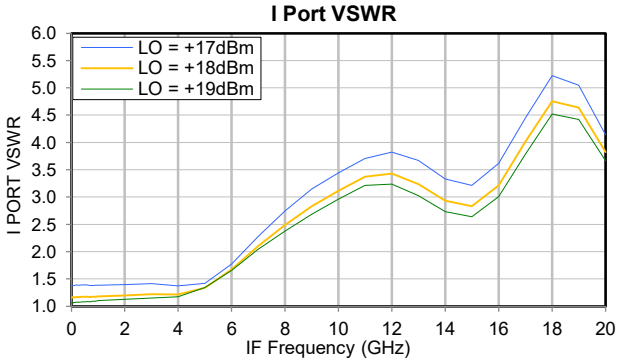


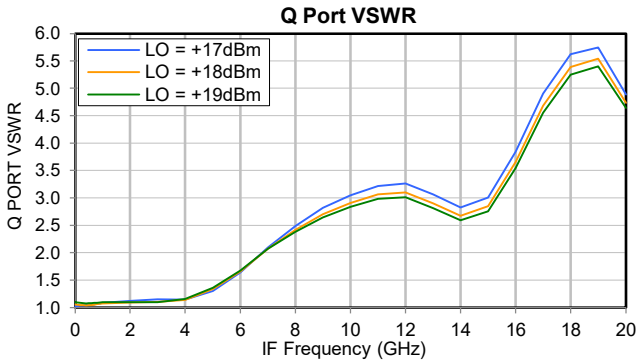




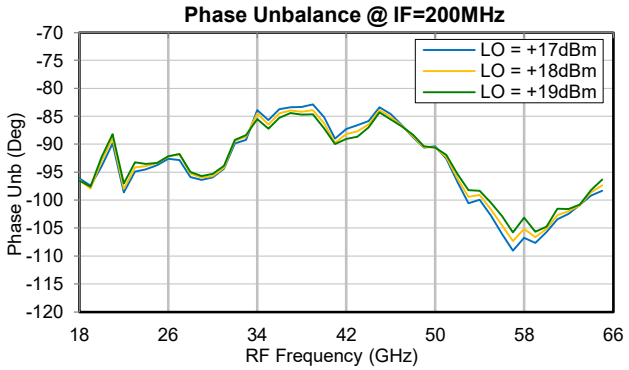


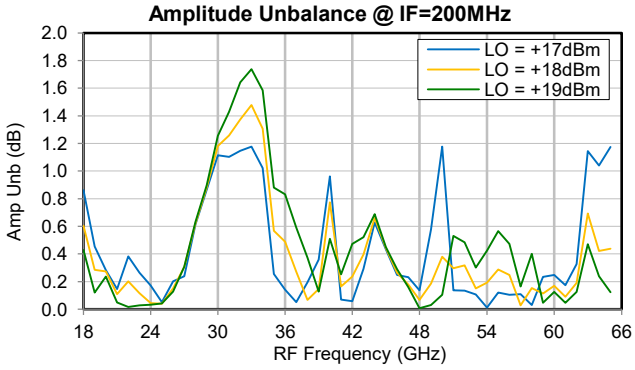


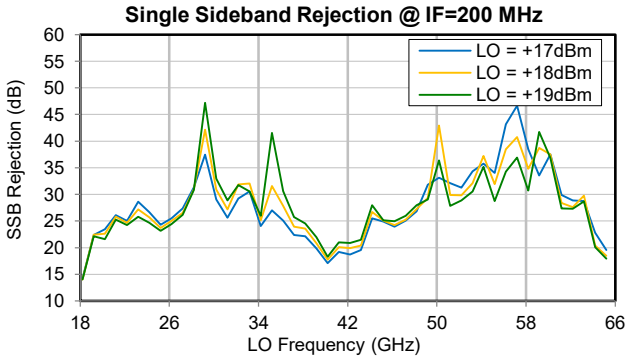


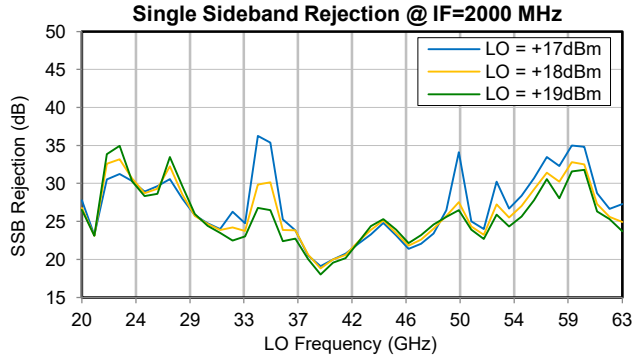


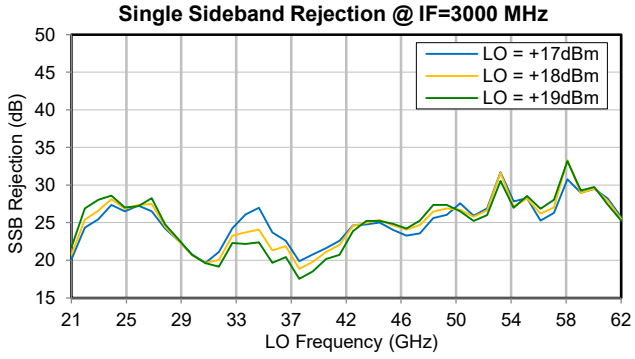
Typical Performance Curves







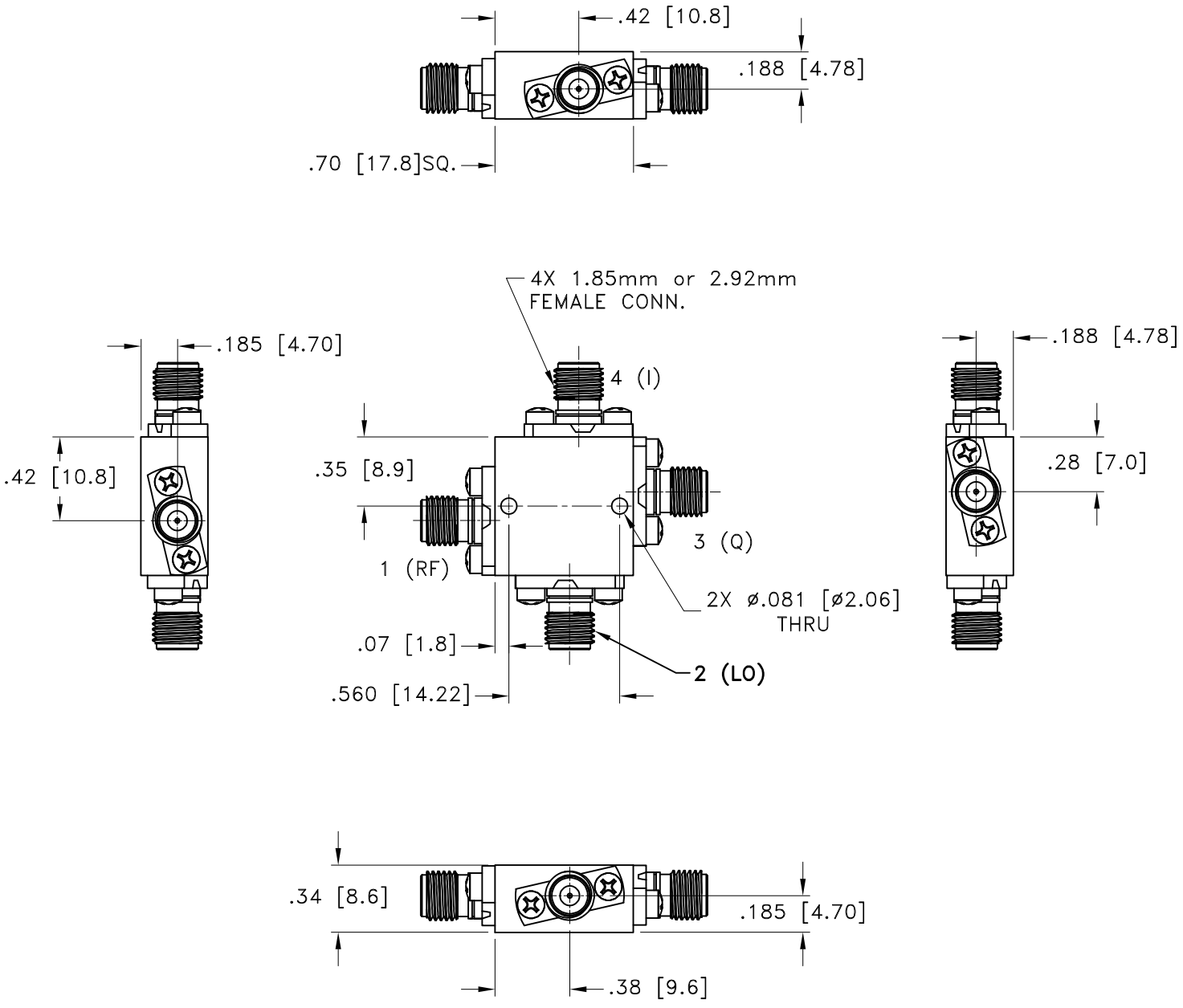




Case Style UK

Outline Dimensions

UK3208



Weight: 28 grams

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

Notes:

Case material:	Brass.
Case Finish:	Gold plate.

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Environmental Specifications ENV131

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	-40° to 85° 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, 5 cycles	MIL-STD-202, Method 107, Condition B except over -55° to 100°C

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