Engineering Development Model

Frequency Mixer HUD-ED9720/1

Level 20 (LO Power + 20 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.

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CASE STYLE : BK377

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency	**LO** (f_L to f_U)	1990		2290	MHz
	RF (f_L to f_U)	1990		2290	MHz
	IF	10		600	MHz
Conversion Loss	**Total Range**		8.1		dB
LO-RF Isolation			43		dB
LO-IF Isolation			39		dB
Input IP3			+35		dBm
1 dB Compression			+17		dBm

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

PIN CONNECTIONS	
LO	1
RF	8
IF	5
GROUND	2,3,4,6,7,9,10,11,12,13,14

Frequency Mixer HUD-ED9720/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=110MHz (dB) @LO (dBm)		
		+18	+20	+22
1620.1	1730.1	12.55	11.21	10.31
1640.1	1750.1	11.89	10.62	9.76
1660.1	1770.1	11.48	10.27	9.47
1680.1	1790.1	11.21	10.04	9.26
1700.1	1810.1	10.93	9.81	9.06
1720.1	1830.1	10.46	9.42	8.73
1740.1	1850.1	9.92	9.00	8.39
1760.1	1870.1	9.59	8.74	8.20
1780.1	1890.1	9.41	8.62	8.10
1800.1	1910.1	9.24	8.48	8.01
1820.1	1930.1	8.91	8.23	7.82
1840.1	1950.1	8.58	8.00	7.64
1860.1	1970.1	8.42	7.90	7.57
1880.1	1990.1	8.38	7.89	7.59
1900.1	2010.1	8.26	7.86	7.60
1920.1	2030.1	8.07	7.74	7.54
1940.1	2050.1	7.91	7.63	7.44
1970.1	2080.1	7.88	7.66	7.52
1990.1	2100.1	7.91	7.74	7.62
2020.1	2130.1	7.87	7.74	7.67
2040.1	2150.1	7.83	7.74	7.69
2070.1	2180.1	7.91	7.85	7.83
2090.1	2200.1	8.02	7.99	8.00
2120.1	2230.1	8.05	8.03	8.04
2140.1	2250.1	8.03	8.00	8.01
2170.1	2280.1	8.17	8.14	8.15
2190.1	2300.1	8.31	8.27	8.27
2220.1	2330.1	8.34	8.27	8.24
2240.1	2350.1	8.32	8.23	8.20
2270.1	2380.1	8.40	8.30	8.25
2290.1	2400.1	8.53	8.39	8.33
2320.1	2430.1	8.68	8.49	8.38
2340.1	2450.1	8.70	8.50	8.38
2370.1	2480.1	8.88	8.66	8.51
2390.1	2500.1	9.20	8.92	8.73
2420.1	2530.1	9.60	9.26	9.02
2440.1	2550.1	9.72	9.39	9.15
2470.1	2580.1	10.24	9.86	9.60
2490.1	2600.1	10.81	10.41	10.14
2520.1	2630.1	11.47	11.10	10.87

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+18	+20	+22
1620.1	1730.1	16.80	18.47	20.56
1640.1	1750.1	16.35	18.92	21.72
1660.1	1770.1	16.69	19.53	22.67
1680.1	1790.1	16.84	19.92	23.29
1700.1	1810.1	16.83	20.01	23.37
1720.1	1830.1	17.16	20.38	23.69
1740.1	1850.1	18.13	21.47	24.70
1760.1	1870.1	19.03	22.37	25.34
1780.1	1890.1	19.48	22.69	25.77
1800.1	1910.1	19.78	23.04	26.01
1820.1	1930.1	20.64	23.85	26.84
1840.1	1950.1	22.06	25.28	28.36
1860.1	1970.1	22.92	26.09	28.96
1880.1	1990.1	23.43	26.58	29.67
1900.1	2010.1	24.14	27.15	30.22
1920.1	2030.1	25.57	28.81	32.01
1940.1	2050.1	27.14	30.08	33.52
1970.1	2080.1	28.30	31.59	35.16
1990.1	2100.1	29.20	32.43	36.07
2020.1	2130.1	31.59	34.77	39.82
2040.1	2150.1	32.35	35.46	41.47
2070.1	2180.1	33.58	36.65	42.95
2090.1	2200.1	33.97	37.20	43.38
2120.1	2230.1	35.09	38.07	42.95
2140.1	2250.1	34.29	37.26	42.15
2170.1	2280.1	33.61	36.51	40.14
2190.1	2300.1	33.10	36.19	38.65
2220.1	2330.1	31.58	34.90	37.28
2240.1	2350.1	30.93	34.39	36.64
2270.1	2380.1	29.88	33.39	35.92
2290.1	2400.1	28.61	31.86	34.76
2320.1	2430.1	27.24	30.07	33.08
2340.1	2450.1	26.82	29.68	32.52
2370.1	2480.1	25.81	28.51	31.52
2390.1	2500.1	24.75	27.44	30.16
2420.1	2530.1	24.09	26.55	29.41
2440.1	2550.1	24.03	26.37	29.07
2470.1	2580.1	22.94	25.58	28.27
2490.1	2600.1	22.25	24.88	27.53
2520.1	2630.1	22.08	24.64	27.00

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+17dBm (dB) @LO (dBm)		
		+18	+20	+22
1620.1	1730.1	-0.45	0.23	0.43
1640.1	1750.1	-0.10	0.48	0.58
1660.1	1770.1	0.12	0.61	0.60
1680.1	1790.1	0.29	0.67	0.60
1700.1	1810.1	0.38	0.71	0.59
1720.1	1830.1	0.49	0.72	0.57
1740.1	1850.1	0.62	0.70	0.48
1760.1	1870.1	0.61	0.60	0.40
1780.1	1890.1	0.61	0.55	0.37
1800.1	1910.1	0.59	0.52	0.35
1820.1	1930.1	0.58	0.47	0.31
1840.1	1950.1	0.53	0.40	0.27
1860.1	1970.1	0.47	0.35	0.24
1880.1	1990.1	0.45	0.33	0.22
1900.1	2010.1	0.42	0.30	0.21
1920.1	2030.1	0.37	0.25	0.17
1940.1	2050.1	0.30	0.22	0.14
1970.1	2080.1	0.26	0.18	0.11
1990.1	2100.1	0.22	0.15	0.09
2020.1	2130.1	0.16	0.11	0.06
2040.1	2150.1	0.14	0.09	0.05
2070.1	2180.1	0.11	0.07	0.04
2090.1	2200.1	0.09	0.06	0.03
2120.1	2230.1	0.08	0.05	0.03
2140.1	2250.1	0.08	0.05	0.03
2170.1	2280.1	0.08	0.05	0.03
2190.1	2300.1	0.08	0.05	0.03
2220.1	2330.1	0.10	0.06	0.04
2240.1	2350.1	0.12	0.07	0.04
2270.1	2380.1	0.14	0.08	0.05
2290.1	2400.1	0.17	0.10	0.06
2320.1	2430.1	0.22	0.14	0.09
2340.1	2450.1	0.22	0.14	0.09
2370.1	2480.1	0.25	0.17	0.10
2390.1	2500.1	0.29	0.21	0.13
2420.1	2530.1	0.29	0.22	0.14
2440.1	2550.1	0.27	0.21	0.15
2470.1	2580.1	0.24	0.22	0.17
2490.1	2600.1	0.20	0.20	0.16
2520.1	2630.1	0.18	0.17	0.14

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2130.1001MHz (dB) @LO (dBm) +20
510.0	1620.1	11.34
489.2	1640.9	11.19
468.3	1661.8	10.78
447.5	1682.6	10.54
426.7	1703.4	10.49
405.8	1724.3	10.40
385.0	1745.1	10.13
364.2	1765.9	9.75
343.3	1786.8	9.52
322.5	1807.6	9.42
301.7	1828.4	9.24
280.8	1849.3	9.01
260.0	1870.1	8.83
239.2	1890.9	8.80
218.3	1911.8	8.76
197.5	1932.6	8.59
176.7	1953.4	8.42
155.8	1974.3	8.31
135.0	1995.1	8.26
114.2	2015.9	8.16
72.5	2057.6	7.93
51.7	2078.4	7.91
10.0	2120.1	8.26
10.0	2140.1	8.36
50.0	2180.1	7.92
70.0	2200.1	7.93
110.0	2240.1	8.01
130.0	2260.1	8.04
170.0	2300.1	8.08
190.0	2320.1	8.14
230.0	2360.1	8.17
250.0	2380.1	8.15
290.0	2420.1	8.22
310.0	2440.1	8.28
350.0	2480.1	8.47
370.0	2500.1	8.68
410.0	2540.1	9.08
430.0	2560.1	9.33
470.0	2600.1	10.16
490.0	2620.1	10.67

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2010.1MHz (dB) @LO (dBm) +20
10.0	2020.1	8.42
30.0	2040.1	7.93
50.0	2060.1	7.80
70.0	2080.1	7.77
90.0	2100.1	7.75
100.0	2110.1	7.77
120.0	2130.1	7.76
130.0	2140.1	7.78
150.0	2160.1	7.81
160.0	2170.1	7.84
180.0	2190.1	7.86
190.0	2200.1	7.88
210.0	2220.1	7.95
220.0	2230.1	7.96
240.0	2250.1	7.99
250.0	2260.1	8.00
270.0	2280.1	7.98
280.0	2290.1	7.98
300.0	2310.1	8.00
310.0	2320.1	8.03
330.0	2340.1	8.06
340.0	2350.1	8.07
360.0	2370.1	8.10
370.0	2380.1	8.14
390.0	2400.1	8.23
400.0	2410.1	8.26
420.0	2430.1	8.39
430.0	2440.1	8.45
450.0	2460.1	8.55
460.0	2470.1	8.63
480.0	2490.1	8.86
490.0	2500.1	8.97
510.0	2520.1	9.18
520.0	2530.1	9.30
540.0	2550.1	9.54
550.0	2560.1	9.69
570.0	2580.1	10.10
580.0	2590.1	10.34
600.0	2610.1	10.89
610.0	2620.1	11.21

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2250.1001MHz (dB) @LO (dBm) +20
650.0	1600.1	11.98
630.0	1620.1	11.89
610.0	1640.1	11.71
590.0	1660.1	11.36
570.0	1680.1	11.12
550.0	1700.1	11.05
530.0	1720.1	11.02
510.0	1740.1	10.79
490.0	1760.1	10.46
470.0	1780.1	10.21
450.0	1800.1	10.03
430.0	1820.1	9.88
410.0	1840.1	9.59
400.0	1850.1	9.42
380.0	1870.1	9.23
370.0	1880.1	9.18
350.0	1900.1	9.11
340.0	1910.1	9.10
320.0	1930.1	9.01
310.0	1940.1	8.91
290.0	1960.1	8.74
280.0	1970.1	8.72
260.0	1990.1	8.67
250.0	2000.1	8.65
230.0	2020.1	8.52
220.0	2030.1	8.45
200.0	2050.1	8.28
190.0	2060.1	8.25
170.0	2080.1	8.16
160.0	2090.1	8.11
140.0	2110.1	8.06
130.0	2120.1	8.01
110.0	2140.1	7.93
100.0	2150.1	7.93
80.0	2170.1	7.90
70.0	2180.1	7.89
50.0	2200.1	7.95
40.0	2210.1	7.97
20.0	2230.1	8.08
10.0	2240.1	8.44

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+18	+20	+22	+18	+20	+22
1730.1	47.93	47.45	47.01	39.52	38.95	38.58
1750.1	48.42	47.79	47.23	39.40	38.89	38.58
1770.1	49.16	48.36	47.77	39.06	38.56	38.18
1790.1	49.21	48.39	47.56	38.78	38.31	37.89
1810.1	48.97	48.06	47.38	38.42	37.96	37.63
1830.1	48.06	47.20	46.47	38.06	37.62	37.27
1850.1	47.46	46.76	46.17	37.55	37.16	36.82
1870.1	46.19	45.44	44.99	37.10	36.69	36.45
1890.1	45.82	45.31	44.96	36.74	36.39	36.12
1910.1	45.09	44.59	44.26	36.53	36.19	36.00
1930.1	44.97	44.60	44.43	36.16	35.79	35.62
1950.1	44.28	43.98	43.88	35.86	35.58	35.43
1970.1	44.02	43.79	43.78	35.58	35.31	35.16
1990.1	43.90	43.75	43.87	35.43	35.21	35.11
2010.1	43.76	43.82	44.02	35.42	35.35	35.29
2030.1	43.80	43.89	44.26	35.30	35.21	35.20
2050.1	43.58	43.58	43.85	35.46	35.55	35.54
2080.1	44.11	44.26	44.57	35.92	35.96	36.10
2100.1	44.60	44.79	45.07	36.47	36.59	36.65
2130.1	45.14	45.32	45.59	38.04	38.39	38.70
2150.1	46.00	46.25	46.54	39.80	40.35	40.84
2180.1	46.72	46.84	46.99	45.22	47.12	49.16
2200.1	47.00	47.03	47.05	52.98	60.53	66.91
2230.1	45.55	45.36	45.14	45.77	44.50	42.91
2250.1	45.01	44.63	44.64	40.66	39.68	38.93
2280.1	43.40	43.04	43.10	36.61	36.00	35.51
2300.1	42.53	42.31	42.42	35.08	34.64	34.31
2330.1	40.79	40.73	40.80	33.66	33.37	33.21
2350.1	39.94	39.98	40.15	33.12	32.94	32.94
2380.1	38.58	38.61	38.80	32.46	32.31	32.38
2400.1	37.70	37.74	37.91	32.06	31.95	32.07
2430.1	36.35	36.58	36.70	31.42	31.48	31.55
2450.1	35.58	35.92	35.98	30.93	31.09	31.21
2480.1	35.11	35.40	35.46	30.44	30.55	30.62
2500.1	34.37	34.69	34.72	30.00	30.20	30.33
2530.1	33.72	34.02	34.01	29.71	29.87	29.96
2550.1	33.19	33.46	33.56	29.45	29.54	29.69
2580.1	32.83	33.19	33.30	29.10	29.24	29.39
2600.1	32.42	32.76	32.97	28.80	28.99	29.12
2630.1	32.21	32.68	32.83	28.46	28.74	28.88

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+18	+20	+22
1620.1	1730.1	36.92	36.49	37.77
1640.1	1750.1	35.61	35.45	36.64
1660.1	1770.1	35.02	35.37	37.03
1680.1	1790.1	34.77	35.08	36.55
1700.1	1810.1	34.42	34.67	35.99
1720.1	1830.1	34.58	35.07	36.56
1740.1	1850.1	34.22	34.52	35.61
1760.1	1870.1	34.69	35.43	37.07
1780.1	1890.1	34.47	34.87	36.00
1800.1	1910.1	34.92	35.56	36.94
1820.1	1930.1	35.13	35.68	36.85
1840.1	1950.1	35.49	36.16	37.35
1860.1	1970.1	36.18	36.97	38.20
1880.1	1990.1	36.55	37.18	38.26
1900.1	2010.1	37.66	38.37	39.46
1920.1	2030.1	38.57	39.22	40.07
1940.1	2050.1	40.20	40.89	41.44
1970.1	2080.1	42.28	42.72	42.81
1990.1	2100.1	43.52	43.46	42.62
2020.1	2130.1	44.45	43.95	43.28
2040.1	2150.1	43.45	42.96	42.49
2070.1	2180.1	41.09	40.93	40.83
2090.1	2200.1	39.31	39.30	39.29
2120.1	2230.1	36.94	37.03	37.14
2140.1	2250.1	35.71	35.80	35.94
2170.1	2280.1	34.35	34.48	34.60
2190.1	2300.1	33.60	33.75	33.78
2220.1	2330.1	32.85	33.07	33.09
2240.1	2350.1	32.53	32.76	32.81
2270.1	2380.1	32.13	32.35	32.48
2290.1	2400.1	31.88	32.18	32.25
2320.1	2430.1	31.62	31.99	32.20
2340.1	2450.1	31.43	31.79	31.89
2370.1	2480.1	31.20	31.55	31.74
2390.1	2500.1	30.92	31.25	31.36
2420.1	2530.1	30.87	31.20	31.40
2440.1	2550.1	30.72	31.02	31.04
2470.1	2580.1	30.64	31.01	31.14
2490.1	2600.1	30.46	30.85	30.91
2520.1	2630.1	30.54	31.02	31.21

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+18	+20	+22
1620.1	1650.1	3.98	3.60	3.37
1640.1	1670.1	3.57	3.24	3.03
1660.1	1690.1	3.25	2.93	2.73
1680.1	1710.1	3.12	2.79	2.58
1700.1	1730.1	2.94	2.61	2.40
1720.1	1750.1	2.59	2.30	2.13
1740.1	1770.1	2.25	2.01	1.87
1760.1	1790.1	2.04	1.82	1.68
1780.1	1810.1	1.93	1.72	1.59
1800.1	1830.1	1.80	1.61	1.49
1820.1	1850.1	1.61	1.46	1.38
1840.1	1870.1	1.44	1.32	1.27
1860.1	1890.1	1.34	1.23	1.20
1880.1	1910.1	1.29	1.19	1.17
1900.1	1930.1	1.20	1.15	1.18
1920.1	1950.1	1.11	1.16	1.25
1940.1	1970.1	1.08	1.20	1.30
1970.1	2000.1	1.10	1.22	1.32
1990.1	2020.1	1.16	1.28	1.38
2020.1	2050.1	1.32	1.44	1.56
2040.1	2070.1	1.39	1.51	1.61
2070.1	2100.1	1.42	1.52	1.62
2090.1	2120.1	1.47	1.57	1.67
2120.1	2150.1	1.58	1.68	1.77
2140.1	2170.1	1.61	1.70	1.78
2170.1	2200.1	1.57	1.65	1.72
2190.1	2220.1	1.55	1.62	1.68
2220.1	2250.1	1.55	1.60	1.65
2240.1	2270.1	1.53	1.57	1.60
2270.1	2300.1	1.47	1.48	1.50
2290.1	2320.1	1.45	1.44	1.44
2320.1	2350.1	1.49	1.45	1.43
2340.1	2370.1	1.54	1.48	1.45
2370.1	2400.1	1.64	1.56	1.50
2390.1	2420.1	1.72	1.63	1.57
2420.1	2450.1	1.87	1.76	1.70
2440.1	2470.1	2.02	1.90	1.82
2470.1	2500.1	2.24	2.11	2.02
2490.1	2520.1	2.37	2.23	2.12
2520.1	2550.1	2.59	2.44	2.32

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+18	+20	+22
1730.1	22.87	21.20	19.11
1750.1	23.49	22.29	20.95
1770.1	22.58	21.20	19.76
1790.1	19.98	18.50	16.56
1810.1	18.90	17.22	15.13
1830.1	19.32	18.11	16.41
1850.1	19.54	18.50	17.39
1870.1	17.93	16.89	15.81
1890.1	15.81	14.50	12.99
1910.1	14.62	13.39	11.93
1930.1	14.50	13.49	12.52
1950.1	13.81	13.09	12.35
1970.1	12.09	11.38	10.62
1990.1	10.31	9.53	8.72
2010.1	9.23	8.51	7.80
2030.1	8.43	7.90	7.44
2050.1	7.41	6.97	6.63
2080.1	5.65	5.23	4.92
2100.1	4.67	4.33	4.05
2130.1	3.49	3.24	3.07
2150.1	2.77	2.57	2.43
2180.1	1.91	1.77	1.67
2200.1	1.49	1.38	1.30
2230.1	1.04	1.06	1.11
2250.1	1.24	1.33	1.40
2280.1	1.74	1.86	1.96
2300.1	2.11	2.25	2.35
2330.1	2.71	2.86	2.95
2350.1	3.22	3.40	3.52
2380.1	4.03	4.23	4.36
2400.1	4.45	4.62	4.68
2430.1	5.17	5.31	5.31
2450.1	5.83	6.03	6.11
2480.1	6.58	6.76	6.81
2500.1	6.78	6.81	6.63
2530.1	7.41	7.44	7.25
2550.1	7.97	8.08	8.05
2580.1	8.20	8.16	7.97
2600.1	8.01	7.80	7.34
2630.1	8.27	8.12	7.83

IF (OUT) (MHz)	IF VSWR @LO=2360.1001MHz (:1) @LO (dBm)		
	+18	+20	+22
10.1	1.07	1.03	1.10
70.1	1.12	1.06	1.09
130.1	1.18	1.12	1.13
190.1	1.26	1.18	1.15
250.1	1.36	1.26	1.21
310.1	1.51	1.39	1.33
370.1	1.64	1.51	1.42
430.1	1.82	1.67	1.58
490.1	2.01	1.85	1.75
550.1	2.16	2.00	1.89
610.1	2.36	2.20	2.09
670.1	2.59	2.43	2.33
730.1	2.76	2.59	2.49
790.1	2.91	2.73	2.63
850.1	3.18	2.99	2.86
910.1	3.09	2.89	2.77
970.1	3.21	2.98	2.83
1030.1	3.22	2.99	2.83
1090.1	2.98	2.75	2.59
1150.1	2.89	2.66	2.50
1210.1	2.55	2.35	2.22
1270.1	2.41	2.22	2.09
1330.1	2.05	1.90	1.79
1390.1	1.97	1.85	1.77
1450.1	1.75	1.65	1.59
1510.1	1.66	1.61	1.58
1570.1	1.63	1.60	1.59
1630.1	1.57	1.58	1.61
1690.1	1.62	1.65	1.68
1750.1	1.55	1.62	1.67
1810.1	1.66	1.74	1.80
1870.1	1.51	1.58	1.64
1930.1	1.59	1.69	1.76
1990.1	1.43	1.51	1.57
2050.1	1.40	1.48	1.53
2110.1	1.32	1.38	1.42
2170.1	1.41	1.43	1.46
2230.1	1.50	1.51	1.53
2290.1	1.78	1.79	1.80
2350.1	1.88	1.93	1.97

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	17	21	26	16	26	39	36	45	54	67
1	-	27	+0	38	26	42	35	51	33	55	53	71
2	54	62	69	46	>84	60	72	71	76	67	74	77
3	>90	>84	>84	>84	78	>84	81	>84	>84	>84	>84	>84
4	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
5	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
6	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
7	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
8	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
9	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
10	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 2130.1 MHz; 2.00 dBm.
LO IN: 2240.1 MHz; +20.00 dBm
IF OUT: 110 MHz; -6.11 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	27	31	35	25	36	51	46	52	64	78
1	-	27	+0	38	26	42	35	51	34	54	54	75
2	34	52	60	36	76	51	62	58	70	60	65	69
3	59	84	66	75	55	75	61	71	67	84	66	74
4	83	81	>94	91	78	71	80	75	81	84	89	82
5	>90	>94	>94	>94	>94	83	80	85	86	89	>94	90
6	>90	89	>94	>94	>94	>94	92	>94	89	>94	>94	94
7	>90	>94	>94	>94	>94	>94	>94	>94	91	>94	>94	>94
8	>90	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
9	>90	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
10	>90	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

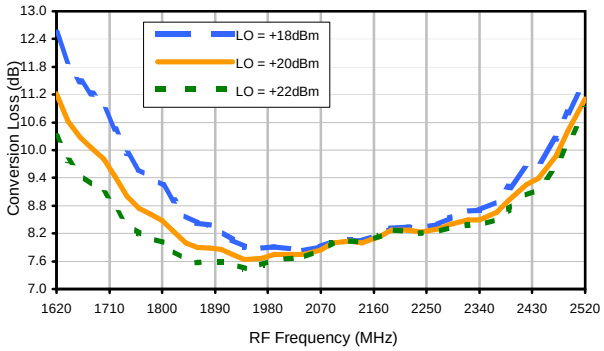
Test conditions:

RF IN: 2130.1 MHz; 12.00 dBm.
LO IN: 2240.1 MHz; +20.00 dBm
IF OUT: 110 MHz; 3.81 dBm

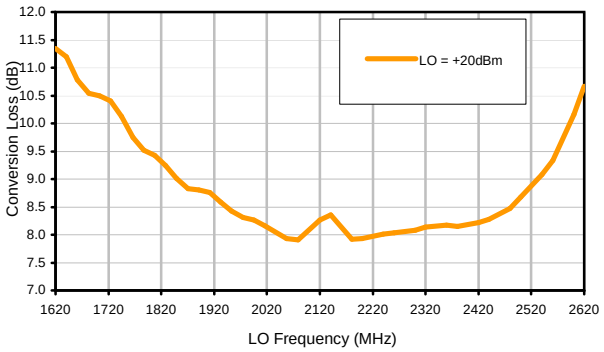
Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Typical Performance Curves

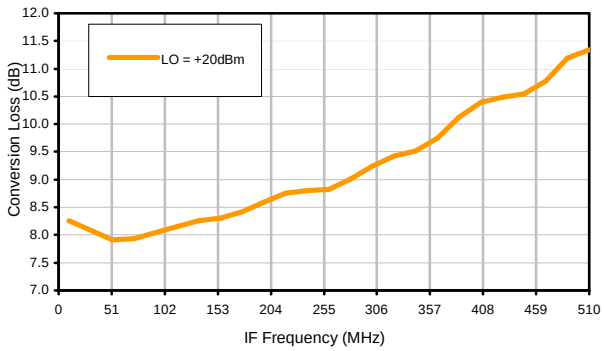
Conversion Loss @ IF=110MHz



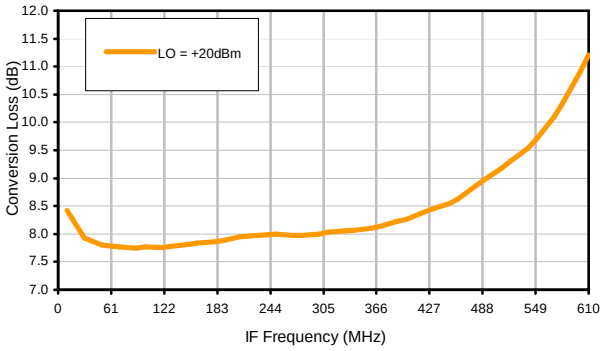
Conversion Loss vs. LO @ RF=2130.1001MHz



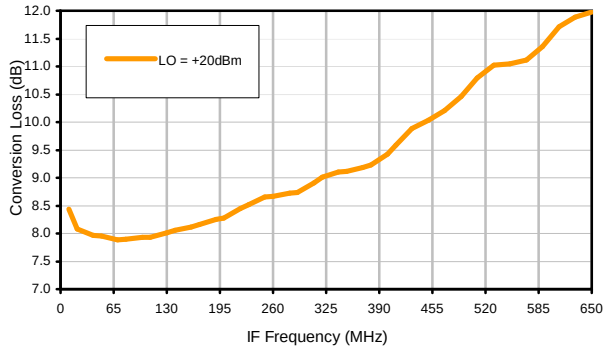
Conversion Loss vs. IF @ RF=2130.1001MHz



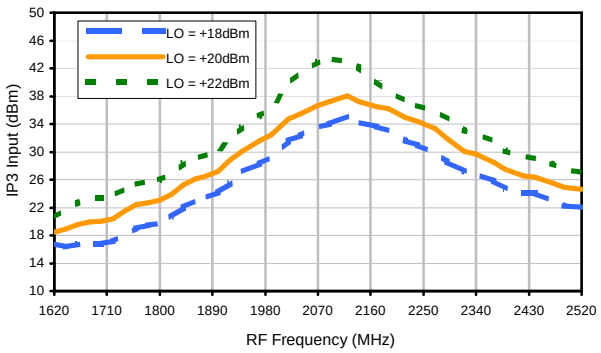
Conversion Loss vs. IF @ RF=2010.1MHz



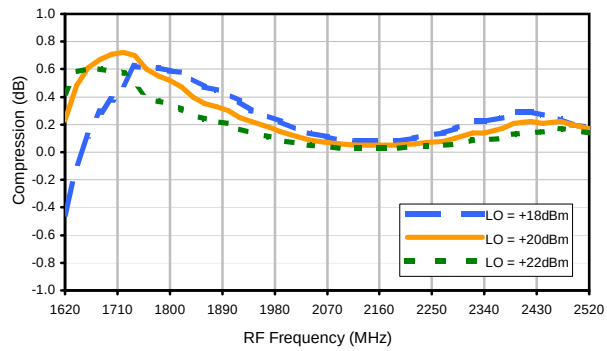
Conversion Loss vs. IF @ RF=2250.1001MHz



IP3 Input

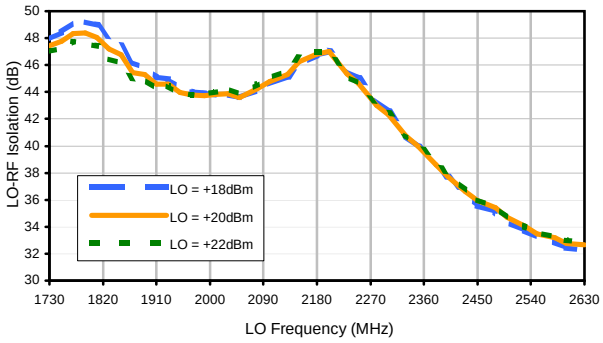


Compression @ RF IN=+17dBm

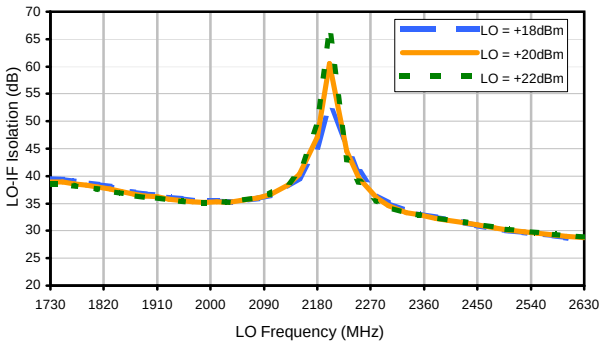


Typical Performance Curves

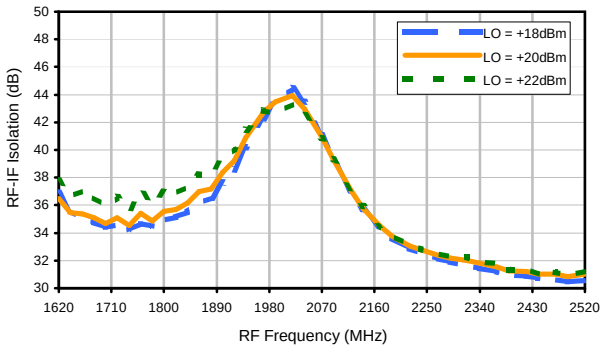
LO-RF Isolation



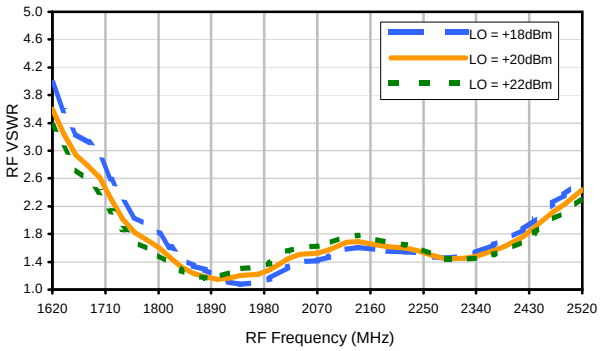
LO-IF Isolation



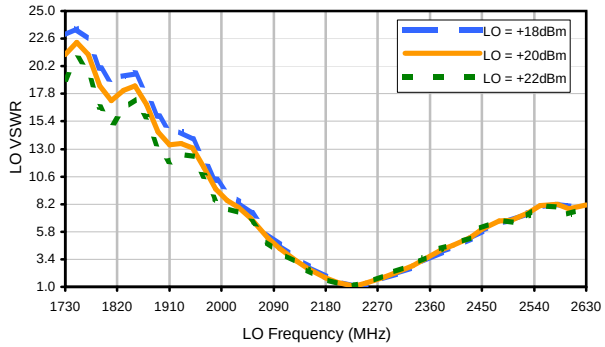
RF-IF Isolation



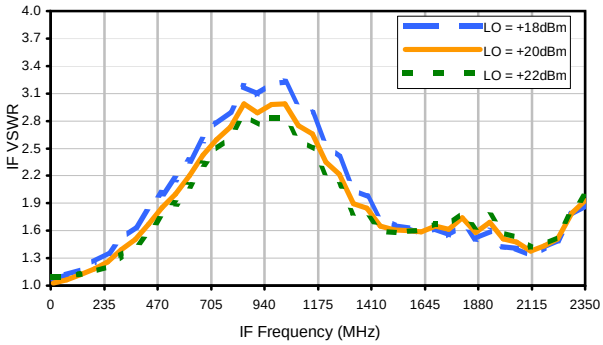
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	17	21	26	16	26	39	36	45	54	67
1	-	27	+0	38	26	42	35	51	33	55	53	71
2	54	62	69	46	>84	60	72	71	76	67	74	77
3	>90	>84	>84	>84	78	>84	81	>84	>84	>84	>84	>84
4	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
5	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
6	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
7	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
8	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
9	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
10	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 2130.1 MHz; 2.00 dBm.
LO IN: 2240.1 MHz; +20.00 dBm
IF OUT: 110 MHz; -6.11 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	27	31	35	25	36	51	46	52	64	78
1	-	27	+0	38	26	42	35	51	34	54	54	75
2	34	52	60	36	76	51	62	58	70	60	65	69
3	59	84	66	75	55	75	61	71	67	84	66	74
4	83	81	>94	91	78	71	80	75	81	84	89	82
5	>90	>94	>94	>94	>94	83	80	85	86	89	>94	90
6	>90	89	>94	>94	>94	>94	92	>94	89	>94	>94	94
7	>90	>94	>94	>94	>94	>94	>94	>94	91	>94	>94	>94
8	>90	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
9	>90	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
10	>90	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 2130.1 MHz; 12.00 dBm.
LO IN: 2240.1 MHz; +20.00 dBm
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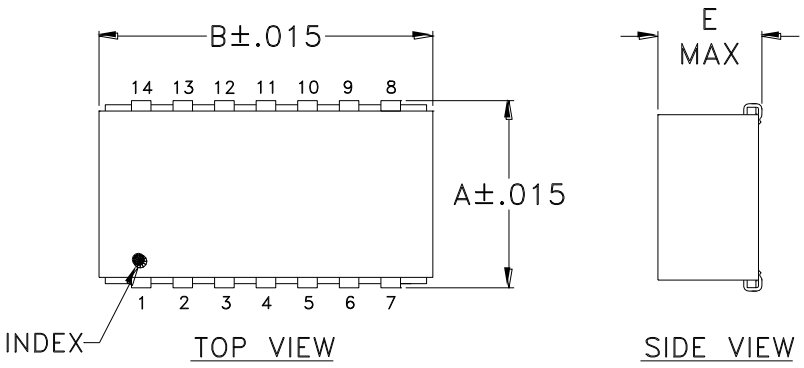
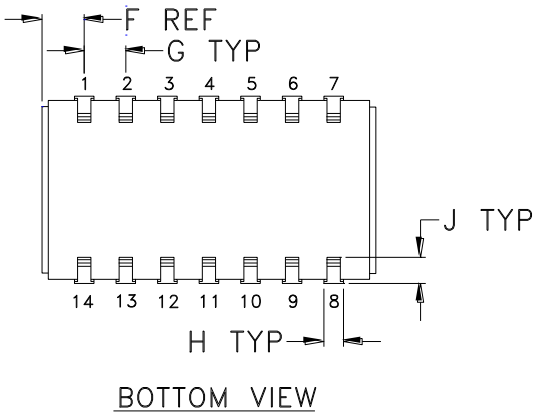
Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Case Style BK

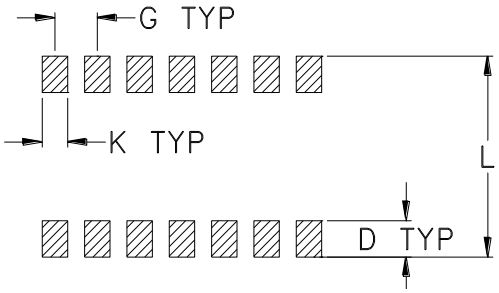
BK377

Outline Dimensions





PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE #	A	B	C	D	E	F	G	H	J	K	L	WT. GRAM
BK377	.505 (12.83)	.800 (20.32)	-- --	.100 (2.54)	.250 (6.35)	.100 (2.54)	.100 (2.54)	.047 (1.19)	.065 (1.65)	.065 (1.65)	.525 (13.34)	2.0 MAX.

Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3Pl. ± .005

Notes:

1. Case material: Copper Nickel alloy.
2. Base material: Printed wiring laminate.
3. Termination finish:
   For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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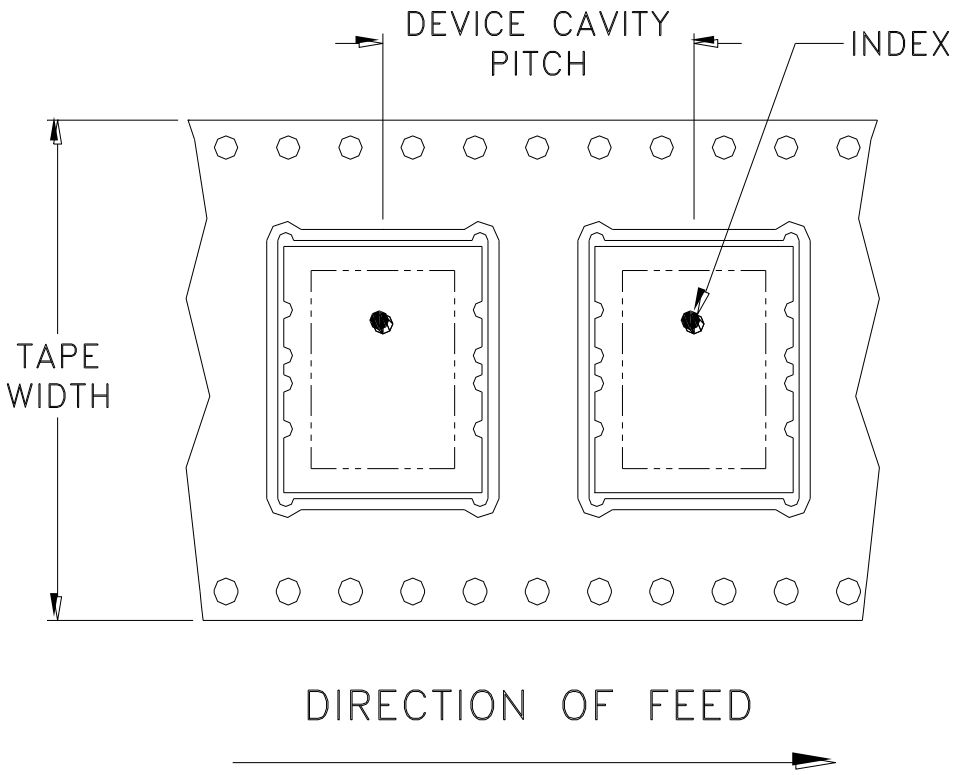
Tape & Reel Packaging TR-F107

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
32	20	7	Small quantity standards (see note)	10
				20
				50
				100
		13	Standard	200

Note: Please consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

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