

Frequency Mixer

ADE-901+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
80.1	110.1	11.54	10.22	9.70
120.1	150.1	9.16	8.44	8.07
160.1	190.1	8.18	7.65	7.41
200.1	230.1	7.51	7.09	6.91
240.1	270.1	7.18	6.86	6.67
280.1	310.1	6.99	6.61	6.48
320.1	350.1	6.82	6.54	6.52
360.1	390.1	6.69	6.36	6.22
400.1	430.1	6.56	6.28	6.17
440.1	470.1	6.41	6.12	6.00
480.1	510.1	6.48	6.17	6.01
520.1	550.1	6.43	6.13	6.00
560.1	590.1	6.39	6.10	5.95
600.1	630.1	6.39	6.08	5.88
640.1	670.1	6.39	6.06	5.87
700.1	730.1	6.40	6.10	5.90
740.1	770.1	6.41	6.09	5.88
800.1	830.1	6.37	6.09	5.87
840.1	870.1	6.39	6.10	5.88
900.1	930.1	6.39	6.08	5.88
940.1	970.1	6.46	6.13	5.92
1000.1	1030.1	6.57	6.21	5.96
1040.1	1070.1	6.68	6.27	6.01
1100.1	1130.1	6.89	6.39	6.09
1140.1	1170.1	7.06	6.54	6.20
1200.1	1230.1	7.28	6.72	6.32
1240.1	1270.1	7.50	6.91	6.50
1300.1	1330.1	7.69	7.12	6.69
1340.1	1370.1	7.86	7.33	6.86
1400.1	1430.1	8.01	7.45	6.99
1440.1	1470.1	8.05	7.54	7.13
1500.1	1530.1	8.26	7.81	7.52
1540.1	1570.1	8.36	7.94	7.69
1600.1	1630.1	8.66	8.27	8.02
1640.1	1670.1	8.78	8.42	8.20
1700.1	1730.1	9.03	8.69	8.50
1740.1	1770.1	9.29	8.93	8.78
1800.1	1830.1	9.55	9.22	9.02
1840.1	1870.1	9.82	9.52	9.30
1900.1	1930.1	10.18	9.85	9.68

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
80.1	110.1	13.63	16.53	19.41
120.1	150.1	16.26	16.78	18.80
160.1	190.1	15.36	16.90	17.40
200.1	230.1	14.80	15.13	16.12
240.1	270.1	16.12	15.86	18.01
280.1	310.1	16.04	14.78	17.23
320.1	350.1	15.76	15.55	16.18
360.1	390.1	15.97	14.45	15.23
400.1	430.1	14.65	15.79	16.47
440.1	470.1	15.52	15.52	17.17
480.1	510.1	19.98	16.89	15.89
520.1	550.1	16.20	16.75	16.16
560.1	590.1	14.43	15.08	16.15
600.1	630.1	13.98	14.28	15.15
640.1	670.1	14.73	14.50	14.24
700.1	730.1	15.53	14.24	14.29
740.1	770.1	15.93	15.50	15.32
800.1	830.1	14.52	15.12	14.79
840.1	870.1	15.32	15.15	13.70
900.1	930.1	14.65	14.62	14.45
940.1	970.1	15.13	14.64	15.22
1000.1	1030.1	20.26	14.10	14.57
1040.1	1070.1	18.16	14.86	13.94
1100.1	1130.1	12.14	17.87	13.59
1140.1	1170.1	11.15	18.47	14.63
1200.1	1230.1	10.15	14.03	14.94
1240.1	1270.1	10.38	13.53	15.62
1300.1	1330.1	10.26	12.07	13.80
1340.1	1370.1	9.38	10.28	11.78
1400.1	1430.1	9.02	9.87	10.87
1440.1	1470.1	9.27	10.44	10.97
1500.1	1530.1	10.97	11.02	11.40
1540.1	1570.1	11.15	12.39	12.14
1600.1	1630.1	13.49	13.17	13.04
1640.1	1670.1	12.76	14.35	13.73
1700.1	1730.1	14.02	15.05	14.43
1740.1	1770.1	13.66	15.54	16.14
1800.1	1830.1	16.78	16.21	17.47
1840.1	1870.1	16.89	19.25	18.08
1900.1	1930.1	17.67	20.44	18.78

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
80.1	110.1	-0.11	0.15	0.01
120.1	150.1	0.22	0.09	0.17
160.1	190.1	0.33	0.17	0.17
200.1	230.1	0.54	0.27	0.25
240.1	270.1	0.73	0.38	0.29
280.1	310.1	0.74	0.44	0.31
320.1	350.1	0.73	0.63	0.55
360.1	390.1	0.91	0.60	0.45
400.1	430.1	1.02	0.61	0.47
440.1	470.1	0.90	0.69	0.49
480.1	510.1	1.00	0.76	0.53
520.1	550.1	0.97	0.69	0.51
560.1	590.1	0.95	0.76	0.56
600.1	630.1	1.01	0.79	0.59
640.1	670.1	1.19	1.05	0.87
700.1	730.1	1.10	0.93	0.77
740.1	770.1	1.31	1.03	0.84
800.1	830.1	1.25	1.09	0.87
840.1	870.1	1.47	1.17	1.06
900.1	930.1	1.51	1.14	0.98
940.1	970.1	1.76	1.32	1.20
1000.1	1030.1	1.81	1.48	1.22
1040.1	1070.1	1.64	1.35	1.14
1100.1	1130.1	1.73	1.47	1.24
1140.1	1170.1	1.64	1.44	1.20
1200.1	1230.1	1.73	1.45	1.19
1240.1	1270.1	1.63	1.48	1.30
1300.1	1330.1	1.66	1.42	1.18
1340.1	1370.1	1.54	1.28	1.21
1400.1	1430.1	1.28	1.21	1.05
1440.1	1470.1	1.25	1.15	1.04
1500.1	1530.1	1.16	0.90	0.80
1540.1	1570.1	0.99	0.74	0.74
1600.1	1630.1	0.71	0.66	0.49
1640.1	1670.1	0.78	0.51	0.36
1700.1	1730.1	0.54	0.42	0.37
1740.1	1770.1	0.61	0.29	0.26
1800.1	1830.1	0.46	0.23	0.19
1840.1	1870.1	0.47	0.17	0.16
1900.1	1930.1	0.20	0.12	0.14

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant

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Frequency Mixer

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=900.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=800.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
100.0	800.1	5.86	10.0	810.1	6.11	200.0	800.1	6.17
95.3	804.8	5.89	14.9	815.0	6.12	195.1	805.0	6.17
90.5	809.6	5.89	19.7	819.8	6.12	190.3	809.8	6.17
85.8	814.3	5.89	24.6	824.7	6.10	185.4	814.7	6.16
81.1	819.0	5.89	29.5	829.6	6.07	180.5	819.6	6.16
76.3	823.8	5.89	34.4	834.5	6.03	175.6	824.5	6.16
71.6	828.5	5.88	39.2	839.3	6.06	170.8	829.3	6.15
66.8	833.3	5.86	44.1	844.2	6.04	165.9	834.2	6.17
62.1	838.0	5.84	49.0	849.1	6.06	161.0	839.1	6.19
57.4	842.7	5.85	53.8	853.9	6.05	156.2	843.9	6.18
52.6	847.5	5.83	58.7	858.8	6.06	151.3	848.8	6.19
47.9	852.2	5.84	63.6	863.7	6.07	146.4	853.7	6.20
43.2	856.9	5.84	68.5	868.6	6.07	141.5	858.6	6.17
38.4	861.7	5.84	73.3	873.4	6.07	136.7	863.4	6.16
33.7	866.4	5.86	78.2	878.3	6.03	131.8	868.3	6.15
28.9	871.2	5.84	83.1	883.2	6.04	126.9	873.2	6.14
24.2	875.9	5.83	87.9	888.0	6.04	122.1	878.0	6.13
19.5	880.6	5.83	92.8	892.9	6.03	117.2	882.9	6.14
14.7	885.4	5.81	97.7	897.8	6.02	112.3	887.8	6.13
10.0	890.1	5.86	102.6	902.7	6.01	107.4	892.7	6.15
10.0	910.1	5.91	107.4	907.5	6.00	102.6	897.5	6.15
14.7	914.8	5.77	112.3	912.4	6.00	97.7	902.4	6.15
19.5	919.6	5.82	117.2	917.3	5.99	92.8	907.3	6.16
24.2	924.3	5.79	122.1	922.2	5.98	87.9	912.2	6.15
28.9	929.0	5.79	126.9	927.0	5.98	83.1	917.0	6.14
33.7	933.8	5.78	131.8	931.9	5.99	78.2	921.9	6.13
38.4	938.5	5.77	136.7	936.8	6.00	73.3	926.8	6.16
43.2	943.3	5.79	141.5	941.6	6.01	68.5	931.6	6.17
47.9	948.0	5.81	146.4	946.5	6.03	63.6	936.5	6.16
52.6	952.7	5.82	151.3	951.4	6.02	58.7	941.4	6.16
57.4	957.5	5.84	156.2	956.3	6.01	53.8	946.3	6.14
62.1	962.2	5.84	161.0	961.1	6.00	49.0	951.1	6.19
66.8	966.9	5.83	165.9	966.0	6.01	44.1	956.0	6.16
71.6	971.7	5.82	170.8	970.9	6.00	39.2	960.9	6.19
76.3	976.4	5.81	175.6	975.7	6.01	34.4	965.7	6.16
81.1	981.2	5.81	180.5	980.6	6.01	29.5	970.6	6.16
85.8	985.9	5.82	185.4	985.5	6.02	24.6	975.5	6.20
90.5	990.6	5.83	190.3	990.4	6.02	19.7	980.4	6.23
95.3	995.4	5.85	195.1	995.2	6.02	14.9	985.2	6.23
100.0	1000.1	5.86	200.0	1000.1	6.02	10.0	990.1	6.34

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
80.1	54.13	53.66	53.31	59.70	52.96	49.73
120.1	50.56	49.83	49.40	52.26	48.46	46.63
160.1	47.25	46.84	46.72	48.52	46.42	44.98
200.1	44.97	45.03	45.06	46.90	44.92	43.63
240.1	43.21	43.45	43.62	45.67	43.86	42.49
280.1	41.67	42.00	42.23	44.78	42.93	41.54
320.1	40.46	40.88	41.14	43.78	41.92	40.54
360.1	39.61	40.09	40.40	42.69	40.99	39.65
400.1	38.76	39.30	39.67	41.78	40.35	39.12
440.1	38.02	38.53	38.88	40.45	39.13	38.06
480.1	37.39	37.94	38.25	39.50	38.45	37.46
520.1	36.83	37.41	37.76	38.03	37.38	36.71
560.1	36.23	36.75	37.10	36.74	36.19	35.69
600.1	35.73	36.19	36.48	35.88	35.35	34.83
640.1	35.32	35.82	36.07	34.78	34.41	33.94
700.1	34.70	35.18	35.45	33.57	33.49	33.28
740.1	34.42	34.84	35.09	32.66	32.60	32.51
800.1	33.94	34.22	34.43	31.77	31.67	31.52
840.1	33.89	34.02	34.09	31.12	30.99	30.75
900.1	33.93	33.90	33.80	30.53	30.46	30.16
940.1	33.89	33.82	33.67	30.15	30.24	29.97
1000.1	33.83	33.78	33.60	29.42	29.94	29.88
1040.1	33.84	33.84	33.65	28.73	29.52	29.71
1100.1	33.74	33.80	33.61	28.04	28.98	29.49
1140.1	33.62	33.73	33.61	27.58	28.50	29.19
1200.1	33.71	33.89	33.87	27.20	28.00	28.70
1240.1	33.72	33.90	33.92	26.97	27.75	28.40
1300.1	33.85	33.99	34.05	26.78	27.57	28.17
1340.1	33.97	34.04	34.08	26.50	27.33	27.91
1400.1	34.20	34.15	34.11	26.33	27.26	27.83
1440.1	34.61	34.49	34.37	26.30	27.23	27.77
1500.1	35.64	35.43	35.21	26.14	27.11	27.68
1540.1	36.52	36.39	36.12	26.26	27.32	27.97
1600.1	38.07	38.22	37.91	26.37	27.71	28.57
1640.1	38.69	39.46	39.39	26.16	27.74	28.84
1700.1	39.14	41.03	41.47	26.18	28.08	29.56
1740.1	38.89	41.42	42.50	26.07	28.16	29.87
1800.1	38.30	41.46	43.52	26.15	28.41	30.44
1840.1	38.08	41.49	44.00	26.18	28.54	30.76
1900.1	37.14	40.49	43.32	26.52	28.88	31.22

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
80.1	110.1	41.08	41.09	43.67
120.1	150.1	38.09	39.12	40.16
160.1	190.1	36.22	37.73	37.58
200.1	230.1	34.10	35.27	35.31
240.1	270.1	32.78	33.69	34.33
280.1	310.1	31.92	32.56	33.00
320.1	350.1	31.21	31.96	32.62
360.1	390.1	30.68	31.35	32.17
400.1	430.1	30.48	31.37	32.02
440.1	470.1	30.40	31.61	32.42
480.1	510.1	30.19	31.58	32.71
520.1	550.1	30.42	31.82	33.04
560.1	590.1	31.02	32.49	33.75
600.1	630.1	32.26	34.15	35.91
640.1	670.1	33.68	36.02	38.60
700.1	730.1	39.92	46.07	56.81
740.1	770.1	44.69	45.46	41.52
800.1	830.1	34.82	33.30	32.14
840.1	870.1	30.52	29.36	28.53
900.1	930.1	26.59	25.57	24.96
940.1	970.1	25.15	24.17	23.54
1000.1	1030.1	23.53	22.56	21.94
1040.1	1070.1	22.82	21.85	21.20
1100.1	1130.1	22.08	21.18	20.49
1140.1	1170.1	21.72	20.96	20.28
1200.1	1230.1	21.43	20.81	20.20
1240.1	1270.1	21.35	20.82	20.27
1300.1	1330.1	21.20	20.78	20.29
1340.1	1370.1	21.03	20.65	20.20
1400.1	1430.1	20.34	19.86	19.39
1440.1	1470.1	19.66	19.13	18.63
1500.1	1530.1	18.60	18.06	17.58
1540.1	1570.1	17.77	17.21	16.77
1600.1	1630.1	16.55	15.97	15.54
1640.1	1670.1	15.66	15.06	14.63
1700.1	1730.1	14.41	13.78	13.35
1740.1	1770.1	13.61	12.98	12.56
1800.1	1830.1	12.50	11.86	11.43
1840.1	1870.1	11.89	11.23	10.82
1900.1	1930.1	10.95	10.31	9.89

Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1000.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
80.1	110.1	5.91	5.56	5.34	80.1	7.70	5.93	5.70	10.1	2.09	2.06	1.86
120.1	150.1	4.14	3.90	3.87	120.1	3.99	3.82	4.33	14.9	2.20	1.97	1.90
160.1	190.1	2.81	2.73	2.69	160.1	3.18	3.43	4.18	19.6	2.25	2.03	1.73
200.1	230.1	2.55	2.49	2.46	200.1	2.62	3.06	3.88	24.4	2.09	1.84	1.69
240.1	270.1	2.14	2.14	2.13	240.1	2.44	3.02	3.95	29.1	2.12	1.73	1.57
280.1	310.1	1.98	1.96	1.96	280.1	2.27	2.93	3.89	33.9	1.91	1.67	1.50
320.1	350.1	1.82	1.83	1.85	320.1	2.18	2.88	3.84	38.6	1.88	1.61	1.47
360.1	390.1	1.68	1.69	1.70	360.1	2.17	2.93	3.95	43.4	1.77	1.52	1.46
400.1	430.1	1.57	1.59	1.61	400.1	2.05	2.78	3.74	48.1	1.66	1.53	1.36
440.1	470.1	1.47	1.49	1.51	440.1	2.07	2.85	3.85	52.9	1.62	1.45	1.34
480.1	510.1	1.42	1.45	1.48	480.1	2.04	2.83	3.82	57.6	1.64	1.44	1.31
520.1	550.1	1.36	1.39	1.41	520.1	2.04	2.84	3.83	62.4	1.62	1.44	1.31
560.1	590.1	1.32	1.36	1.40	560.1	2.09	2.94	3.98	67.1	1.59	1.43	1.30
600.1	630.1	1.28	1.33	1.36	600.1	2.07	2.90	3.91	71.9	1.63	1.44	1.32
640.1	670.1	1.27	1.34	1.39	640.1	2.15	3.00	4.04	76.6	1.64	1.46	1.31
700.1	730.1	1.22	1.29	1.36	700.1	2.14	2.97	3.97	81.4	1.66	1.47	1.38
740.1	770.1	1.23	1.30	1.37	740.1	2.23	3.10	4.15	86.1	1.68	1.49	1.39
800.1	830.1	1.23	1.30	1.37	800.1	2.20	3.01	3.99	90.9	1.74	1.52	1.42
840.1	870.1	1.25	1.32	1.38	840.1	2.30	3.15	4.17	95.6	1.76	1.58	1.44
900.1	930.1	1.30	1.38	1.44	900.1	2.25	3.03	3.97	100.4	1.78	1.56	1.43
940.1	970.1	1.27	1.33	1.38	940.1	2.39	3.20	4.19	105.1	1.80	1.58	1.47
1000.1	1030.1	1.37	1.44	1.51	1000.1	2.41	3.19	4.13	109.9	1.83	1.60	1.48
1040.1	1070.1	1.36	1.41	1.46	1040.1	2.53	3.33	4.30	114.6	1.85	1.60	1.49
1100.1	1130.1	1.58	1.62	1.67	1100.1	2.56	3.34	4.28	119.4	1.86	1.62	1.49
1140.1	1170.1	1.60	1.63	1.68	1140.1	2.66	3.47	4.43	124.1	1.83	1.64	1.47
1200.1	1230.1	1.92	1.91	1.93	1200.1	2.69	3.48	4.40	128.9	1.81	1.60	1.47
1240.1	1270.1	2.03	2.01	2.01	1240.1	2.80	3.62	4.60	133.6	1.79	1.57	1.46
1300.1	1330.1	2.28	2.23	2.20	1300.1	2.74	3.50	4.42	138.4	1.80	1.58	1.43
1340.1	1370.1	2.50	2.44	2.40	1340.1	2.84	3.64	4.60	143.1	1.77	1.55	1.42
1400.1	1430.1	2.63	2.58	2.53	1400.1	2.72	3.45	4.33	147.9	1.74	1.55	1.39
1440.1	1470.1	2.99	2.92	2.85	1440.1	2.80	3.54	4.45	152.6	1.71	1.51	1.39
1500.1	1530.1	3.37	3.31	3.25	1500.1	2.73	3.44	4.33	157.4	1.73	1.52	1.40
1540.1	1570.1	3.65	3.58	3.52	1540.1	2.83	3.54	4.44	162.1	1.71	1.50	1.38
1600.1	1630.1	4.36	4.28	4.20	1600.1	2.90	3.57	4.44	166.9	1.71	1.53	1.40
1640.1	1670.1	4.05	4.00	3.93	1640.1	3.02	3.68	4.55	171.6	1.73	1.53	1.42
1700.1	1730.1	4.62	4.52	4.44	1700.1	3.13	3.76	4.60	176.4	1.75	1.55	1.41
1740.1	1770.1	4.09	4.04	3.98	1740.1	3.29	3.90	4.74	181.1	1.75	1.56	1.44
1800.1	1830.1	4.39	4.32	4.24	1800.1	3.36	3.90	4.68	185.9	1.78	1.57	1.46
1840.1	1870.1	4.67	4.59	4.52	1840.1	3.58	4.10	4.89	195.4	1.80	1.59	1.49
1900.1	1930.1	4.63	4.54	4.45	1900.1	3.64	4.05	4.75	200.1	1.81	1.60	1.47

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	12	29	40	41	24	44	47	63	64	75
1	-	20	+0	26	11	35	34	40	48	53	69	60
2	90	50	37	55	36	54	45	61	44	65	61	85
3	129	43	59	51	48	45	41	54	62	51	75	64
4	112	89	86	69	58	69	57	67	58	73	63	73
5	113	65	70	69	63	64	58	62	58	67	69	71
6	115	86	88	96	83	85	73	71	74	74	75	85
7	109	91	86	88	87	77	77	79	78	83	76	82
8	95	93	100	101	97	102	94	102	88	88	86	82
9	122	122	114	112	107	96	99	94	93	88	88	88
10	109	110	119	111	105	105	108	110	105	97	105	92
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 900.1 MHz; -4.00 dBm.
LO IN: 930.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -10.08 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	3	18	28	31	12	33	33	53	50	54
1	-	20	+0	25	10	32	34	34	46	47	71	53
2	110	60	45	66	44	67	50	78	51	65	67	75
3	119	64	79	66	79	63	68	74	74	70	90	81
4	112	98	89	88	87	92	94	95	89	97	95	101
5	115	124	111	115	100	106	88	106	92	96	99	105
6	117	111	100	111	97	110	96	96	103	115	103	109
7	133	99	102	105	109	102	104	101	94	102	105	107
8	103	96	95	98	99	102	102	112	105	84	103	110
9	121	114	101	109	113	111	101	103	97	96	92	105
10	107	103	109	118	106	112	105	101	109	96	104	97
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 900.1 MHz; -14.00 dBm.
LO IN: 930.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -19.92 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.

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