

Engineering Development Model

Frequency Mixer Level 7 (LO Power +7 dBm)

ADE-ED7185/1

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 : CD542

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	350		1625	MHz
	RF (fL to fU)	350		1625	MHz
	IF	0.3		900	MHz
Conversion Loss	mid band		5.4		dB
	Total Range		6.1		dB
LO-RF Isolation			35		dB
LO-IF Isolation			27		dB

Note: mid band = [2fL to fU/2]

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

PIN CONNECTIONS	
LO	6
RF	3
IF	2
GROUND	1, 4, 5

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
180.0	210.0	11.57	10.65	10.39
220.0	250.0	9.80	9.18	8.95
260.0	290.0	8.85	8.43	8.23
300.0	330.0	7.94	7.63	7.47
340.0	370.0	7.47	7.18	7.01
380.0	410.0	7.02	6.78	6.63
420.0	450.0	6.76	6.52	6.36
460.0	490.0	6.56	6.33	6.18
500.0	530.0	6.30	6.09	5.95
540.0	570.0	6.25	6.02	5.86
580.0	610.0	6.04	5.81	5.68
620.0	650.0	6.01	5.76	5.59
660.0	690.0	5.95	5.69	5.50
700.0	730.0	5.84	5.60	5.42
740.0	770.0	5.82	5.58	5.41
800.0	830.0	5.80	5.53	5.33
840.0	870.0	5.78	5.52	5.32
900.0	930.0	5.77	5.48	5.30
940.0	970.0	5.82	5.50	5.30
1000.0	1030.0	5.95	5.60	5.37
1040.0	1070.0	6.08	5.71	5.44
1100.0	1130.0	6.21	5.86	5.66
1140.0	1170.0	6.42	5.95	5.67
1200.0	1230.0	6.69	6.19	5.85
1240.0	1270.0	6.88	6.37	5.98
1300.0	1330.0	7.16	6.66	6.26
1340.0	1370.0	7.39	6.91	6.49
1400.0	1430.0	7.70	7.27	6.90
1440.0	1470.0	7.83	7.39	7.03
1500.0	1530.0	8.10	7.66	7.34
1540.0	1570.0	8.24	7.82	7.50
1600.0	1630.0	8.55	8.18	7.91
1640.0	1670.0	8.75	8.37	8.11
1700.0	1730.0	9.17	8.87	8.66
1740.0	1770.0	9.43	9.14	8.93
1800.0	1830.0	9.84	9.62	9.46
1840.0	1870.0	9.92	9.75	9.63
1900.0	1930.0	9.96	9.82	9.74
1940.0	1970.0	10.17	9.94	9.87
2000.0	2030.0	10.82	10.50	10.38

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
180.0	210.0	18.35	15.56	15.87
220.0	250.0	14.41	14.52	14.93
260.0	290.0	13.06	13.15	14.43
300.0	330.0	11.81	12.53	13.76
340.0	370.0	10.93	11.72	13.44
380.0	410.0	10.57	11.87	13.04
420.0	450.0	10.29	11.43	12.65
460.0	490.0	11.16	12.45	13.54
500.0	530.0	10.89	11.93	13.17
540.0	570.0	11.04	12.06	12.83
580.0	610.0	10.96	12.08	12.47
620.0	650.0	9.29	10.54	11.70
660.0	690.0	9.42	10.41	11.58
700.0	730.0	10.02	10.51	11.28
740.0	770.0	11.02	11.17	11.18
800.0	830.0	10.19	11.34	11.84
840.0	870.0	10.04	11.21	12.01
900.0	930.0	9.71	10.87	11.64
940.0	970.0	9.34	10.53	11.44
1000.0	1030.0	9.65	9.69	10.69
1040.0	1070.0	10.61	9.23	9.77
1100.0	1130.0	17.17	10.87	9.34
1140.0	1170.0	12.66	13.61	11.15
1200.0	1230.0	9.83	11.48	11.56
1240.0	1270.0	8.74	10.32	11.29
1300.0	1330.0	8.09	9.46	10.56
1340.0	1370.0	7.59	8.79	9.85
1400.0	1430.0	7.12	8.07	9.46
1440.0	1470.0	7.54	8.83	10.46
1500.0	1530.0	8.70	10.40	12.05
1540.0	1570.0	8.98	10.71	12.22
1600.0	1630.0	10.00	11.77	12.83
1640.0	1670.0	10.14	12.00	13.15
1700.0	1730.0	9.60	11.92	13.26
1740.0	1770.0	8.97	11.32	12.83
1800.0	1830.0	8.76	10.90	12.89
1840.0	1870.0	9.04	10.36	12.52
1900.0	1930.0	14.09	13.25	14.71
1940.0	1970.0	15.62	14.47	15.68
2000.0	2030.0	17.80	16.44	16.99

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=0dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
180.0	210.0	0.00	0.00	0.01
220.0	250.0	0.07	0.01	0.00
260.0	290.0	0.10	0.02	0.00
300.0	330.0	0.19	0.08	0.03
340.0	370.0	0.25	0.12	0.07
380.0	410.0	0.31	0.18	0.12
420.0	450.0	0.41	0.25	0.16
460.0	490.0	0.47	0.31	0.21
500.0	530.0	0.57	0.39	0.28
540.0	570.0	0.63	0.44	0.33
580.0	610.0	0.76	0.55	0.41
620.0	650.0	0.88	0.67	0.52
660.0	690.0	0.95	0.74	0.59
700.0	730.0	1.09	0.87	0.70
740.0	770.0	1.13	0.91	0.73
800.0	830.0	1.32	1.09	0.90
840.0	870.0	1.42	1.15	0.93
900.0	930.0	1.56	1.27	1.01
940.0	970.0	1.59	1.30	1.07
1000.0	1030.0	1.66	1.37	1.15
1040.0	1070.0	1.66	1.40	1.21
1100.0	1130.0	1.66	1.36	1.08
1140.0	1170.0	1.58	1.38	1.17
1200.0	1230.0	1.46	1.27	1.08
1240.0	1270.0	1.44	1.24	1.07
1300.0	1330.0	1.27	1.08	0.92
1340.0	1370.0	1.17	0.96	0.83
1400.0	1430.0	0.98	0.73	0.59
1440.0	1470.0	0.95	0.70	0.56
1500.0	1530.0	0.79	0.55	0.40
1540.0	1570.0	0.78	0.52	0.38
1600.0	1630.0	0.60	0.39	0.27
1640.0	1670.0	0.56	0.37	0.26
1700.0	1730.0	0.41	0.29	0.22
1740.0	1770.0	0.35	0.28	0.22
1800.0	1830.0	0.24	0.21	0.18
1840.0	1870.0	0.22	0.15	0.13
1900.0	1930.0	0.30	0.16	0.12
1940.0	1970.0	0.33	0.17	0.13
2000.0	2030.0	0.17	0.10	0.09

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=839.9MHz (dB)
		@LO (dBm) +7
10.1	850.0	6.0
70.1	910.0	5.8
130.1	970.0	5.8
190.1	1030.0	5.9
230.1	1070.0	6.0
290.1	1130.0	5.9
330.1	1170.0	5.9
390.1	1230.0	5.9
430.1	1270.0	5.8
490.1	1330.0	5.9
530.1	1370.0	6.0
590.1	1430.0	6.0
630.1	1470.0	5.9
690.1	1530.0	5.9
730.1	1570.0	5.8
790.1	1630.0	5.7
830.1	1670.0	5.5
890.1	1730.0	5.3
930.1	1770.0	5.3
990.1	1830.0	5.3
1030.1	1870.0	5.3
1090.1	1930.0	5.4
1130.1	1970.0	5.5
1190.1	2030.0	5.6
1230.1	2070.0	5.7
1290.1	2130.0	5.7
1330.1	2170.0	5.9
1390.1	2230.0	6.0
1430.1	2270.0	6.1
1490.1	2330.0	6.2
1530.1	2370.0	6.2
1590.1	2430.0	6.1
1630.1	2470.0	6.1
1690.1	2530.0	6.2
1730.1	2570.0	6.5
1790.1	2630.0	6.8
1830.1	2670.0	7.3
1890.1	2730.0	8.0
1930.1	2770.0	8.7
1990.1	2830.0	9.7

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=689.9MHz (dB)
		@LO (dBm) +7
10.1	700.0	5.81
70.1	760.0	5.71
130.1	820.0	5.70
190.1	880.0	5.72
250.1	940.0	5.71
310.1	1000.0	5.73
370.1	1060.0	5.87
430.1	1120.0	5.74
490.1	1180.0	5.75
550.1	1240.0	5.60
610.1	1300.0	5.63
670.1	1360.0	5.64
730.1	1420.0	5.72
790.1	1480.0	5.74
850.1	1540.0	5.65
910.1	1600.0	5.66
970.1	1660.0	5.45
1030.1	1720.0	5.24
1070.1	1760.0	5.28
1130.1	1820.0	5.22
1170.1	1860.0	5.31
1230.1	1920.0	5.27
1270.1	1960.0	5.38
1330.1	2020.0	5.37
1370.1	2060.0	5.51
1430.1	2120.0	5.47
1470.1	2160.0	5.68
1530.1	2220.0	5.77
1570.1	2260.0	6.00
1630.1	2320.0	6.14
1670.1	2360.0	6.37
1730.1	2420.0	6.68
1770.1	2460.0	6.78
1830.1	2520.0	6.69
1870.1	2560.0	6.61
1930.1	2620.0	6.84
1970.1	2660.0	7.14
2030.1	2720.0	7.74
2070.1	2760.0	8.57
2130.1	2820.0	10.74

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1010.1MHz (dB)
		@LO (dBm) +7
930.1	80.0	11.15
910.1	100.0	8.41
890.1	120.0	6.47
870.1	140.0	5.93
850.1	160.0	5.91
830.1	180.0	5.72
810.1	200.0	5.59
790.1	220.0	5.50
770.1	240.0	5.43
750.1	260.0	5.41
730.1	280.0	5.39
710.1	300.0	5.35
690.1	320.0	5.34
670.1	340.0	5.28
650.1	360.0	5.22
630.1	380.0	5.15
610.1	400.0	5.05
590.1	420.0	4.97
570.1	440.0	4.87
550.1	460.0	4.81
530.1	480.0	4.76
510.1	500.0	4.74
490.1	520.0	4.74
470.1	540.0	4.76
450.1	560.0	4.81
430.1	580.0	4.84
390.1	620.0	5.03
370.1	640.0	5.09
330.1	680.0	5.20
310.1	700.0	5.23
270.1	740.0	5.32
250.1	760.0	5.39
210.1	800.0	5.47
190.1	820.0	5.50
150.1	860.0	5.61
130.1	880.0	5.58
90.1	920.0	5.57
70.1	940.0	5.60
30.1	980.0	5.59
10.1	1000.0	5.81

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+4	+7	+10	+4	+7	+10			+4	+7	+10
210.0	53.82	54.54	55.93	39.74	40.92	43.18	180.0	210.0	31.22	30.55	30.61
250.0	49.63	50.84	52.17	38.11	39.78	42.26	220.0	250.0	28.67	28.63	28.13
290.0	47.11	48.44	50.01	36.72	38.66	41.13	260.0	290.0	26.35	26.34	26.19
330.0	45.51	47.12	48.54	35.74	37.99	40.53	300.0	330.0	24.67	24.70	24.70
370.0	43.77	45.43	46.79	34.54	36.78	39.29	340.0	370.0	23.44	23.32	23.62
410.0	42.69	44.39	45.73	33.80	36.19	38.71	380.0	410.0	22.45	22.53	22.62
450.0	41.30	43.09	44.54	32.91	35.32	37.82	420.0	450.0	21.52	21.88	22.02
490.0	40.39	41.98	43.40	32.32	34.83	37.31	460.0	490.0	21.08	21.38	21.52
530.0	39.60	41.13	42.49	31.63	34.14	36.73	500.0	530.0	20.77	21.04	21.28
570.0	39.24	40.92	42.34	30.87	33.21	35.50	540.0	570.0	20.64	20.99	21.31
610.0	38.69	40.43	41.87	30.12	32.60	34.91	580.0	610.0	21.00	21.35	21.53
650.0	37.92	39.74	41.12	29.23	31.74	34.21	620.0	650.0	21.50	21.86	22.22
690.0	37.01	38.96	40.49	28.71	31.32	34.10	660.0	690.0	22.64	23.23	23.60
730.0	35.90	37.79	39.42	28.10	30.62	33.15	700.0	730.0	24.29	24.93	25.55
770.0	34.91	36.79	38.52	27.59	30.13	32.60	740.0	770.0	26.19	27.22	28.18
830.0	33.73	35.77	37.53	26.67	29.34	31.80	800.0	830.0	27.32	28.37	28.92
870.0	33.14	35.32	37.24	26.07	28.78	31.29	840.0	870.0	25.58	26.01	26.33
930.0	32.44	34.76	36.90	24.99	27.90	30.97	900.0	930.0	22.31	22.37	22.37
970.0	32.13	34.48	36.64	24.46	27.12	29.91	940.0	970.0	20.66	20.62	20.59
1030.0	32.02	34.39	36.52	23.86	26.40	29.07	1000.0	1030.0	18.66	18.51	18.47
1070.0	32.07	34.49	36.64	23.55	26.02	28.60	1040.0	1070.0	17.76	17.49	17.37
1130.0	32.06	34.48	37.01	23.18	25.57	28.02	1100.0	1130.0	16.71	16.54	16.39
1170.0	32.34	34.48	36.79	22.93	25.23	27.60	1140.0	1170.0	16.28	16.19	16.10
1230.0	33.31	35.27	37.25	22.68	24.91	27.16	1200.0	1230.0	15.69	15.78	15.78
1270.0	33.86	35.74	37.51	22.53	24.67	26.76	1240.0	1270.0	15.64	15.75	15.83
1330.0	34.71	36.33	37.84	22.33	24.34	26.28	1300.0	1330.0	15.74	15.93	16.07
1370.0	34.80	36.11	37.45	22.32	24.24	26.12	1340.0	1370.0	15.80	16.06	16.28
1430.0	35.31	36.29	37.27	22.52	24.92	27.24	1400.0	1430.0	15.97	16.24	16.51
1470.0	35.86	36.72	37.58	22.11	24.47	26.77	1440.0	1470.0	16.18	16.44	16.73
1530.0	36.49	37.25	38.02	21.48	23.45	25.32	1500.0	1530.0	16.61	16.87	17.03
1570.0	36.49	37.38	38.19	20.87	22.64	24.25	1540.0	1570.0	16.54	16.75	16.85
1630.0	35.91	37.00	37.99	20.44	22.02	23.37	1600.0	1630.0	16.35	16.38	16.29
1670.0	35.35	36.42	37.51	20.18	21.58	22.85	1640.0	1670.0	15.86	15.80	15.69
1730.0	34.70	35.86	36.98	20.52	21.74	22.73	1700.0	1730.0	15.04	14.76	14.48
1770.0	34.18	35.32	36.39	20.53	21.55	22.33	1740.0	1770.0	14.48	14.08	13.72
1830.0	34.15	35.05	35.83	21.15	21.73	22.06	1800.0	1830.0	13.48	12.92	12.56
1870.0	34.20	34.91	35.29	21.32	21.66	21.56	1840.0	1870.0	13.01	12.27	11.83
1930.0	34.91	34.79	34.51	21.82	21.43	20.95	1900.0	1930.0	12.15	11.33	10.84
1970.0	35.08	34.64	33.97	22.02	21.45	20.75	1940.0	1970.0	11.72	10.75	10.30
2030.0	34.98	33.82	32.35	22.12	21.06	19.81	2000.0	2030.0	10.74	9.83	9.27

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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=1000MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
180.0	210.0	13.60	11.77	11.03	210.0	7.63	5.59	5.61	10.0	2.06	1.81	1.64
220.0	250.0	9.96	8.86	8.47	250.0	5.36	4.57	5.09	30.0	2.09	1.84	1.67
260.0	290.0	7.63	7.00	6.71	290.0	4.06	3.98	4.69	50.0	2.08	1.82	1.65
300.0	330.0	5.65	5.36	5.20	330.0	3.38	3.72	4.66	70.0	2.06	1.81	1.64
340.0	370.0	4.87	4.62	4.50	370.0	3.00	3.46	4.41	90.0	2.10	1.85	1.69
380.0	410.0	4.07	3.90	3.81	410.0	2.77	3.41	4.46	110.0	2.09	1.85	1.68
420.0	450.0	3.52	3.40	3.33	450.0	2.57	3.28	4.35	130.0	2.06	1.82	1.66
460.0	490.0	3.17	3.08	3.03	490.0	2.47	3.25	4.35	150.0	2.09	1.85	1.69
500.0	530.0	2.78	2.72	2.70	530.0	2.40	3.24	4.37	170.0	2.08	1.85	1.70
540.0	570.0	2.52	2.48	2.46	570.0	2.34	3.19	4.32	190.0	2.08	1.85	1.70
580.0	610.0	2.28	2.26	2.25	610.0	2.35	3.26	4.43	210.0	2.11	1.88	1.73
620.0	650.0	2.06	2.05	2.06	650.0	2.30	3.20	4.35	230.0	2.11	1.89	1.74
660.0	690.0	1.91	1.90	1.92	690.0	2.35	3.29	4.47	250.0	2.08	1.87	1.72
700.0	730.0	1.75	1.76	1.78	730.0	2.35	3.29	4.46	270.0	2.10	1.89	1.75
740.0	770.0	1.62	1.64	1.67	770.0	2.37	3.32	4.51	290.0	2.14	1.93	1.79
800.0	830.0	1.44	1.48	1.53	830.0	2.42	3.38	4.59	310.0	2.12	1.91	1.77
840.0	870.0	1.33	1.38	1.44	870.0	2.46	3.43	4.63	330.0	2.12	1.93	1.80
900.0	930.0	1.27	1.36	1.43	930.0	2.53	3.49	4.70	350.0	2.15	1.96	1.84
940.0	970.0	1.22	1.32	1.40	970.0	2.59	3.56	4.77	370.0	2.15	1.97	1.84
1000.0	1030.0	1.23	1.34	1.42	1030.0	2.71	3.69	4.91	390.0	2.14	1.97	1.85
1040.0	1070.0	1.28	1.38	1.46	1070.0	2.78	3.76	4.96	410.0	2.19	2.02	1.90
1100.0	1130.0	1.38	1.46	1.56	1130.0	2.90	3.89	5.13	430.0	2.18	2.02	1.91
1140.0	1170.0	1.54	1.58	1.65	1170.0	2.96	3.95	5.17	450.0	2.15	2.00	1.90
1200.0	1230.0	1.80	1.80	1.84	1230.0	3.09	4.09	5.34	470.0	2.20	2.06	1.96
1240.0	1270.0	2.09	2.09	2.11	1270.0	3.11	4.08	5.31	490.0	2.22	2.09	1.99
1300.0	1330.0	2.44	2.42	2.42	1330.0	3.24	4.22	5.49	510.0	2.21	2.09	2.00
1340.0	1370.0	2.81	2.79	2.77	1370.0	3.26	4.20	5.41	530.0	2.23	2.12	2.03
1400.0	1430.0	3.19	3.18	3.17	1430.0	3.37	4.31	5.58	550.0	2.23	2.13	2.06
1440.0	1470.0	3.58	3.58	3.56	1470.0	3.37	4.23	5.41	570.0	2.23	2.15	2.07
1500.0	1530.0	3.98	3.97	3.95	1530.0	3.50	4.37	5.59	590.0	2.26	2.20	2.13
1540.0	1570.0	4.35	4.34	4.32	1570.0	3.53	4.31	5.44	610.0	2.28	2.23	2.18
1600.0	1630.0	4.73	4.72	4.70	1630.0	3.72	4.48	5.66	630.0	2.26	2.23	2.18
1640.0	1670.0	5.03	5.03	4.99	1670.0	3.86	4.51	5.58	650.0	2.27	2.25	2.22
1700.0	1730.0	5.14	5.14	5.12	1730.0	4.24	4.80	5.87	670.0	2.29	2.30	2.28
1740.0	1770.0	5.46	5.47	5.46	1770.0	4.47	4.87	5.79	690.0	2.30	2.32	2.31
1800.0	1830.0	5.54	5.58	5.56	1830.0	4.87	5.16	6.05	710.0	2.28	2.32	2.34
1840.0	1870.0	5.39	5.46	5.47	1870.0	5.16	5.25	6.01	730.0	2.28	2.35	2.38
1900.0	1930.0	5.54	5.52	5.54	1930.0	5.49	5.52	6.21	750.0	2.29	2.37	2.41
1940.0	1970.0	5.58	5.44	5.38	1970.0	5.81	5.63	6.15	790.0	2.26	2.39	2.46
2000.0	2030.0	5.85	5.59	5.51	2030.0	6.07	5.87	6.35	810.0	2.26	2.40	2.49

Frequency Mixer

ADE-ED7185/1

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	1	17	2	36	11	26	40	45	39	48
1	-	20	0	23	10	34	33	37	53	36	60	64
2	73	52	41	51	42	58	47	79	51	51	69	67
3	115	67	68	69	66	62	66	80	71	72	83	71
4	119	88	93	81	85	82	85	84	82	101	95	79
5	117	94	92	89	83	87	88	101	90	87	97	94
6	121	97	93	96	88	81	97	88	90	94	100	98
7	109	91	92	88	103	97	90	91	92	89	89	91
8	113	90	89	95	90	105	90	94	87	82	91	84
9	122	93	88	97	98	92	100	86	87	91	89	91
10	109	102	87	88	99	91	92	93	89	96	100	94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 850 MHz; -15.00 dBm.
 LO IN: 880 MHz; +7.00 dBm
 IF OUT: 30 MHz; -20.62 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	12	28	13	45	23	37	59	62	51	64
1	-	19	0	26	11	38	33	42	54	43	63	72
2	73	42	33	45	33	53	41	70	43	52	65	68
3	115	45	44	64	44	42	38	57	63	52	63	54
4	119	81	65	80	52	59	57	61	57	76	61	57
5	117	70	80	69	58	61	55	62	59	68	66	69
6	121	75	90	88	75	72	69	68	64	75	75	82
7	109	80	84	91	85	77	75	76	72	74	72	81
8	113	96	91	105	96	94	88	85	78	80	78	77
9	122	104	101	102	99	94	103	97	84	85	86	85
10	109	114	100	101	96	100	98	101	99	92	86	87
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 850 MHz; -5.00 dBm.
 LO IN: 880 MHz; +7.00 dBm
 IF OUT: 30 MHz; -10.59 dBm

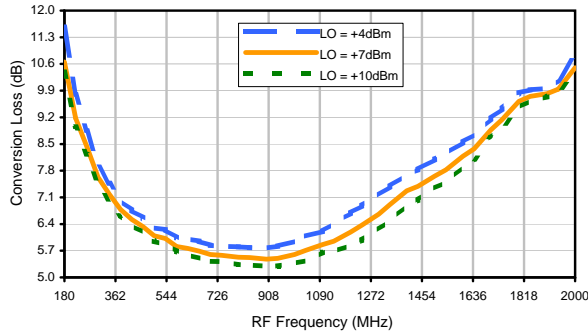
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
 2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
 3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Frequency Mixer

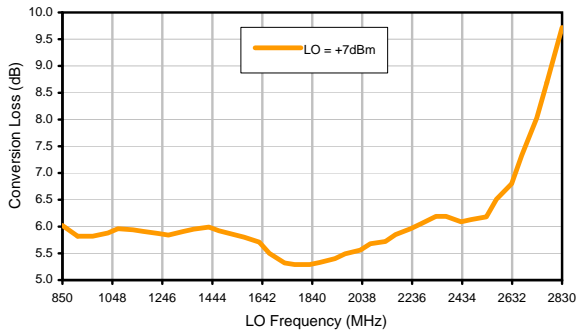
ADE-ED7185/1

Typical Performance Curves

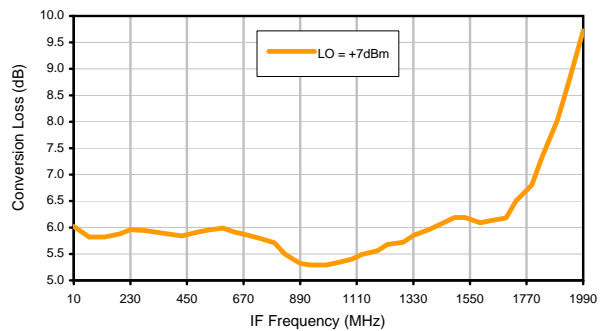
Conversion Loss @ IF=30MHz



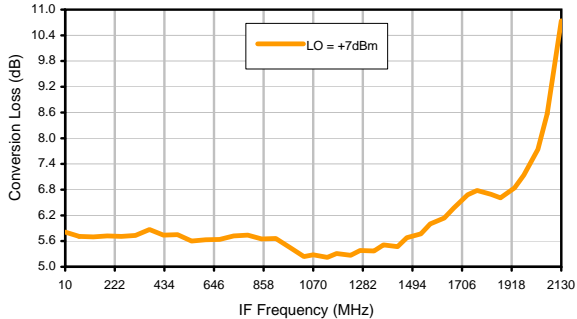
Conversion Loss vs. LO @ RF=839.9MHz



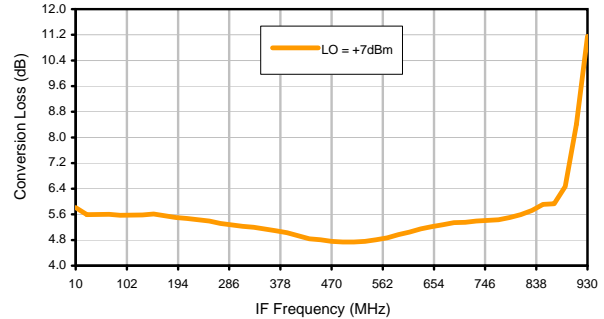
Conversion Loss vs. IF @ RF=839.9MHz



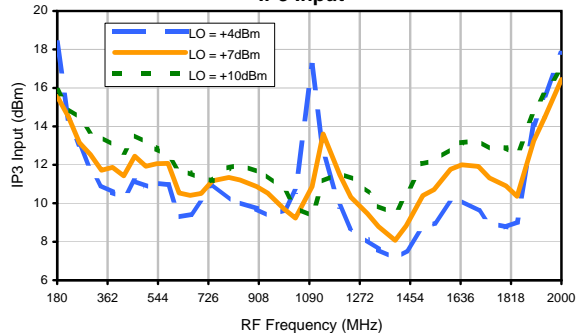
Conversion Loss vs. IF @ RF=689.9MHz



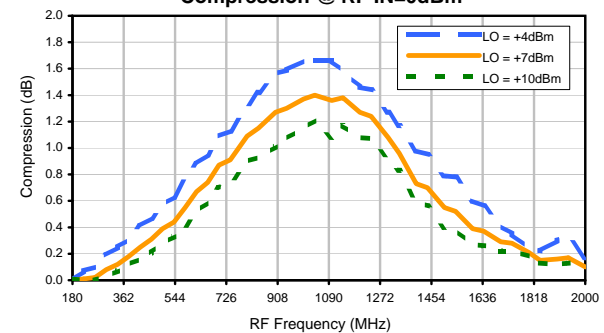
Conversion Loss vs. IF @ RF=1010.1MHz



IP3 Input



Compression @ RF IN=0dBm

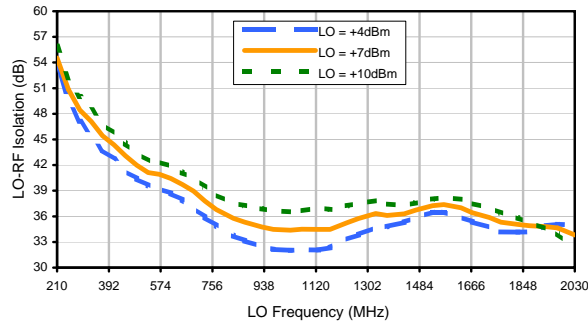


Frequency Mixer

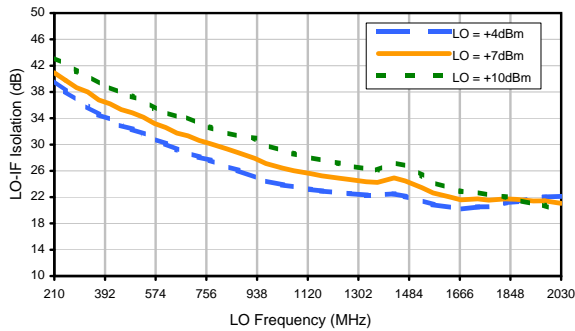
ADE-ED7185/1

Typical Performance Curves

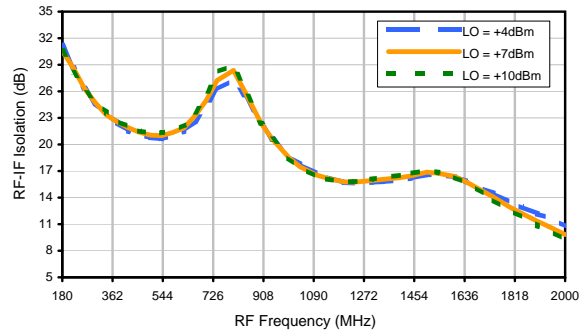
LO-RF Isolation



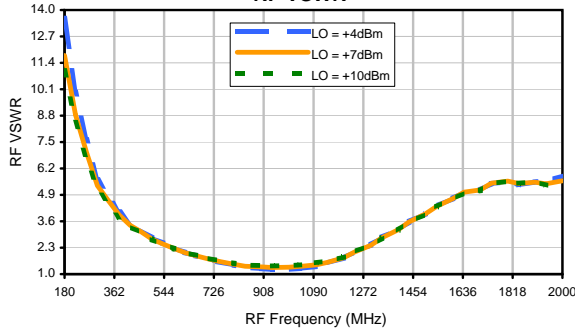
LO-IF Isolation



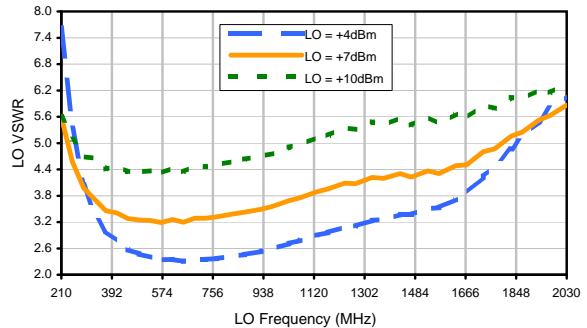
RF-IF Isolation



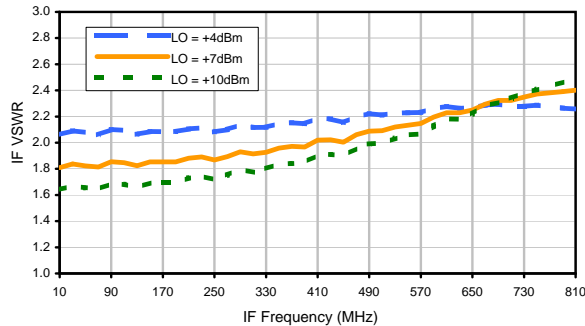
RF VSWR



LO VSWR



IF VSWR



Frequency Mixer

ADE-ED7185/1

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	1	17	2	36	11	26	40	45	39	48
1	-	20	0	23	10	34	33	37	53	36	60	64
2	73	52	41	51	42	58	47	79	51	51	69	67
3	115	67	68	69	66	62	66	80	71	72	83	71
4	119	88	93	81	85	82	85	84	82	101	95	79
5	117	94	92	89	83	87	88	101	90	87	97	94
6	121	97	93	96	88	81	97	88	90	94	100	98
7	109	91	92	88	103	97	90	91	92	89	89	91
8	113	90	89	95	90	105	90	94	87	82	91	84
9	122	93	88	97	98	92	100	86	87	91	89	91
10	109	102	87	88	99	91	92	93	89	96	100	94
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 850 MHz; -15.00 dBm.
 LO IN: 880 MHz; +7.00 dBm
 IF OUT: 30 MHz; -20.62 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	12	28	13	45	23	37	59	62	51	64
1	-	19	0	26	11	38	33	42	54	43	63	72
2	73	42	33	45	33	53	41	70	43	52	65	68
3	115	45	44	64	44	42	38	57	63	52	63	54
4	119	81	65	80	52	59	57	61	57	76	61	57
5	117	70	80	69	58	61	55	62	59	68	66	69
6	121	75	90	88	75	72	69	68	64	75	75	82
7	109	80	84	91	85	77	75	76	72	74	72	81
8	113	96	91	105	96	94	88	85	78	80	78	77
9	122	104	101	102	99	94	103	97	84	85	86	85
10	109	114	100	101	96	100	98	101	99	92	86	87
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 850 MHz; -5.00 dBm.
 LO IN: 880 MHz; +7.00 dBm
 IF OUT: 30 MHz; -10.59 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.

Case Style

CD

CD541
CD542
CD636
CD637

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE#	A	B	C	D	E	F	G	H	J	K	L	WT, GRAM
CD541					.082 (2.08)							.15
CD542	.272 (6.91)	.310 (7.87)	.220 (5.58)	.100 (2.54)	.112 (2.84)	.055 (1.40)	.100 (2.54)	.030 (0.76)	.026 (0.66)	.065 (1.65)	.300 (7.62)	.20
CD636					.162 (4.11)							.25
CD637					.206 (5.23)							.40

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

Notes:

- Case material: Plastic.
- 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.



INTERNET <http://www.minicircuits.com>

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Tape & Reel Packaging TR-F34



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
16	12	7	Small quantity standard (see note)	20
				50
				100
				200
		13	Standard	500
				1000

Note: Availability of small reel quantity varies by model.
Refer to pricing and availability on individual model dashboard.

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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THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
A	M101143	ADDED "gk" PIN CONNECTION, TT100 CASE STYLE & NOTE 2	10/10/05	MMG	DJ
B	M102713	ADDED "...WITH SMOBC"	01/17/06	MMG	IL
C	M108637	REMOVED "PIN 1", ADDED INDEX ON UNIT	12/01/06	MYG	FL

**SUGGESTED MOUNTING CONFIGURATION
FOR BH292, CD541/542/636/637, TT100/240 CASE
STYLES, "gk", "ht", "hu", "nd", "w" PIN CONNECTIONS**



- NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED	INITIALS	DATE
DRAWN	MMG	07/17/02
CHECKED	WL	08/02/02
APPROVED	DJ	08/05/02

Mini-Circuits® 13 Neptune Avenue
Brooklyn NY 11235

**PL, gk/ht/hu/nd/w, BH292,
CD541/542/636/637, TT100/240, TB-03**

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 ASHEETA1.DWG REV:A DATE:01/12/95

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-052	C
FILE:	98PL052	SCALE: 8:1	SHEET: 1 OF 1

THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
E	M119737	UPDATED PCB	10.08	MF	AD
F	M127659	UPDATED CARR	06.10	SW	SG
G	M127846	UPDATED SCHEMATIC DIAGRAM	06.10	SW	SG
H	M131840	UPDATED DWG	05.11	MF	AD



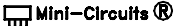
NOTES:

1. REFER TO -09 PAGE FOR ITEM DESCRIPTIONS.
DESIGNATION NUMBERS ON -20 PAGE CORRESPOND TO THE NUMBERS ON -09 PAGE.
2. FOR TEXT HEIGHT & STYLE ON THE LABEL REFER TO: D3-G209.

UNLESS OTHERWISE SPECIFIED	INITIALS		DATE
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS ± 3 PL DECIMALS ± ANGLES ± FRACTIONS ±	DRAWN	S.WOLYNSKI	06.29.99
	CHECKED	SG	07.06.99
	APPROVED	MG	07.10.99

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Brooklyn NY 11235

TB,ADE,CD542/636,06MX01,50

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SIZE A	CODE IDENT 15542	DRAWING NO: TB-03-20	REV: H
FILE: WTB-03	SCALE: 1.5:1	SHEET: 1 OF 2	

Evaluation Board and Circuit

For Pin Connections and DUT Orientation Refer to
Data Sheet of the DUT



TB-03



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

 **Mini-Circuits®**



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
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
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
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