Plug-In

Frequency Mixer

ROK-186MH+

Level 13 (LO Power +13 dBm) 5 to 2500 MHz

CASE STYLE: QQ96

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

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

Pin Connections

LO	5
RF	11
IF	2
GROUND	1,3,4,6,7,8,9,10,12
CASE GROUND	1,3,4,6,7,8,9,10,12

Features

- low conversion loss, 6.57 dB typ.
- wideband, 5 to 2500 MHz
- hermetically sealed

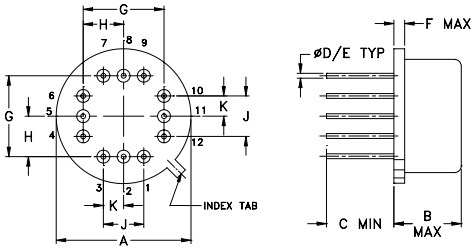
Applications

- VHF/UHF
- instrumentation
- GPS
- PCS/DCS

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F
.600	.250	.25	.016	.020	.04
15.24	6.35	6.35	0.41	0.51	1.02

G	H	J	K	wt
.400	.200	.200	.100	grams
10.16	5.08	5.08	2.54	4.0

Electrical Specifications

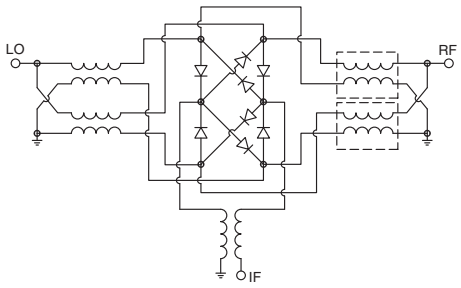
FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)					
		Mid-Band m			Total Range	L		M		U		L		M		U	
LO/RF f_L-f_U	IF	$\overline{X}$	σ	Max.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
5-2500	10-1000	6.57	0.11	8.5	9.5	33	25	35	25	25	20	33	20	31	25	27	20

1 dB COMP.: +9 dBm typ. L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U]
m= mid band [2f_L to f_U/2]

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
5.00	35.00	5.25	41.9	49.5	1.35	1.46
10.00	40.00	5.14	41.9	49.6	1.35	1.45
50.00	80.00	5.26	42.2	50.2	1.34	1.48
100.00	130.00	5.33	42.4	50.9	1.37	1.50
208.60	238.60	5.65	43.2	54.4	1.54	1.49
417.09	447.09	5.88	46.8	65.7	2.01	1.46
500.00	530.00	6.03	48.9	61.2	2.25	1.48
625.59	655.59	6.28	50.9	54.1	2.55	1.51
834.08	864.08	6.33	48.9	48.5	2.76	1.73
1000.00	1030.00	6.45	44.2	42.7	2.96	1.81
1042.58	1072.58	6.33	43.1	42.1	2.80	1.77
1251.07	1281.07	6.09	39.5	40.3	2.52	1.66
1459.57	1489.57	6.34	38.0	40.0	2.30	1.58
1500.00	1530.00	6.31	38.2	39.3	2.25	1.53
1668.06	1698.06	6.86	36.5	37.4	2.04	1.56
1876.56	1906.56	6.95	35.2	38.0	1.91	1.59
2000.00	2030.00	6.79	34.2	38.1	1.89	1.61
2085.05	2115.05	6.83	33.3	38.2	1.70	1.61
2293.55	2323.55	7.04	32.5	37.4	1.47	1.65
2470.00	2500.00	7.06	31.8	34.5	1.26	1.68
2500.00	2530.00	7.09	31.2	33.5	1.23	1.70

Electrical Schematic



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.
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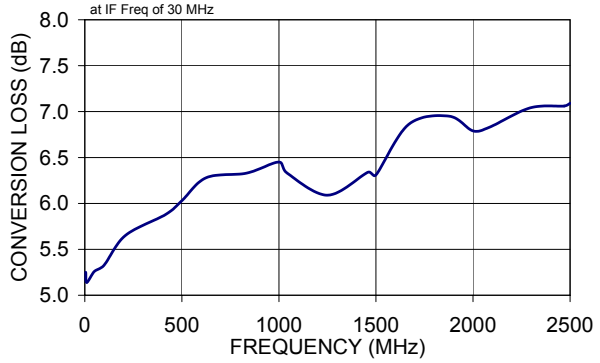
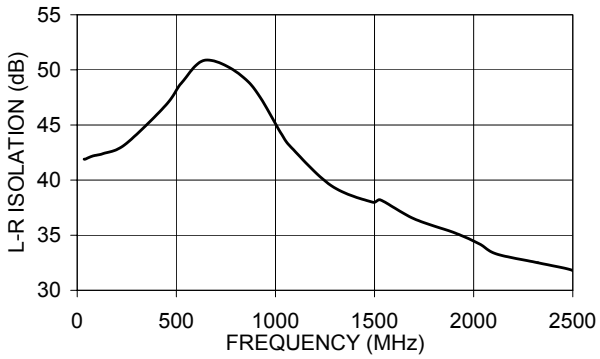
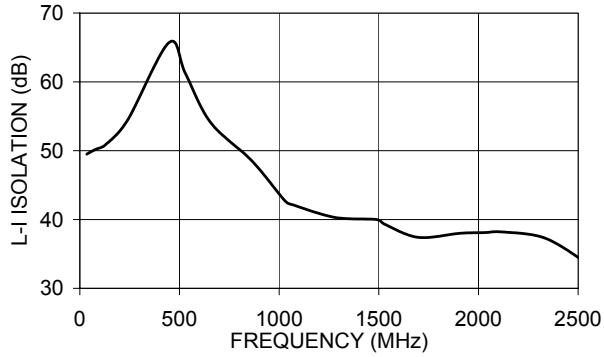
ROK-186MH+
CONVERSION LOSS
at IF Freq of 30 MHz



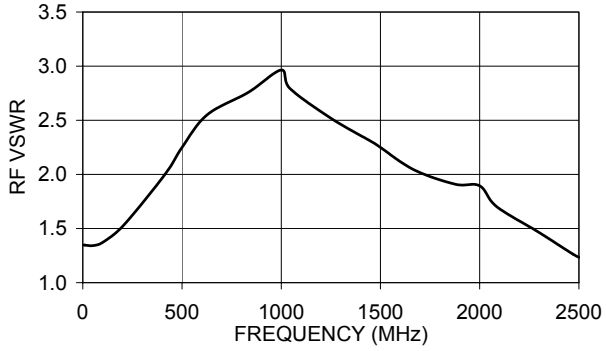
ROK-186MH+
L-R ISOLATION



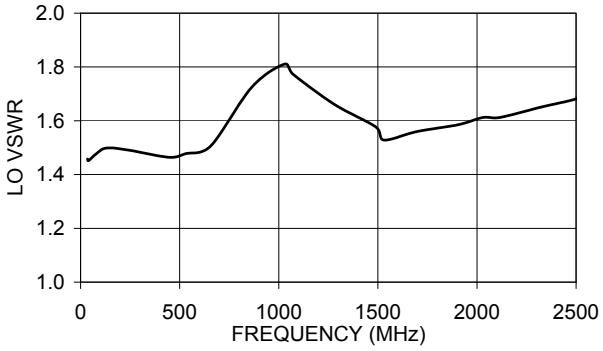
ROK-186MH+
L-I ISOLATION



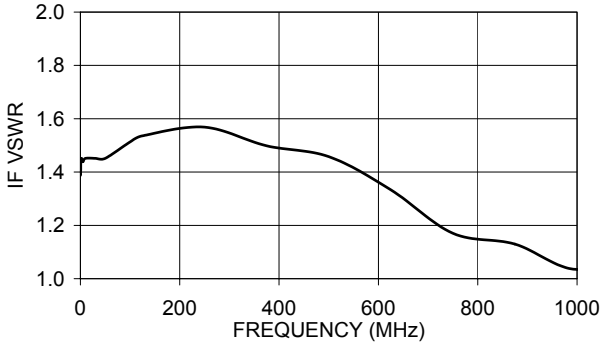
ROK-186MH+
RF VSWR



ROK-186MH+
LO VSWR



ROK-186MH+
IF VSWR



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Frequency Mixer ROK-186MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+10	+13	+16
2.0	32.0	7.20	6.50	6.10
5.0	35.0	7.10	6.40	6.10
10.0	40.0	7.00	6.30	6.00
110.4	140.4	7.26	6.45	5.92
210.7	240.7	7.26	6.48	5.96
310.9	340.9	7.66	6.76	6.12
411.2	441.2	7.62	6.73	6.10
511.5	541.5	7.87	6.87	6.16
611.8	641.8	7.92	6.81	6.13
712.1	742.1	7.82	6.75	6.09
792.3	822.3	7.71	6.68	6.09
892.6	922.6	7.61	6.67	6.11
972.8	1002.8	7.47	6.59	6.05
1073.1	1103.1	7.32	6.50	6.00
1153.3	1183.3	7.16	6.40	5.93
1253.6	1283.6	7.06	6.30	5.89
1434.1	1464.1	7.10	6.33	5.89
1514.3	1544.3	7.28	6.46	5.99
1614.6	1644.6	7.42	6.53	6.05
1694.8	1724.8	7.65	6.73	6.19
1795.1	1825.1	8.09	7.06	6.45
1875.3	1905.3	8.29	7.15	6.54
1975.6	2005.6	8.34	7.16	6.49
2055.8	2085.8	8.17	7.11	6.43
2156.1	2186.1	8.00	7.01	6.32
2236.3	2266.3	7.87	6.95	6.30
2336.6	2366.6	7.79	6.95	6.32
2416.8	2446.8	7.69	6.88	6.32
2517.1	2547.1	7.73	6.95	6.42
2597.3	2627.3	7.76	7.02	6.48
2697.6	2727.6	7.71	7.02	6.53
2878.1	2908.1	7.84	7.15	6.71
2958.3	2988.3	7.87	7.21	6.78
3058.6	3088.6	7.96	7.32	6.93
3138.8	3168.8	8.10	7.46	7.07
3239.1	3269.1	8.35	7.69	7.30
3319.3	3349.3	8.63	8.01	7.59
3419.6	3449.6	9.17	8.49	8.02
3499.8	3529.8	9.54	8.80	8.30
3600.1	3630.1	10.16	9.26	8.73

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+10	+13	+16
10.1	40.1	24.05	22.83	22.32
110.4	140.4	19.18	20.60	20.33
210.7	240.7	18.10	18.90	21.47
310.9	340.9	16.89	18.88	21.84
411.2	441.2	18.01	20.84	25.18
511.5	541.5	17.97	21.38	25.84
611.8	641.8	18.43	22.15	23.13
712.1	742.1	17.99	21.59	22.66
792.3	822.3	19.13	22.04	23.24
892.6	922.6	19.25	21.46	22.11
972.8	1002.8	19.12	20.00	21.76
1073.1	1103.1	18.57	19.68	21.38
1153.3	1183.3	19.28	20.58	21.84
1253.6	1283.6	20.01	20.78	21.74
1333.8	1363.8	20.85	21.51	22.09
1434.1	1464.1	19.88	22.06	22.61
1514.3	1544.3	21.20	24.16	24.21
1614.6	1644.6	22.01	24.68	23.91
1694.8	1724.8	23.60	27.48	25.47
1795.1	1825.1	22.30	30.30	36.48
1875.3	1905.3	21.30	26.14	27.57
1975.6	2005.6	20.55	21.66	21.35
2055.8	2085.8	19.62	20.63	20.45
2156.1	2186.1	18.19	18.56	19.49
2236.3	2266.3	17.86	18.16	18.67
2336.6	2366.6	17.36	17.71	18.52
2416.8	2446.8	17.37	17.72	18.36
2517.1	2547.1	17.38	18.24	19.53
2597.3	2627.3	17.53	18.39	19.95
2697.6	2727.6	17.67	18.65	19.63
2777.8	2807.8	17.53	18.87	19.84
2878.1	2908.1	18.72	19.66	20.57
2958.3	2988.3	18.97	20.23	20.78
3058.6	3088.6	19.76	20.32	21.60
3138.8	3168.8	20.66	21.87	22.70
3239.1	3269.1	21.57	23.81	23.61
3319.3	3349.3	22.07	24.00	24.23
3419.6	3449.6	24.02	23.97	23.46
3499.8	3529.8	24.19	21.84	22.17
3600.1	3630.1	22.98	21.38	22.32

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB) @LO (dBm)		
		+10	+13	+16
10.1	40.1	0.42	0.13	0.05
110.4	140.4	0.19	0.04	0.02
210.7	240.7	0.23	0.04	0.02
310.9	340.9	0.02	-0.05	-0.03
411.2	441.2	0.13	-0.03	0.00
511.5	541.5	0.08	-0.01	0.03
611.8	641.8	0.06	0.02	0.04
712.1	742.1	0.12	0.11	0.08
792.3	822.3	0.22	0.16	0.08
892.6	922.6	0.26	0.12	0.07
972.8	1002.8	0.30	0.12	0.09
1073.1	1103.1	0.36	0.15	0.10
1153.3	1183.3	0.48	0.14	0.10
1253.6	1283.6	0.53	0.18	0.10
1333.8	1363.8	0.55	0.19	0.11
1434.1	1464.1	0.57	0.18	0.10
1514.3	1544.3	0.54	0.17	0.08
1614.6	1644.6	0.53	0.17	0.08
1694.8	1724.8	0.44	0.18	0.11
1795.1	1825.1	0.24	0.15	0.14
1875.3	1905.3	0.18	0.14	0.14
1975.6	2005.6	0.12	0.17	0.19
2055.8	2085.8	0.19	0.22	0.23
2156.1	2186.1	0.32	0.29	0.31
2236.3	2266.3	0.38	0.30	0.32
2336.6	2366.6	0.43	0.31	0.31
2416.8	2446.8	0.50	0.37	0.38
2517.1	2547.1	0.49	0.36	0.39
2597.3	2627.3	0.49	0.33	0.35
2697.6	2727.6	0.51	0.32	0.31
2777.8	2807.8	0.54	0.31	0.28
2878.1	2908.1	0.53	0.29	0.26
2958.3	2988.3	0.57	0.29	0.24
3058.6	3088.6	0.59	0.29	0.21
3138.8	3168.8	0.62	0.27	0.19
3239.1	3269.1	0.65	0.30	0.19
3319.3	3349.3	0.62	0.28	0.17
3419.6	3449.6	0.53	0.25	0.20
3499.8	3529.8	0.51	0.28	0.28
3600.1	3630.1	0.52	0.39	0.44

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1250.1MHz (dB) @LO (dBm) +13
1000.0	250.1	7.05
979.8	270.3	6.99
959.6	290.5	7.04
939.4	310.7	7.05
919.2	330.9	6.96
899.0	351.1	6.97
878.8	371.3	7.05
858.6	391.5	6.92
838.4	411.7	6.93
818.2	431.9	7.00
798.0	452.1	6.90
777.8	472.3	6.90
757.6	492.5	6.91
737.3	512.8	6.89
717.1	533.0	6.82
696.9	553.2	6.84
676.7	573.4	6.84
656.5	593.6	6.72
636.3	613.8	6.78
616.1	634.0	6.72
575.7	674.4	6.73
555.5	694.6	6.65
515.1	735.0	6.63
494.9	755.2	6.62
454.5	795.6	6.55
434.3	815.8	6.60
393.9	856.2	6.54
373.7	876.4	6.50
333.3	916.8	6.51
313.1	937.0	6.47
272.7	977.4	6.42
252.4	997.7	6.46
212.0	1038.1	6.38
191.8	1058.3	6.40
151.4	1098.7	6.39
131.2	1118.9	6.33
90.8	1159.3	6.34
70.6	1179.5	6.27
30.2	1219.9	6.25
10.0	1240.1	6.22

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +13
10.0	20.1	6.20
30.2	40.3	6.14
50.4	60.5	6.31
70.6	80.7	6.29
90.8	100.9	6.29
111.0	121.1	6.37
131.2	141.3	6.28
151.4	161.5	6.30
171.6	181.7	6.34
191.8	201.9	6.39
212.0	222.1	6.31
232.2	242.3	6.28
252.4	262.5	6.39
272.7	282.8	6.32
292.9	303.0	6.31
313.1	323.2	6.35
333.3	343.4	6.38
353.5	363.6	6.28
373.7	383.8	6.38
393.9	404.0	6.42
434.3	444.4	6.38
454.5	464.6	6.41
494.9	505.0	6.36
515.1	525.2	6.37
555.5	565.6	6.33
575.7	585.8	6.45
616.1	626.2	6.35
636.3	646.4	6.46
676.7	686.8	6.44
696.9	707.0	6.45
737.3	747.4	6.50
757.6	767.7	6.49
798.0	808.1	6.51
818.2	828.3	6.54
858.6	868.7	6.55
878.8	888.9	6.61
919.2	929.3	6.60
939.4	949.5	6.63
979.8	989.9	6.66
1000.0	1010.1	6.69

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2500.1MHz (dB) @LO (dBm) +13
1000.0	1500.1	7.15
979.8	1520.3	7.18
959.6	1540.5	7.19
939.4	1560.7	7.17
919.2	1580.9	7.19
899.0	1601.1	7.15
878.8	1621.3	7.18
858.6	1641.5	7.14
838.4	1661.7	7.10
818.2	1681.9	7.07
798.0	1702.1	7.03
777.8	1722.3	7.03
757.6	1742.5	6.96
737.3	1762.8	6.98
717.1	1783.0	6.93
696.9	1803.2	6.90
676.7	1823.4	6.90
656.5	1843.6	6.83
636.3	1863.8	6.83
616.1	1884.0	6.75
575.7	1924.4	6.71
555.5	1944.6	6.65
515.1	1985.0	6.58
494.9	2005.2	6.61
454.5	2045.6	6.59
434.3	2065.8	6.62
393.9	2106.2	6.62
373.7	2126.4	6.60
333.3	2166.8	6.60
313.1	2187.0	6.58
272.7	2227.4	6.61
252.4	2247.7	6.65
212.0	2288.1	6.66
191.8	2308.3	6.72
151.4	2348.7	6.74
131.2	2368.9	6.73
90.8	2409.3	6.74
70.6	2429.5	6.74
30.2	2469.9	6.80
10.0	2490.1	6.77

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+10	+13	+16	+10	+13	+16
2.0	28.60	31.80	35.20	35.20	37.80	40.20
5.0	31.00	34.00	37.20	40.02	43.60	46.40
10.0	31.10	34.00	36.90	41.80	45.60	49.00
110.4	30.45	33.39	36.47	40.13	44.36	48.60
210.7	30.83	33.94	36.92	40.27	44.92	49.37
310.9	31.33	34.36	37.00	40.46	45.46	50.37
411.2	31.80	35.05	37.46	41.16	47.08	51.13
511.5	32.56	35.88	37.91	41.69	48.23	50.83
611.8	33.66	37.54	38.81	42.19	48.48	49.46
712.1	35.00	39.56	39.20	42.45	48.63	50.21
792.3	36.55	42.36	40.23	43.13	49.01	49.46
892.6	38.53	44.97	40.65	43.58	49.78	49.75
972.8	40.29	49.41	40.37	44.04	49.10	49.66
1073.1	42.69	51.45	39.07	44.49	48.54	49.15
1153.3	44.77	46.91	37.98	43.68	48.56	51.13
1253.6	44.74	42.56	35.99	44.34	51.64	56.60
1434.1	38.92	40.00	35.59	44.32	49.09	53.55
1514.3	38.01	38.59	34.87	43.78	48.91	51.07
1614.6	36.30	37.57	34.83	43.07	46.76	49.24
1694.8	34.66	37.41	35.85	42.32	44.30	46.57
1795.1	33.40	35.47	35.38	41.65	42.25	44.68
1875.3	33.41	34.62	34.38	40.77	40.70	43.20
1975.6	33.34	34.72	34.36	40.07	40.17	42.22
2055.8	33.11	34.66	34.48	39.94	40.75	42.38
2156.1	32.62	34.64	34.88	39.92	41.57	42.76
2236.3	32.09	34.65	35.34	38.78	40.21	41.03
2336.6	31.57	35.44	37.01	37.00	37.58	38.24
2416.8	31.20	36.42	39.84	35.99	35.79	36.26
2517.1	30.58	36.30	43.78	35.76	34.81	34.72
2597.3	30.22	34.17	39.07	33.77	33.28	33.36
2697.6	30.15	32.86	36.04	31.04	31.30	31.86
2878.1	30.36	32.94	35.49	28.00	28.47	29.44
2958.3	30.29	32.88	35.43	26.96	27.66	28.70
3058.6	30.30	32.83	35.41	25.88	26.90	28.11
3138.8	30.11	32.51	35.07	25.18	26.23	27.69
3239.1	29.23	31.15	33.17	24.63	26.02	27.64
3319.3	28.58	30.19	31.86	24.28	25.80	27.61
3419.6	26.81	28.07	29.39	24.18	25.88	27.74
3499.8	25.01	26.16	27.46	24.13	25.89	27.81
3600.1	23.12	24.35	25.39	24.32	26.32	28.49

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+10	+13	+16
10.1	40.1	33.80	33.88	33.47
110.4	140.4	33.49	33.73	33.27
210.7	240.7	34.07	34.43	34.24
310.9	340.9	34.79	34.86	34.72
411.2	441.2	35.68	35.47	35.53
511.5	541.5	36.66	36.16	35.48
611.8	641.8	37.81	37.26	36.52
712.1	742.1	39.08	37.47	36.50
792.3	822.3	39.28	37.46	36.54
892.6	922.6	40.26	37.79	36.96
972.8	1002.8	41.19	38.74	37.02
1073.1	1103.1	42.89	40.25	38.70
1153.3	1183.3	44.51	43.10	40.04
1253.6	1283.6	45.58	42.59	40.39
1333.8	1363.8	47.03	44.11	41.47
1434.1	1464.1	49.74	45.71	42.58
1514.3	1544.3	50.63	51.21	48.42
1614.6	1644.6	46.55	51.46	59.28
1694.8	1724.8	43.96	44.70	46.25
1795.1	1825.1	43.63	42.89	42.48
1875.3	1905.3	43.54	43.85	43.83
1975.6	2005.6	43.46	43.26	42.70
2055.8	2085.8	43.55	42.35	41.60
2156.1	2186.1	43.22	41.51	39.89
2236.3	2266.3	43.30	41.63	40.19
2336.6	2366.6	43.65	42.01	40.81
2416.8	2446.8	42.85	41.27	40.22
2517.1	2547.1	40.82	39.70	39.94
2597.3	2627.3	40.55	39.80	40.75
2697.6	2727.6	39.77	39.35	39.73
2777.8	2807.8	39.00	38.47	38.60
2878.1	2908.1	38.38	38.11	37.83
2958.3	2988.3	37.89	37.77	37.30
3058.6	3088.6	37.27	36.99	36.43
3138.8	3168.8	36.62	36.46	35.59
3239.1	3269.1	35.74	34.85	33.63
3319.3	3349.3	34.84	33.80	32.40
3419.6	3449.6	34.28	33.11	31.58
3499.8	3529.8	35.19	33.55	31.51
3600.1	3630.1	37.79	35.76	32.90

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+10	+13	+16
2.0	32.0	1.84	1.68	1.57
5.0	35.0	1.84	1.68	1.56
110.4	140.4	1.41	1.23	1.11
210.7	240.7	1.43	1.27	1.16
310.9	340.9	1.56	1.38	1.26
411.2	441.2	1.63	1.45	1.33
511.5	541.5	1.78	1.59	1.46
611.8	641.8	1.90	1.69	1.56
712.1	742.1	1.99	1.76	1.62
792.3	822.3	2.01	1.79	1.67
892.6	922.6	2.06	1.85	1.73
972.8	1002.8	2.11	1.90	1.78
1073.1	1103.1	2.15	1.91	1.78
1153.3	1183.3	2.09	1.85	1.72
1253.6	1283.6	2.03	1.77	1.64
1333.8	1363.8	2.02	1.74	1.60
1434.1	1464.1	2.02	1.73	1.57
1514.3	1544.3	2.03	1.73	1.57
1614.6	1644.6	2.01	1.72	1.58
1694.8	1724.8	1.98	1.74	1.61
1795.1	1825.1	2.04	1.82	1.70
1875.3	1905.3	2.09	1.87	1.75
1975.6	2005.6	2.11	1.88	1.73
2055.8	2085.8	2.03	1.81	1.67
2156.1	2186.1	1.85	1.65	1.50
2236.3	2266.3	1.68	1.50	1.37
2336.6	2366.6	1.52	1.35	1.24
2416.8	2446.8	1.42	1.26	1.15
2517.1	2547.1	1.31	1.17	1.08
2597.3	2627.3	1.21	1.12	1.11
2697.6	2727.6	1.17	1.19	1.24
2777.8	2807.8	1.22	1.28	1.36
2878.1	2908.1	1.26	1.37	1.47
2958.3	2988.3	1.28	1.41	1.52
3058.6	3088.6	1.34	1.47	1.60
3138.8	3168.8	1.42	1.54	1.65
3239.1	3269.1	1.48	1.56	1.65
3319.3	3349.3	1.46	1.51	1.58
3419.6	3449.6	1.41	1.43	1.48
3499.8	3529.8	1.44	1.46	1.50
3600.1	3630.1	1.53	1.54	1.58

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+10	+13	+16
2.0	1.11	1.48	2.18
5.0	1.12	1.46	2.18
110.4	1.24	1.29	1.93
210.7	1.30	1.29	1.90
310.9	1.32	1.29	1.88
411.2	1.42	1.30	1.84
511.5	1.47	1.30	1.80
611.8	1.58	1.33	1.77
712.1	1.64	1.31	1.71
792.3	1.72	1.34	1.68
892.6	1.80	1.35	1.63
972.8	1.88	1.38	1.60
1073.1	1.97	1.40	1.55
1153.3	2.07	1.43	1.51
1253.6	2.16	1.46	1.47
1333.8	2.18	1.45	1.42
1434.1	2.24	1.45	1.37
1514.3	2.22	1.43	1.32
1614.6	2.20	1.41	1.27
1694.8	2.14	1.38	1.25
1795.1	2.07	1.33	1.22
1875.3	2.01	1.29	1.23
1975.6	1.91	1.24	1.24
2055.8	1.86	1.20	1.26
2156.1	1.76	1.14	1.30
2236.3	1.70	1.10	1.35
2336.6	1.60	1.05	1.40
2416.8	1.52	1.03	1.45
2517.1	1.44	1.07	1.50
2597.3	1.38	1.10	1.54
2697.6	1.31	1.15	1.60
2777.8	1.26	1.20	1.65
2878.1	1.22	1.25	1.70
2958.3	1.21	1.29	1.74
3058.6	1.21	1.33	1.77
3138.8	1.23	1.37	1.81
3239.1	1.27	1.43	1.85
3319.3	1.30	1.47	1.88
3419.6	1.32	1.50	1.88
3499.8	1.31	1.49	1.85
3600.1	1.30	1.46	1.77

IF (OUT) (MHz)	IF VSWR @LO=2500.1MHz (:1) @LO (dBm)		
	+10	+13	+16
5.0	1.59	1.36	1.21
10.0	1.60	1.36	1.21
30.2	1.88	1.43	1.23
50.4	1.76	1.49	1.30
70.6	1.72	1.51	1.32
90.8	1.76	1.49	1.30
111.0	1.81	1.47	1.27
131.2	1.80	1.45	1.26
151.4	1.77	1.48	1.29
171.6	1.75	1.49	1.29
191.8	1.75	1.46	1.28
212.0	1.76	1.45	1.27
232.2	1.77	1.45	1.27
252.4	1.73	1.44	1.27
272.7	1.71	1.45	1.28
292.9	1.74	1.45	1.28
313.1	1.75	1.44	1.26
333.3	1.73	1.43	1.26
353.5	1.73	1.44	1.27
373.7	1.71	1.43	1.26
393.9	1.68	1.40	1.23
434.3	1.69	1.39	1.22
454.5	1.64	1.36	1.20
494.9	1.65	1.36	1.20
515.1	1.64	1.34	1.18
555.5	1.59	1.32	1.17
575.7	1.59	1.31	1.15
616.1	1.55	1.27	1.13
636.3	1.55	1.27	1.13
676.7	1.53	1.24	1.10
696.9	1.54	1.25	1.10
737.3	1.49	1.21	1.08
757.6	1.49	1.21	1.08
798.0	1.49	1.20	1.04
818.2	1.46	1.18	1.04
858.6	1.47	1.18	1.02
878.8	1.47	1.17	1.01
919.2	1.47	1.19	1.03
939.4	1.45	1.18	1.04
979.8	1.49	1.19	1.06
1000.0	1.49	1.20	1.09

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	36	25	32	31	33	65	60	69	62	79
1	-	37	+0	43	16	45	31	49	50	51	58	87
2	77	49	49	61	52	54	57	47	47	60	67	66
3	>100	68	42	64	46	72	48	77	53	70	58	65
4	>100	62	74	66	73	64	75	66	78	61	65	69
5	>100	75	69	81	65	82	62	86	62	83	63	86
6	>100	83	86	74	94	77	88	76	91	77	89	73
7	>100	>98	95	85	81	92	84	91	81	>98	80	92
8	>100	>98	>98	92	96	85	>98	87	>98	86	>98	87
9	>100	>98	>98	>98	>98	95	92	>98	>98	>98	>98	>98
10	>100	>98	>98	>98	>98	>98	>98	96	>98	95	>98	93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 1250.1 MHz; 4.00 dBm.**
LO IN: 1280.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -2.46 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	26	15	23	19	20	44	43	47	50	51
1	-	38	+0	41	16	45	33	44	43	47	49	76
2	87	62	58	58	61	56	63	51	54	62	73	65
3	>100	79	61	76	65	82	63	86	65	75	72	81
4	>100	81	>88	84	>88	80	>88	84	>88	81	>88	88
5	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
6	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
7	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
8	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
9	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
10	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

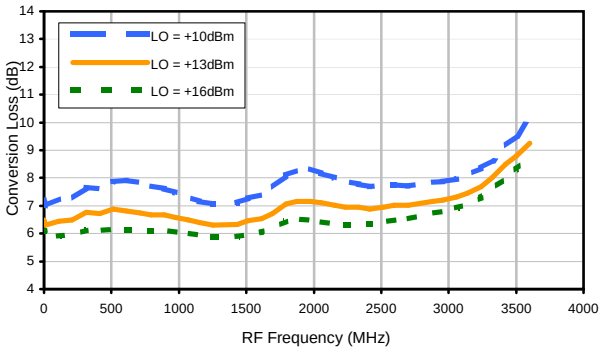
Test conditions: **RF IN: 1250.1 MHz; -6.00 dBm.**
LO IN: 1280.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -12.48 dBm

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.

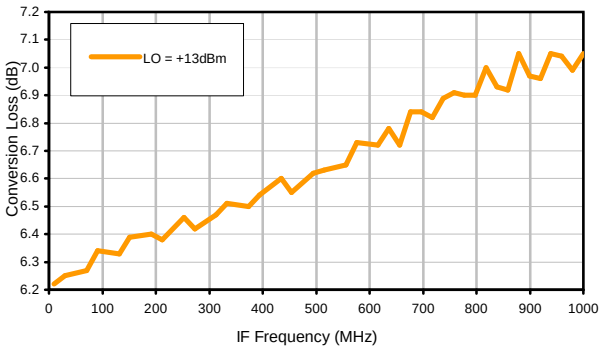
Frequency Mixer ROK-186MH+

Typical Performance Curves

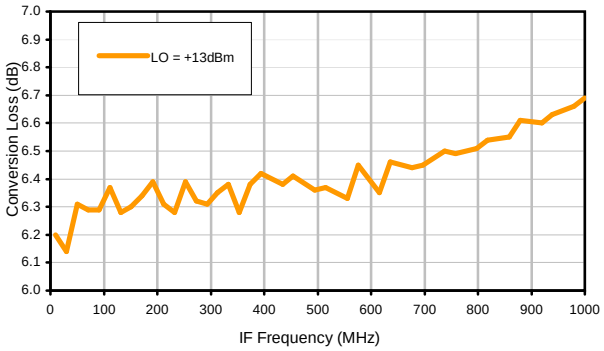
Conversion Loss @ IF=30MHz



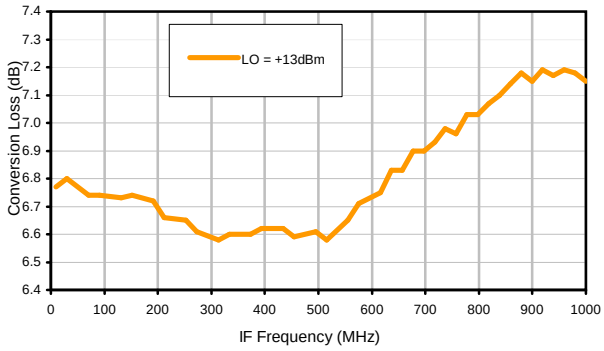
Conversion Loss vs. IF @ RF=1250.1MHz



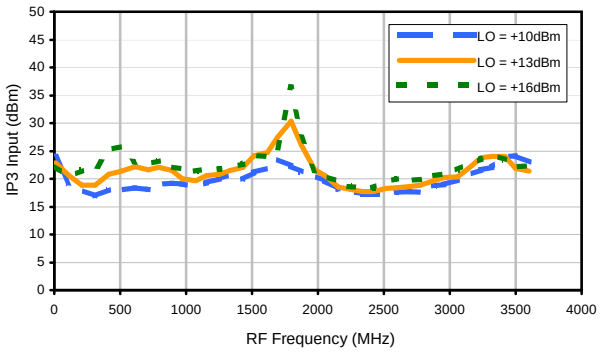
Conversion Loss vs. IF @ RF=10.1MHz



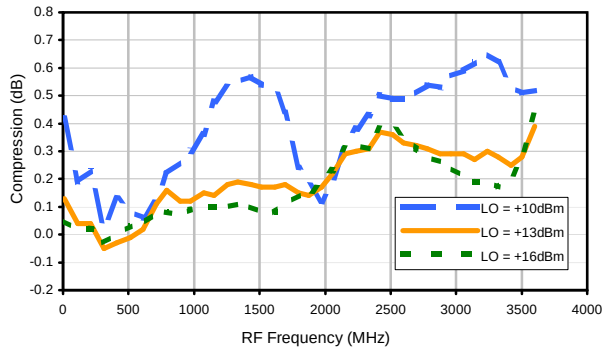
Conversion Loss vs. IF @ RF=2500.1MHz



IP3 Input

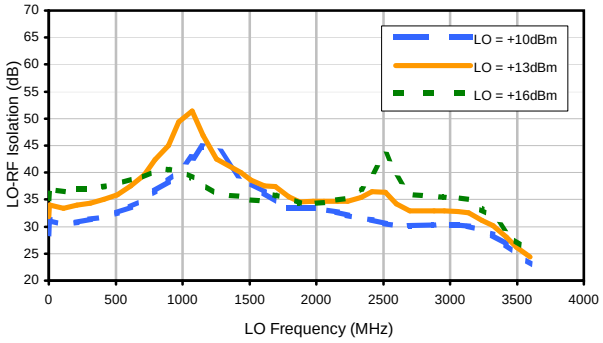


Compression @ RF IN=+9dBm

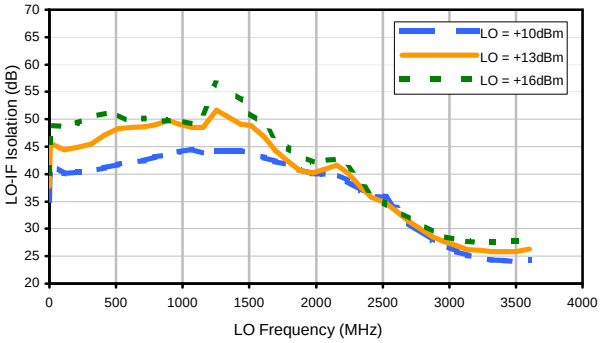


Typical Performance Curves

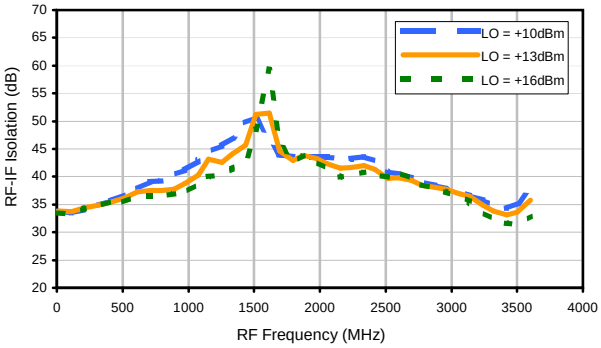
LO-RF Isolation



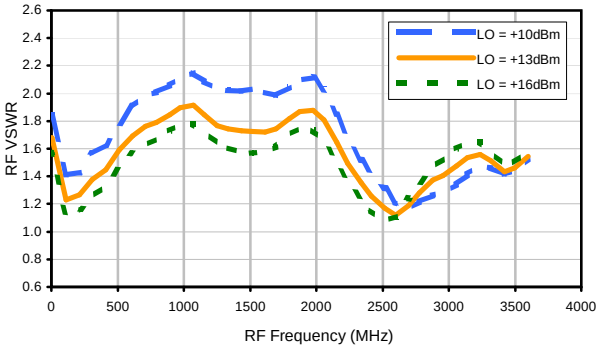
LO-IF Isolation



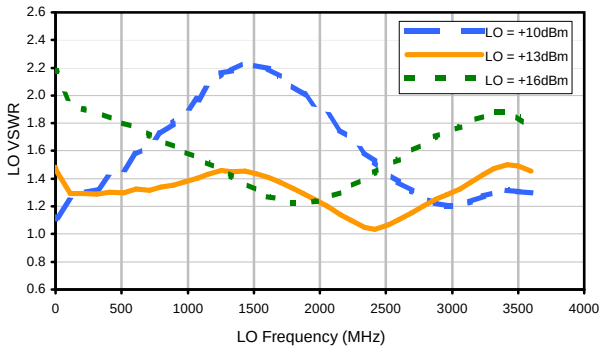
RF-IF Isolation



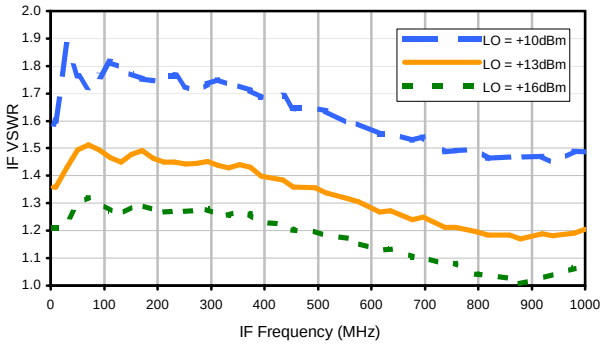
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	36	25	32	31	33	65	60	69	62	79
1	-	37	+0	43	16	45	31	49	50	51	58	87
2	77	49	49	61	52	54	57	47	47	60	67	66
3	>100	68	42	64	46	72	48	77	53	70	58	65
4	>100	62	74	66	73	64	75	66	78	61	65	69
5	>100	75	69	81	65	82	62	86	62	83	63	86
6	>100	83	86	74	94	77	88	76	91	77	89	73
7	>100	>98	95	85	81	92	84	91	81	>98	80	92
8	>100	>98	>98	92	96	85	>98	87	>98	86	>98	87
9	>100	>98	>98	>98	>98	95	92	>98	>98	>98	>98	>98
10	>100	>98	>98	>98	>98	>98	>98	96	>98	95	>98	93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 1250.1 MHz; 4.00 dBm.**
LO IN: 1280.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -2.46 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	26	15	23	19	20	44	43	47	50	51
1	-	38	+0	41	16	45	33	44	43	47	49	76
2	87	62	58	58	61	56	63	51	54	62	73	65
3	>100	79	61	76	65	82	63	86	65	75	72	81
4	>100	81	>88	84	>88	80	>88	84	>88	81	>88	88
5	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
6	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
7	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
8	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
9	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
10	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

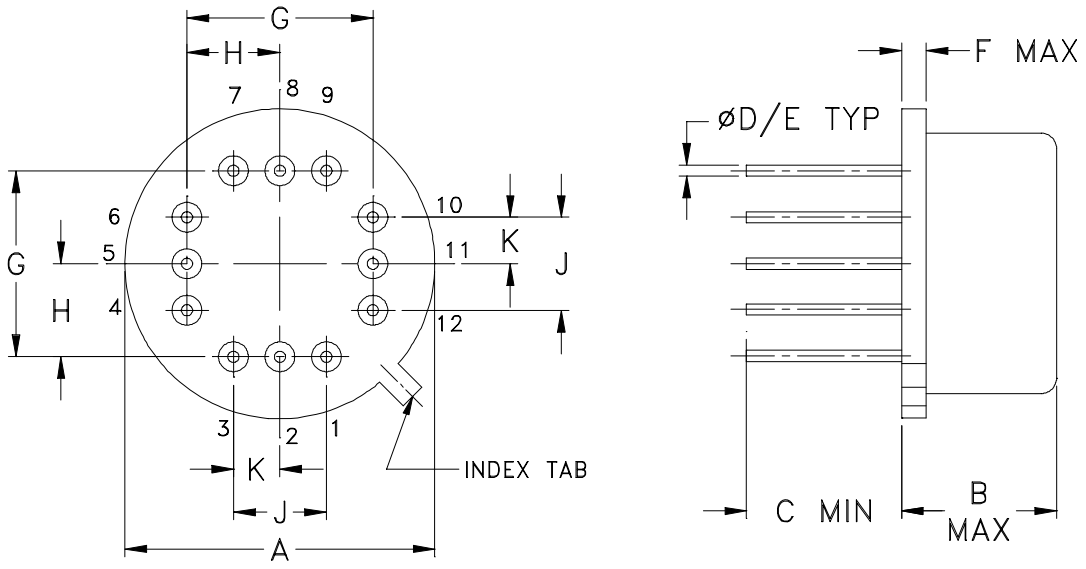
Test conditions: **RF IN: 1250.1 MHz; -6.00 dBm.**
LO IN: 1280.01 MHz; +13.00 dBm
IF OUT: 29.91 MHz; -12.48 dBm

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 QQ

QQ95
QQ96

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT. GRAM
QQ95	.500 (12.70)	.250 (6.35)	.25 (6.35)	.016 (.41)	.020 (.51)	.04 (1.02)	.300 (7.62)	.150 (3.81)	.150 (3.81)	.075 (1.91)	3.5
QQ96	.600 (15.24)						.400 (10.16)	.200 (5.08)	.200 (5.08)	.100 (2.54)	4.0

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

Notes:

1. Header material: Kovar.
   Pin material: Kovar.
   Cover material: Nickel.
2. Pin finish: Gold plate 25 µ inches (.64 microns) min.
3. For pin designations see specification data sheet.
4. Pin numbers do not apper on unit, for reference only.

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Mini-Circuits ISO 9001 & ISO 14001 Certified

Mini-Circuits

Environmental Specifications ENV36T1

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 10 cycles	MIL-STD-202, Method 107, Condition A, except +100°C & 10 cycles
Constant Acceleration	5000g, Y1 axis	MIL-STD-883, Method 2001, Condition A, except Y1 axis only
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D