

Frequency Mixer

HJK-ED12074/2

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=72MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+14	+17	+20			+14	+17	+20			+14	+17	+20
82.10	10.10	14.62	12.43	10.69	82.10	10.10	9.94	10.45	11.61	82.10	10.10	8.38	7.90	6.97
152.10	80.10	6.80	6.60	6.47	152.10	80.10	17.38	19.57	21.59	152.10	80.10	3.02	1.86	1.12
222.10	150.10	6.84	6.77	6.73	222.10	150.10	23.79	26.33	29.78	222.10	150.10	0.56	0.32	0.19
292.10	220.10	6.74	6.67	6.64	292.10	220.10	28.18	31.89	33.05	292.10	220.10	0.24	0.15	0.08
362.10	290.10	6.98	6.91	6.87	362.10	290.10	29.24	28.16	28.96	362.10	290.10	0.09	0.07	0.06
432.10	360.10	8.75	8.26	9.20	432.10	360.10	21.56	22.66	16.16	432.10	360.10	0.36	0.40	-0.72
502.10	430.10	6.80	6.74	6.69	502.10	430.10	27.14	29.12	30.47	502.10	430.10	0.28	0.14	0.09
572.10	500.10	6.83	6.74	6.67	572.10	500.10	30.58	32.46	34.34	572.10	500.10	0.26	0.11	0.05
642.10	570.10	6.90	6.79	6.72	642.10	570.10	30.56	32.56	34.48	642.10	570.10	0.27	0.10	0.05
712.10	640.10	7.06	6.93	6.85	712.10	640.10	29.35	31.50	33.33	712.10	640.10	0.28	0.08	0.03
782.10	710.10	7.39	7.23	7.11	782.10	710.10	27.66	28.07	29.00	782.10	710.10	0.44	0.18	0.08
852.10	780.10	7.65	7.50	7.39	852.10	780.10	24.72	26.26	28.75	852.10	780.10	0.47	0.13	0.04
922.10	850.10	7.80	7.66	7.58	922.10	850.10	21.48	23.97	26.64	922.10	850.10	0.48	0.20	0.10
992.10	920.10	7.82	7.65	7.55	992.10	920.10	21.42	24.04	26.77	992.10	920.10	0.54	0.25	0.13
1062.10	990.10	7.86	7.70	7.59	1062.10	990.10	21.22	23.91	26.80	1062.10	990.10	0.56	0.26	0.13
1132.10	1060.10	7.90	7.74	7.63	1132.10	1060.10	20.74	23.24	26.08	1132.10	1060.10	0.59	0.27	0.14
1202.10	1130.10	7.89	7.75	7.65	1202.10	1130.10	20.38	22.81	25.67	1202.10	1130.10	0.67	0.33	0.18
1272.10	1200.10	7.84	7.70	7.61	1272.10	1200.10	20.26	22.59	25.40	1272.10	1200.10	0.77	0.40	0.22
1342.10	1270.10	7.68	7.51	7.40	1342.10	1270.10	20.39	22.18	24.54	1342.10	1270.10	0.94	0.50	0.27
1412.10	1340.10	7.63	7.44	7.31	1412.10	1340.10	21.28	22.69	24.64	1412.10	1340.10	0.91	0.48	0.25
1482.10	1410.10	7.69	7.53	7.42	1482.10	1410.10	21.72	23.67	26.17	1482.10	1410.10	0.81	0.43	0.23
1552.10	1480.10	7.78	7.64	7.54	1552.10	1480.10	22.07	24.11	26.78	1552.10	1480.10	0.78	0.40	0.22
1612.10	1540.10	7.81	7.69	7.61	1612.10	1540.10	22.90	25.04	28.01	1612.10	1540.10	0.80	0.40	0.21
1682.10	1610.10	7.87	7.77	7.71	1682.10	1610.10	23.37	25.62	28.90	1682.10	1610.10	0.86	0.41	0.21
1742.10	1670.10	7.92	7.81	7.74	1742.10	1670.10	23.47	25.75	28.84	1742.10	1670.10	0.93	0.44	0.23
1812.10	1740.10	8.11	8.03	7.99	1812.10	1740.10	23.34	25.81	28.67	1812.10	1740.10	1.08	0.51	0.24
1872.10	1800.10	8.22	8.15	8.12	1872.10	1800.10	23.21	25.75	28.47	1872.10	1800.10	1.21	0.56	0.25
1942.10	1870.10	8.26	8.19	8.15	1942.10	1870.10	23.04	25.72	28.05	1942.10	1870.10	1.36	0.63	0.31
2002.10	1930.10	8.33	8.22	8.17	2002.10	1930.10	22.62	25.42	27.62	2002.10	1930.10	1.56	0.70	0.33
2072.10	2000.10	8.53	8.40	8.34	2072.10	2000.10	21.98	24.79	26.74	2072.10	2000.10	1.94	0.86	0.40
2132.10	2060.10	8.66	8.53	8.45	2132.10	2060.10	21.40	24.29	26.04	2132.10	2060.10	2.20	1.02	0.47
2202.10	2130.10	8.89	8.73	8.64	2202.10	2130.10	20.84	23.91	25.90	2202.10	2130.10	2.48	1.12	0.51
2262.10	2190.10	9.36	9.20	9.11	2262.10	2190.10	20.18	23.61	26.01	2262.10	2190.10	2.67	1.25	0.55
2332.10	2260.10	9.69	9.53	9.44	2332.10	2260.10	19.92	23.44	26.41	2332.10	2260.10	2.78	1.37	0.60
2392.10	2320.10	9.71	9.52	9.42	2392.10	2320.10	19.59	23.17	26.27	2392.10	2320.10	2.90	1.51	0.66
2462.10	2390.10	10.04	9.79	9.66	2462.10	2390.10	18.69	22.61	25.94	2462.10	2390.10	3.31	1.70	0.78
2522.10	2450.10	10.41	10.09	9.92	2522.10	2450.10	17.68	21.44	24.91	2522.10	2450.10	3.59	2.05	0.94
2592.10	2520.10	10.44	10.02	9.78	2592.10	2520.10	16.75	20.22	23.52	2592.10	2520.10	4.09	2.46	1.16
2652.10	2580.10	10.74	10.20	9.89	2652.10	2580.10	15.63	19.06	22.14	2652.10	2580.10	4.67	3.00	1.52
2722.10	2650.10	11.41	10.76	10.40	2722.10	2650.10	14.79	18.07	21.30	2722.10	2650.10	4.95	3.43	1.81

Frequency Mixer

HJK-ED12074/2

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1070.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=730.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1410.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
730.00	340.10	10.44	10.00	740.10	7.44	1330.00	80.10	10.22
692.11	377.99	6.77	40.00	770.10	7.18	1300.00	110.10	9.83
654.21	415.89	6.55	70.00	800.10	7.16	1270.00	140.10	9.46
616.32	453.78	6.63	100.00	830.10	7.16	1240.00	170.10	9.34
578.42	491.68	7.08	130.00	860.10	7.24	1210.00	200.10	8.89
540.53	529.57	8.07	160.00	890.10	7.30	1180.00	230.10	8.74
502.63	567.47	6.91	190.00	920.10	7.34	1150.00	260.10	8.59
464.74	605.36	7.11	220.00	950.10	7.25	1120.00	290.10	8.60
426.84	643.26	7.27	250.00	980.10	7.39	1090.00	320.10	8.78
388.95	681.15	7.52	280.00	1010.10	7.43	1060.00	350.10	9.29
351.05	719.05	7.66	310.00	1040.10	7.47	1020.00	390.10	7.78
313.16	756.94	7.77	340.00	1070.10	7.46	990.00	420.10	7.39
275.26	794.84	7.83	370.00	1100.10	7.50	950.00	460.10	7.09
237.37	832.73	7.86	400.00	1130.10	7.51	920.00	490.10	7.15
199.47	870.63	7.80	440.00	1170.10	7.61	880.00	530.10	7.21
161.58	908.52	7.75	470.00	1200.10	7.67	850.00	560.10	7.19
123.68	946.42	7.73	510.00	1240.10	7.74	810.00	600.10	7.36
85.79	984.31	7.76	540.00	1270.10	7.76	780.00	630.10	7.43
47.89	1022.21	7.74	580.00	1310.10	7.77	740.00	670.10	8.07
10.00	1060.10	7.90	610.00	1340.10	7.80	710.00	700.10	8.57
59.17	1129.27	7.83	650.00	1380.10	7.85	670.00	740.10	6.96
120.63	1190.73	7.90	680.00	1410.10	7.84	640.00	770.10	6.99
182.08	1252.18	7.97	720.00	1450.10	7.86	600.00	810.10	7.00
243.54	1313.64	7.95	750.00	1480.10	7.95	570.00	840.10	7.14
305.00	1375.10	7.90	790.00	1520.10	7.94	530.00	880.10	7.25
366.46	1436.56	7.74	820.00	1550.10	7.88	500.00	910.10	7.35
427.92	1498.02	7.69	860.00	1590.10	7.92	460.00	950.10	7.37
489.37	1559.48	7.67	890.00	1620.10	8.03	430.00	980.10	7.46
550.83	1620.93	7.71	930.00	1660.10	8.14	390.00	1020.10	7.54
612.29	1682.39	7.80	960.00	1690.10	8.22	360.00	1050.10	7.52
673.75	1743.85	7.95	1000.00	1730.10	8.40	320.00	1090.10	7.55
735.21	1805.31	8.16	1030.00	1760.10	8.51	290.00	1120.10	7.52
796.67	1866.77	8.33	1070.00	1800.10	8.73	250.00	1160.10	7.51
858.13	1928.23	8.53	1100.00	1830.10	8.91	220.00	1190.10	7.49
907.29	1977.39	8.76	1140.00	1870.10	9.11	180.00	1230.10	7.42
968.75	2038.85	9.06	1170.00	1900.10	9.34	150.00	1260.10	7.34
1017.92	2088.02	9.32	1210.00	1940.10	9.71	110.00	1300.10	7.35
1079.38	2149.48	9.83	1240.00	1970.10	10.06	80.00	1330.10	7.44
1128.54	2198.64	10.09	1280.00	2010.10	10.47	40.00	1370.10	7.50
1190.00	2260.10	10.42	1310.00	2040.10	10.78	10.00	1400.10	7.60

Frequency Mixer

HJK-ED12074/2

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)		
	+14	+17	+20	+14	+17	+20			+14	+17	+20
10.10	58.03	60.73	57.48	65.46	65.32	65.09	82.10	10.10	33.86	35.37	37.44
80.10	55.71	55.52	55.54	58.75	58.78	58.71	152.10	80.10	40.75	39.92	38.96
150.10	52.10	52.21	52.28	47.80	47.85	47.80	222.10	150.10	42.43	42.66	42.06
220.10	51.97	52.52	53.00	42.54	42.59	42.59	292.10	220.10	41.59	41.44	41.44
290.10	43.42	43.53	44.24	39.46	39.47	39.54	362.10	290.10	40.05	39.75	39.89
360.10	42.76	44.80	37.38	38.13	38.25	37.62	432.10	360.10	40.87	39.86	40.50
430.10	46.12	45.89	46.47	37.35	37.31	37.46	502.10	430.10	38.32	38.58	38.98
500.10	46.83	46.62	46.61	37.63	37.65	37.63	572.10	500.10	36.73	36.88	36.72
570.10	47.85	47.69	47.56	38.20	38.31	38.30	642.10	570.10	35.23	35.60	35.36
640.10	48.04	47.91	47.76	38.98	39.17	39.22	712.10	640.10	30.16	30.42	30.24
710.10	51.69	52.22	52.45	41.36	41.70	41.79	782.10	710.10	23.81	23.70	23.50
780.10	44.06	44.53	44.81	42.71	42.66	42.55	852.10	780.10	32.02	32.13	32.06
850.10	41.68	42.06	42.29	45.27	45.46	45.52	922.10	850.10	40.19	39.47	39.07
920.10	45.43	46.13	46.61	48.42	48.71	48.77	992.10	920.10	45.46	44.63	44.59
990.10	46.01	47.18	48.10	49.45	50.67	51.39	1062.10	990.10	45.22	44.25	44.60
1060.10	45.03	46.30	47.39	46.30	47.13	47.68	1132.10	1060.10	42.96	42.12	42.11
1130.10	44.14	45.45	46.54	43.34	44.00	44.48	1202.10	1130.10	40.86	40.41	40.34
1200.10	42.87	43.86	44.54	41.14	41.82	42.31	1272.10	1200.10	39.38	39.26	39.44
1270.10	43.25	44.18	44.74	38.94	39.57	40.01	1342.10	1270.10	37.15	37.09	37.17
1340.10	51.82	55.26	58.18	36.47	36.94	37.21	1412.10	1340.10	36.15	36.04	36.13
1410.10	48.82	48.32	47.79	37.07	37.65	38.00	1482.10	1410.10	36.13	35.97	36.07
1480.10	47.17	46.92	46.60	37.67	38.35	38.78	1552.10	1480.10	34.66	34.62	34.72
1540.10	46.50	46.03	45.46	37.80	38.44	38.84	1612.10	1540.10	33.46	33.38	33.42
1610.10	46.78	45.93	45.19	37.23	37.63	37.83	1682.10	1610.10	32.03	31.95	31.98
1670.10	46.57	45.29	44.51	36.16	36.29	36.42	1742.10	1670.10	30.74	30.59	30.56
1740.10	44.18	42.84	42.02	34.32	34.31	34.37	1812.10	1740.10	29.69	29.41	29.32
1800.10	42.56	41.27	40.49	32.61	32.59	32.67	1872.10	1800.10	28.93	28.63	28.53
1870.10	42.12	40.91	40.16	31.59	31.61	31.67	1942.10	1870.10	27.90	27.62	27.51
1930.10	41.46	40.43	39.81	31.03	31.04	31.13	2002.10	1930.10	27.17	26.96	26.81
2000.10	40.09	39.23	38.84	30.24	30.23	30.45	2072.10	2000.10	26.45	26.25	26.18
2060.10	39.24	38.60	38.29	29.63	29.69	29.89	2132.10	2060.10	25.73	25.58	25.55
2130.10	38.33	37.75	37.56	29.05	29.00	29.21	2202.10	2130.10	24.88	24.70	24.70
2190.10	37.58	37.11	36.89	28.57	28.51	28.63	2262.10	2190.10	24.21	24.09	24.07
2260.10	36.70	36.54	36.50	27.96	28.06	28.18	2332.10	2260.10	23.57	23.35	23.35
2320.10	35.93	35.90	35.78	27.62	27.77	27.82	2392.10	2320.10	23.01	22.93	22.95
2390.10	34.97	34.73	34.87	27.42	27.37	27.64	2462.10	2390.10	22.70	22.62	22.64
2450.10	34.46	34.26	34.39	27.27	27.22	27.51	2522.10	2450.10	22.41	22.43	22.49
2520.10	34.32	34.11	34.24	27.23	27.17	27.47	2592.10	2520.10	22.08	22.10	22.21
2580.10	34.37	34.13	34.18	27.19	27.15	27.47	2652.10	2580.10	21.85	21.94	22.05
2650.10	35.46	35.43	35.28	27.10	27.20	27.37	2722.10	2650.10	21.51	21.51	21.69

Frequency Mixer

HJK-ED12074/2

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1400MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+20		+14	+17	+20		+14	+17	+20
82.10	10.10	3.20	3.16	3.16	10.10	3.31	3.41	3.47	10.00	1.73	1.83	1.90
152.10	80.10	1.97	2.01	2.03	80.10	9.53	9.38	9.33	50.00	1.71	1.82	1.89
222.10	150.10	1.75	1.81	1.84	150.10	5.54	5.51	5.49	90.00	1.69	1.80	1.87
292.10	220.10	1.77	1.84	1.89	220.10	5.00	4.99	4.96	130.00	1.64	1.74	1.80
362.10	290.10	1.50	1.54	1.56	290.10	4.59	4.57	4.37	170.00	1.59	1.68	1.75
432.10	360.10	2.27	2.61	1.85	360.10	3.27	3.30	2.88	210.00	1.54	1.63	1.69
502.10	430.10	2.14	2.23	2.27	430.10	4.18	4.15	3.96	250.00	1.52	1.61	1.66
572.10	500.10	1.92	1.97	2.01	500.10	4.18	4.15	4.13	290.00	1.44	1.53	1.58
642.10	570.10	1.88	1.91	1.93	570.10	4.10	4.09	4.07	330.00	1.39	1.47	1.52
712.10	640.10	2.00	2.01	2.01	640.10	4.05	4.03	4.02	370.00	1.31	1.38	1.42
782.10	710.10	2.22	2.19	2.18	710.10	3.92	3.90	3.89	410.00	1.26	1.33	1.37
852.10	780.10	2.59	2.55	2.54	780.10	3.87	3.86	3.84	450.00	1.23	1.29	1.34
922.10	850.10	2.68	2.67	2.67	850.10	3.79	3.79	3.77	490.00	1.17	1.23	1.27
992.10	920.10	2.66	2.64	2.63	920.10	3.69	3.68	3.67	530.00	1.17	1.22	1.25
1062.10	990.10	2.64	2.60	2.59	990.10	3.57	3.56	3.54	570.00	1.12	1.16	1.19
1132.10	1060.10	2.56	2.53	2.52	1060.10	3.44	3.43	3.41	590.00	1.13	1.17	1.20
1202.10	1130.10	2.35	2.34	2.35	1130.10	3.28	3.27	3.27	630.00	1.17	1.19	1.21
1272.10	1200.10	2.13	2.11	2.11	1200.10	3.11	3.11	3.11	650.00	1.17	1.18	1.19
1342.10	1270.10	1.95	1.91	1.90	1270.10	2.92	2.92	2.91	690.00	1.19	1.21	1.23
1412.10	1340.10	1.83	1.79	1.78	1340.10	2.71	2.70	2.68	710.00	1.24	1.24	1.26
1482.10	1410.10	1.61	1.60	1.61	1410.10	2.61	2.61	2.60	750.00	1.29	1.29	1.29
1552.10	1480.10	1.49	1.50	1.52	1480.10	2.54	2.54	2.54	770.00	1.32	1.32	1.33
1612.10	1540.10	1.42	1.45	1.49	1540.10	2.47	2.47	2.47	810.00	1.38	1.38	1.38
1682.10	1610.10	1.39	1.45	1.50	1610.10	2.40	2.40	2.40	830.00	1.42	1.42	1.42
1742.10	1670.10	1.39	1.48	1.55	1670.10	2.36	2.37	2.38	870.00	1.45	1.45	1.46
1812.10	1740.10	1.45	1.57	1.65	1740.10	2.31	2.32	2.33	890.00	1.46	1.47	1.48
1872.10	1800.10	1.52	1.64	1.73	1800.10	2.26	2.26	2.26	930.00	1.54	1.55	1.56
1942.10	1870.10	1.60	1.73	1.83	1870.10	2.25	2.25	2.25	950.00	1.53	1.54	1.55
2002.10	1930.10	1.61	1.76	1.86	1930.10	2.24	2.24	2.25	990.00	1.61	1.63	1.64
2072.10	2000.10	1.69	1.82	1.91	2000.10	2.22	2.22	2.21	1010.00	1.64	1.66	1.68
2132.10	2060.10	1.83	1.96	2.05	2060.10	2.25	2.24	2.24	1050.00	1.68	1.71	1.73
2202.10	2130.10	1.98	2.14	2.26	2130.10	2.25	2.25	2.25	1070.00	1.74	1.78	1.80
2262.10	2190.10	2.10	2.26	2.39	2190.10	2.27	2.26	2.25	1110.00	1.75	1.79	1.82
2332.10	2260.10	2.27	2.43	2.57	2260.10	2.32	2.31	2.30	1130.00	1.80	1.85	1.87
2392.10	2320.10	2.31	2.48	2.63	2320.10	2.34	2.34	2.34	1170.00	1.91	1.97	2.01
2462.10	2390.10	2.34	2.51	2.63	2390.10	2.42	2.41	2.40	1190.00	1.90	1.96	2.00
2522.10	2450.10	2.40	2.52	2.62	2450.10	2.50	2.48	2.47	1230.00	2.10	2.18	2.23
2592.10	2520.10	2.35	2.45	2.52	2520.10	2.57	2.56	2.55	1250.00	2.19	2.28	2.33
2652.10	2580.10	2.37	2.42	2.47	2580.10	2.64	2.63	2.62	1290.00	2.49	2.59	2.66
2722.10	2650.10	2.60	2.61	2.63	2650.10	2.74	2.73	2.70	1310.00	2.71	2.82	2.89

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	24	35	55	36	43	43	37	46	47	50
1	-	38	+0	29	20	42	31	61	55	46	60	57
2	63	70	52	58	57	65	>82	68	67	68	70	69
3	>90	>82	67	65	55	65	62	79	71	81	79	79
4	>90	>82	>82	>82	>82	>82	80	>82	>82	>82	>82	>82
5	>90	>82	>82	>82	>82	>82	80	>82	>82	>82	>82	>82
6	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
7	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
8	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
9	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
10	>90	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82	>82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 1070 MHz; 0.00 dBm.
LO IN: 998 MHz; +17.00 dBm
IF OUT: 72 MHz; -7.9 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	33	42	65	45	46	44	47	49	60	58
1	-	41	+0	31	21	43	33	60	61	50	65	59
2	43	56	42	50	49	53	76	62	61	60	67	70
3	65	78	49	51	37	50	44	63	54	70	63	66
4	>90	81	>92	77	66	70	65	75	>92	80	72	73
5	>90	83	72	91	73	66	57	62	61	75	76	81
6	>90	81	88	88	>92	>92	83	82	75	83	92	>92
7	>90	>92	>92	>92	92	>92	>92	82	76	80	78	88
8	>90	>92	>92	91	>92	>92	>92	>92	>92	90	86	88
9	>90	>92	>92	>92	>92	>92	>92	>92	>92	>92	91	>92
10	>90	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 1070 MHz; 10.00 dBm.
LO IN: 998 MHz; +17.00 dBm
IF OUT: 72 MHz; 2.01 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.

REV. X2

HJK-12074/2

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Page 5 of 5



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