

# Frequency Mixer

# HJK-ED11031/1

## Typical Performance Data

| RF<br>(MHz) | LO<br>(MHz) | CONVERSION LOSS<br>(dB) |       |      | LO<br>(MHz) | LO-RF ISOLATION<br>(dB) |      |      | LO-IF ISOLATION<br>(dB) |      |      | LO<br>(MHz) | RF<br>(MHz) | IP3<br>Input<br>(dBm) |
|-------------|-------------|-------------------------|-------|------|-------------|-------------------------|------|------|-------------------------|------|------|-------------|-------------|-----------------------|
|             |             | @LO (dBm)               |       |      |             | @LO (dBm)               |      |      | @LO (dBm)               |      |      |             |             |                       |
|             |             | +10                     | +13   | +16  |             | +10                     | +13  | +16  | +10                     | +13  | +16  |             |             | +13                   |
| 750.1       | 888.1       | 13.90                   | 10.61 | 8.77 | 888.1       | 56.4                    | 55.3 | 55.1 | 45.7                    | 46.5 | 47.4 | 888.1       | 750.1       | 12.1                  |
| 800.1       | 938.1       | 11.45                   | 9.11  | 7.79 | 938.1       | 53.9                    | 53.2 | 53.4 | 44.2                    | 45.0 | 45.9 | 938.1       | 800.1       | 15.3                  |
| 850.1       | 988.1       | 12.19                   | 9.38  | 7.78 | 988.1       | 56.1                    | 55.3 | 55.4 | 44.7                    | 45.5 | 46.4 | 988.1       | 850.1       | 16.3                  |
| 900.1       | 1038.1      | 10.05                   | 8.02  | 6.97 | 1038.1      | 54.1                    | 53.5 | 53.3 | 43.1                    | 43.9 | 44.7 | 1038.1      | 900.1       | 16.9                  |
| 950.1       | 1088.1      | 10.89                   | 8.41  | 7.05 | 1088.1      | 56.1                    | 55.1 | 54.7 | 43.7                    | 44.5 | 45.1 | 1088.1      | 950.1       | 17.7                  |
| 1000.1      | 1138.1      | 9.19                    | 7.48  | 6.59 | 1138.1      | 56.6                    | 55.5 | 54.7 | 42.8                    | 43.5 | 44.1 | 1138.1      | 1000.1      | 17.4                  |
| 1050.1      | 1188.1      | 10.09                   | 8.31  | 7.51 | 1188.1      | 56.4                    | 53.1 | 51.0 | 43.9                    | 44.5 | 45.1 | 1188.1      | 1050.1      | 10.3                  |
| 1100.1      | 1238.1      | 9.12                    | 7.76  | 6.87 | 1238.1      | 46.4                    | 45.2 | 45.6 | 41.1                    | 41.4 | 41.7 | 1238.1      | 1100.1      | 29.2                  |
| 1150.1      | 1288.1      | 9.74                    | 7.88  | 6.76 | 1288.1      | 47.2                    | 47.0 | 47.5 | 41.0                    | 41.4 | 42.0 | 1288.1      | 1150.1      | 13.9                  |
| 1200.1      | 1338.1      | 8.71                    | 7.27  | 6.44 | 1338.1      | 46.2                    | 46.0 | 46.1 | 39.2                    | 39.7 | 40.2 | 1338.1      | 1200.1      | 15.6                  |
| 1250.1      | 1388.1      | 9.61                    | 7.83  | 6.78 | 1388.1      | 48.8                    | 48.6 | 47.9 | 39.7                    | 40.2 | 40.7 | 1388.1      | 1250.1      | 16.4                  |
| 1300.1      | 1438.1      | 8.57                    | 7.22  | 6.44 | 1438.1      | 48.3                    | 47.4 | 46.4 | 37.9                    | 38.4 | 38.8 | 1438.1      | 1300.1      | 20.2                  |
| 1350.1      | 1488.1      | 9.44                    | 7.75  | 6.82 | 1488.1      | 51.0                    | 50.0 | 48.7 | 38.7                    | 39.0 | 39.3 | 1488.1      | 1350.1      | 14.9                  |
| 1400.1      | 1538.1      | 8.64                    | 7.42  | 6.90 | 1538.1      | 53.8                    | 54.2 | 53.6 | 37.3                    | 37.6 | 38.0 | 1538.1      | 1400.1      | 16.4                  |
| 1450.1      | 1588.1      | 9.01                    | 7.56  | 7.11 | 1588.1      | 58.5                    | 57.2 | 53.4 | 38.1                    | 38.5 | 39.2 | 1588.1      | 1450.1      | 16.4                  |
| 1500.1      | 1638.1      | 7.97                    | 8.16  | 8.34 | 1638.1      | 53.4                    | 47.9 | 46.1 | 36.8                    | 37.2 | 37.4 | 1638.1      | 1500.1      | 18.6                  |
| 1550.1      | 1688.1      | 8.14                    | 7.22  | 6.69 | 1688.1      | 52.0                    | 49.7 | 47.8 | 37.2                    | 37.7 | 38.2 | 1688.1      | 1550.1      | 23.0                  |
| 1600.1      | 1738.1      | 7.76                    | 7.15  | 6.82 | 1738.1      | 48.1                    | 45.9 | 44.3 | 36.1                    | 36.6 | 37.0 | 1738.1      | 1600.1      | 24.4                  |
| 1650.1      | 1788.1      | 7.62                    | 7.19  | 6.96 | 1788.1      | 46.6                    | 44.6 | 43.2 | 35.9                    | 36.4 | 36.7 | 1788.1      | 1650.1      | 23.8                  |
| 1700.1      | 1838.1      | 7.27                    | 7.01  | 6.88 | 1838.1      | 44.3                    | 42.6 | 41.4 | 35.5                    | 35.9 | 36.2 | 1838.1      | 1700.1      | 23.0                  |
| 1750.1      | 1888.1      | 7.01                    | 6.84  | 6.76 | 1888.1      | 42.2                    | 40.6 | 39.6 | 35.1                    | 35.5 | 35.7 | 1888.1      | 1750.1      | 25.1                  |
| 1800.1      | 1938.1      | 6.94                    | 6.74  | 6.64 | 1938.1      | 42.2                    | 40.8 | 39.9 | 36.5                    | 37.0 | 37.4 | 1938.1      | 1800.1      | 24.7                  |
| 1850.1      | 1988.1      | 6.91                    | 6.71  | 6.58 | 1988.1      | 41.7                    | 40.6 | 39.9 | 38.4                    | 39.2 | 39.8 | 1988.1      | 1850.1      | 29.0                  |
| 1900.1      | 2038.1      | 6.98                    | 6.74  | 6.60 | 2038.1      | 41.8                    | 41.0 | 40.6 | 44.1                    | 46.5 | 48.3 | 2038.1      | 1900.1      | 28.6                  |
| 2000.1      | 2138.1      | 7.25                    | 6.97  | 6.81 | 2138.1      | 42.9                    | 43.0 | 43.3 | 48.3                    | 48.7 | 47.1 | 2138.1      | 2000.1      | 27.7                  |
| 2100.1      | 2238.1      | 7.48                    | 6.97  | 6.71 | 2238.1      | 48.3                    | 48.5 | 48.7 | 47.1                    | 51.1 | 56.3 | 2238.1      | 2100.1      | 20.8                  |
| 2200.1      | 2338.1      | 7.87                    | 7.12  | 6.69 | 2338.1      | 50.7                    | 49.7 | 49.3 | 46.7                    | 49.6 | 52.5 | 2338.1      | 2200.1      | 19.5                  |
| 2300.1      | 2438.1      | 8.23                    | 7.25  | 6.67 | 2438.1      | 50.2                    | 49.8 | 49.4 | 45.5                    | 47.4 | 48.5 | 2438.1      | 2300.1      | 19.9                  |
| 2400.1      | 2538.1      | 8.54                    | 7.43  | 6.78 | 2538.1      | 46.5                    | 47.5 | 48.0 | 43.9                    | 45.5 | 46.2 | 2538.1      | 2400.1      | 18.7                  |
| 2500.1      | 2638.1      | 8.48                    | 7.29  | 6.65 | 2638.1      | 42.8                    | 44.4 | 45.6 | 41.5                    | 42.9 | 43.5 | 2638.1      | 2500.1      | 14.0                  |
| 2600.1      | 2738.1      | 8.63                    | 7.40  | 6.70 | 2738.1      | 40.5                    | 42.4 | 43.8 | 38.5                    | 39.0 | 39.0 | 2738.1      | 2600.1      | 14.3                  |
| 2700.1      | 2838.1      | 9.11                    | 7.80  | 7.10 | 2838.1      | 39.9                    | 40.7 | 41.5 | 34.5                    | 34.9 | 35.3 | 2838.1      | 2700.1      | 14.6                  |
| 2800.1      | 2938.1      | 9.79                    | 8.49  | 7.78 | 2938.1      | 39.8                    | 39.9 | 39.6 | 32.3                    | 32.7 | 33.3 | 2938.1      | 2800.1      | 17.8                  |
| 2900.1      | 3038.1      | 10.67                   | 9.86  | 9.41 | 3038.1      | 37.4                    | 36.3 | 35.8 | 31.4                    | 31.6 | 31.8 | 3038.1      | 2900.1      | 20.0                  |
| 3050.1      | 3188.1      | 9.59                    | 8.90  | 8.46 | 3188.1      | 34.9                    | 34.9 | 34.8 | 34.2                    | 34.9 | 35.6 | 3188.1      | 3050.1      | 19.4                  |
| 3100.1      | 3238.1      | 9.66                    | 8.75  | 8.28 | 3238.1      | 35.9                    | 35.9 | 35.8 | 35.9                    | 36.8 | 37.5 | 3238.1      | 3100.1      | 21.0                  |
| 3150.1      | 3288.1      | 9.33                    | 8.57  | 8.22 | 3288.1      | 35.4                    | 35.3 | 35.2 | 36.5                    | 37.3 | 37.9 | 3288.1      | 3150.1      | 23.0                  |
| 3200.1      | 3338.1      | 9.58                    | 8.73  | 8.38 | 3338.1      | 36.2                    | 35.9 | 35.8 | 37.8                    | 38.6 | 39.1 | 3338.1      | 3200.1      | 21.1                  |
| 3250.1      | 3388.1      | 9.41                    | 8.85  | 8.66 | 3388.1      | 35.3                    | 34.9 | 34.6 | 38.1                    | 38.6 | 38.9 | 3388.1      | 3250.1      | 20.9                  |
| 3300.1      | 3438.1      | 9.62                    | 9.06  | 8.93 | 3438.1      | 35.5                    | 35.0 | 34.6 | 39.1                    | 39.5 | 39.7 | 3438.1      | 3300.1      | 20.1                  |
| 3350.1      | 3488.1      | 9.61                    | 9.25  | 9.23 | 3488.1      | 34.3                    | 33.7 | 33.3 | 39.1                    | 39.2 | 39.2 | 3488.1      | 3350.1      | 21.0                  |

# Frequency Mixer

HJK-ED11031/1

## Typical Performance Data

| RF/LO<br>(MHz) | RF VSWR<br>(:1) |      |      | LO VSWR<br>(:1) |       |       | IF<br>(MHz) | IF VSWR<br>(:1) |       |       |
|----------------|-----------------|------|------|-----------------|-------|-------|-------------|-----------------|-------|-------|
|                | @LO (dBm)       |      |      | @LO (dBm)       |       |       |             | @LO (dBm)       |       |       |
|                | +10             | +13  | +16  | +10             | +13   | +16   |             | +10             | +13   | +16   |
| 888.1          | 8.79            | 6.31 | 4.49 | 57.53           | 49.25 | 56.87 | 10.0        | 7.37            | 7.36  | 7.37  |
| 938.1          | 4.78            | 4.14 | 3.17 | 52.48           | 45.65 | 51.32 | 50.0        | 7.08            | 7.09  | 7.10  |
| 988.1          | 6.28            | 4.87 | 3.25 | 47.74           | 43.03 | 47.16 | 91.0        | 7.23            | 7.24  | 7.25  |
| 1038.1         | 3.44            | 3.20 | 2.32 | 44.77           | 39.97 | 42.79 | 130.0       | 7.40            | 7.42  | 7.43  |
| 1088.1         | 3.83            | 3.31 | 2.29 | 43.33           | 38.15 | 40.83 | 170.0       | 7.64            | 7.65  | 7.66  |
| 1138.1         | 2.45            | 2.37 | 1.69 | 38.40           | 34.03 | 37.09 | 210.0       | 7.98            | 8.00  | 8.01  |
| 1188.1         | 3.00            | 2.41 | 1.66 | 39.03           | 35.15 | 37.14 | 250.0       | 8.25            | 8.27  | 8.28  |
| 1238.1         | 1.91            | 1.62 | 1.41 | 37.75           | 34.45 | 35.09 | 295.0       | 8.81            | 8.82  | 8.84  |
| 1288.1         | 2.72            | 2.13 | 1.80 | 35.61           | 31.33 | 31.35 | 335.0       | 9.41            | 9.43  | 9.43  |
| 1338.1         | 2.27            | 1.92 | 1.65 | 31.10           | 27.48 | 27.64 | 375.0       | 9.94            | 9.96  | 9.97  |
| 1388.1         | 2.73            | 2.23 | 1.94 | 25.68           | 21.88 | 20.85 | 415.0       | 10.74           | 10.76 | 10.76 |
| 1438.1         | 2.43            | 2.14 | 1.95 | 24.29           | 19.92 | 17.35 | 455.0       | 11.28           | 11.30 | 11.31 |
| 1488.1         | 2.58            | 2.25 | 1.97 | 17.62           | 15.17 | 16.09 | 495.0       | 11.75           | 11.77 | 11.77 |
| 1538.1         | 2.56            | 2.12 | 1.79 | 14.12           | 12.61 | 12.43 | 535.0       | 12.94           | 12.99 | 12.99 |
| 1588.1         | 2.92            | 2.38 | 2.11 | 9.45            | 8.57  | 8.26  | 580.0       | 13.38           | 13.43 | 13.44 |
| 1638.1         | 2.76            | 2.28 | 1.83 | 5.92            | 5.42  | 5.23  | 620.0       | 14.04           | 14.11 | 14.08 |
| 1688.1         | 2.74            | 2.39 | 2.18 | 3.89            | 3.64  | 3.57  | 660.0       | 14.80           | 14.84 | 14.84 |
| 1738.1         | 2.47            | 2.22 | 2.08 | 3.49            | 3.46  | 3.60  | 700.0       | 14.45           | 14.51 | 14.51 |
| 1788.1         | 2.34            | 2.15 | 2.05 | 4.47            | 4.55  | 4.83  | 740.0       | 15.42           | 15.44 | 15.40 |
| 1838.1         | 2.21            | 2.04 | 1.95 | 6.46            | 6.53  | 6.93  | 780.0       | 15.00           | 15.04 | 15.05 |
| 1888.1         | 2.10            | 2.00 | 1.93 | 9.41            | 9.49  | 10.02 | 825.0       | 14.37           | 14.41 | 14.41 |
| 1938.1         | 2.17            | 2.03 | 1.95 | 12.35           | 12.36 | 13.14 | 865.0       | 14.88           | 14.89 | 14.88 |
| 1988.1         | 2.18            | 2.05 | 1.98 | 14.87           | 14.78 | 15.75 | 905.0       | 13.24           | 13.25 | 13.25 |
| 2038.1         | 2.24            | 2.08 | 1.99 | 16.21           | 16.30 | 17.55 | 945.0       | 13.49           | 13.51 | 13.52 |
| 2138.1         | 2.22            | 2.02 | 1.89 | 16.96           | 17.10 | 18.47 | 985.0       | 12.88           | 12.88 | 12.89 |
| 2238.1         | 2.33            | 2.07 | 1.92 | 16.74           | 17.08 | 18.49 | 1025.0      | 11.43           | 11.45 | 11.46 |
| 2338.1         | 2.41            | 2.09 | 1.88 | 15.86           | 16.34 | 17.77 | 1065.0      | 11.96           | 11.98 | 11.97 |
| 2438.1         | 2.55            | 2.15 | 1.91 | 14.99           | 15.50 | 17.05 | 1110.0      | 10.32           | 10.35 | 10.34 |
| 2538.1         | 2.56            | 2.13 | 1.89 | 13.80           | 14.19 | 15.56 | 1150.0      | 9.78            | 9.80  | 9.79  |
| 2638.1         | 2.41            | 2.00 | 1.78 | 12.04           | 12.23 | 13.54 | 1190.0      | 9.03            | 9.06  | 9.06  |
| 2738.1         | 2.25            | 1.84 | 1.60 | 9.93            | 9.84  | 10.52 | 1230.0      | 7.50            | 7.50  | 7.50  |
| 2838.1         | 2.05            | 1.64 | 1.42 | 7.90            | 7.64  | 8.03  | 1270.0      | 7.93            | 7.93  | 7.92  |
| 2938.1         | 1.75            | 1.39 | 1.18 | 6.32            | 5.91  | 5.99  | 1310.0      | 7.64            | 7.65  | 7.64  |
| 3038.1         | 1.61            | 1.47 | 1.55 | 4.75            | 4.37  | 4.42  | 1350.0      | 7.12            | 7.12  | 7.12  |
| 3188.1         | 2.14            | 2.09 | 2.11 | 4.33            | 4.10  | 4.33  | 1395.0      | 7.38            | 7.40  | 7.39  |
| 3238.1         | 2.59            | 2.33 | 2.24 | 5.01            | 4.98  | 5.45  | 1435.0      | 6.64            | 6.65  | 6.65  |
| 3288.1         | 2.72            | 2.58 | 2.51 | 5.79            | 5.89  | 6.46  | 1475.0      | 6.54            | 6.55  | 6.54  |
| 3338.1         | 3.14            | 2.91 | 2.81 | 6.42            | 6.56  | 7.19  | 1515.0      | 6.24            | 6.24  | 6.24  |
| 3388.1         | 3.17            | 3.06 | 2.99 | 6.56            | 6.70  | 7.14  | 1555.0      | 5.74            | 5.75  | 5.75  |
| 3438.1         | 3.51            | 3.40 | 3.29 | 6.20            | 6.22  | 6.53  | 1595.0      | 5.93            | 5.94  | 5.94  |
| 3488.1         | 3.67            | 3.59 | 3.43 | 5.34            | 5.34  | 5.47  | 1640.0      | 5.48            | 5.48  | 5.49  |