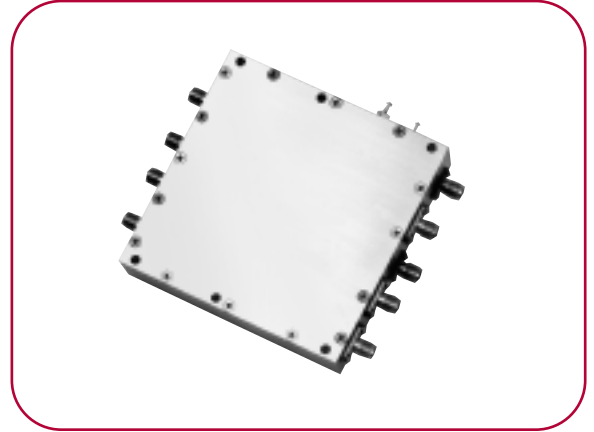


FOUR-CHANNEL DOWNCONVERTER MODULE

MODEL SERIES: DA4

FEATURES

- RF/LO coverage 0.5 to 18 GHz
- Input limiter diode protection
- Conversion gain 25 dB typical
- Noise figure 8.5 dB typical
- Channel-to-channel tracking
 - Phase $\pm 5^\circ$ typical
 - Amplitude ± 0.5 dB typical

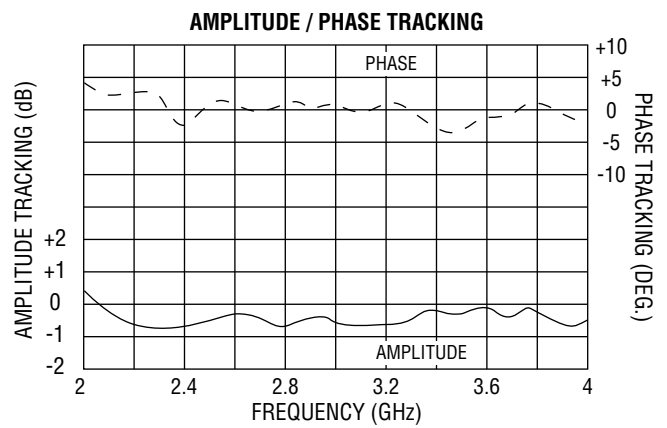
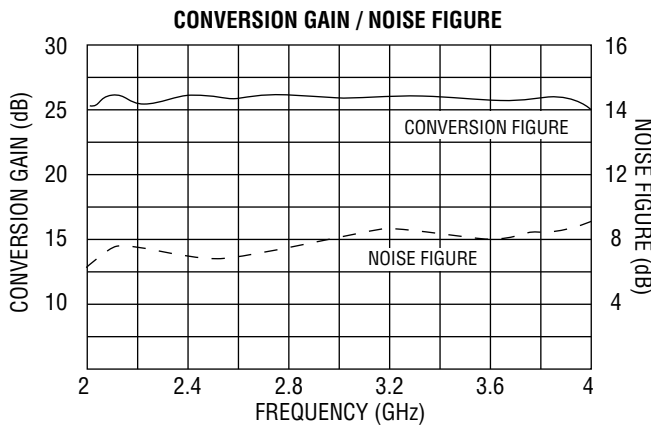
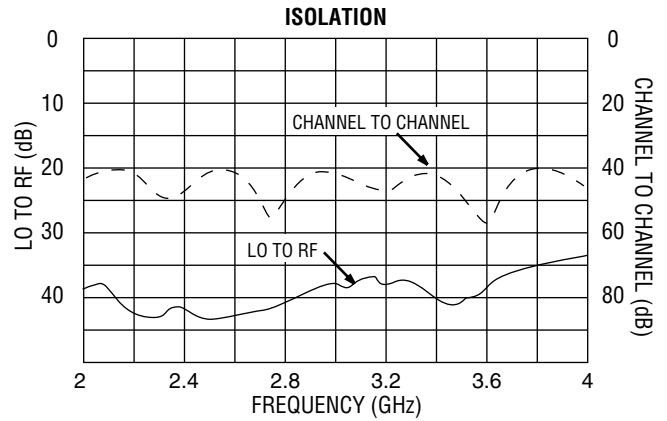
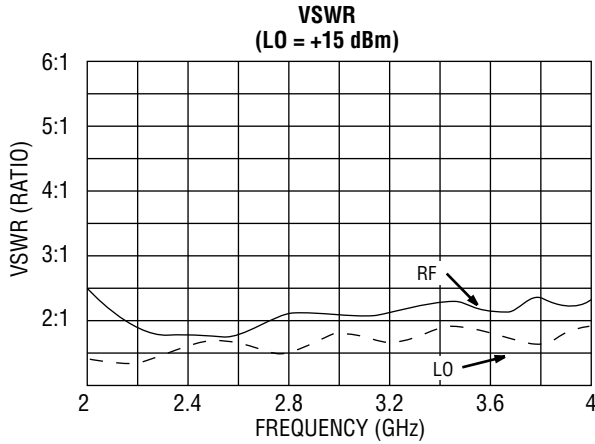


MITEQ's Model DA4 Series integrates our standard broadband double-balanced mixer designs with input limiter protection diodes and IF amplifiers to provide a phase- and amplitude-tracked four-channel downconverter with an integrated LO distribution network. This unit can be used for basic direction finding (D.F.) experiments with four antennas. In addition, three of the four channels can also be used for a monopulse radar receiver and the fourth used for spur identification.

ELECTRICAL SPECIFICATIONS

| INPUT PARAMETERS | CONDITION | UNITS | MIN. | TYP. | MAX. |
|---|-------------------------------------|---------|------|-----------|----------|
| RF/LO frequency range | DA40502LC7 | GHz | 0.5 | | 2 |
| | DA40208LC7 | GHz | 2 | | 8 |
| | DA40818LC7 | GHz | 8 | | 18 |
| Maximum RF input power | CW | Watts | 1 | | |
| | Pulse (1 μ s, 1% duty cycle) | Watts | 50 | | |
| LO power range | | dBm | +13 | +15 | |
| RF and LO VSWR (RF = -10 dBm, LO = +15 dBm) | | Ratio | | 2:1 | 3:1 |
| DC bias +15 V | | mA | | 150 | |
| TRANSFER CHARACTERISTICS | CONDITION | UNITS | MIN. | TYP. | MAX. |
| Conversion gain (RF input to IF output) | | dB | 23 | 25 | |
| Single-sideband noise figure at 25°C | 0.5 to 4 GHz | dB | | 8 | 10 |
| | 4 to 18 GHz | dB | | 9 | 11 |
| LO-to-RF isolation | | dB | 20 | 25 | |
| LO-to-IF isolation | | dB | | 20 | |
| RF-to-IF isolation | | dB | | 20 | |
| Output power at 1 dB compression | LO = +15 dBm | dBm | | +10 | |
| Output two-tone third-order intercept point | LO = +15 dBm | dBm | | +20 | |
| Channel-to-channel amplitude tracking | | dB | | ± 0.5 | ± 1 |
| Channel-to-channel phase tracking | | Degrees | | ± 5 | ± 10 |
| OUTPUT PARAMETERS | CONDITION | UNITS | MIN. | TYP. | MAX. |
| IF frequency range | | MHz | 10 | | 250 |
| IF VSWR (IF = -10 dBm, LO = +15 dBm) | | Ratio | | 2:1 | |

DA40204L TYPICAL TEST DATA



MAXIMUM RATINGS

Operating temperature -54 to +85°C
 Storage temperature -65 to +125°C

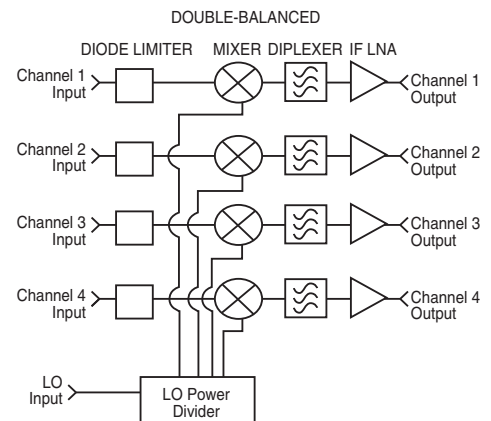
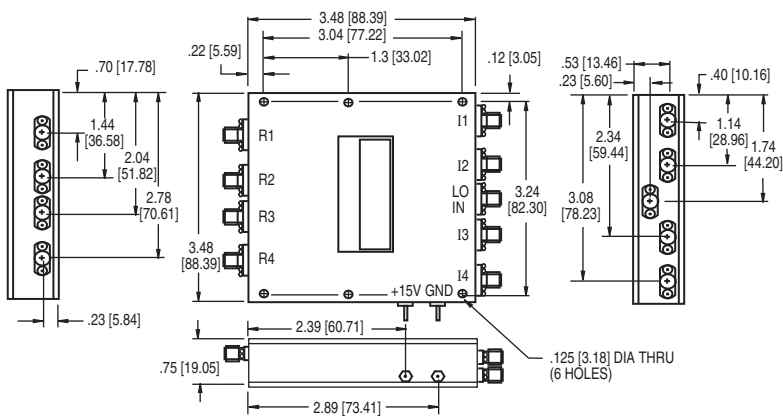
AVAILABLE OPTIONS

Multioctave RF coverage.
 RF built-in-test (BIT) input.
 Microwave IF coverage.
 High dynamic range operation.

NOTE: Test data supplied at 25°C; conversion gain, LO-to-RF isolation, noise figure, amplitude and phase balance.

OUTLINE DRAWING

FUNCTIONAL BLOCK DIAGRAM



NOTE: All dimensions shown in brackets [] are in millimeters.