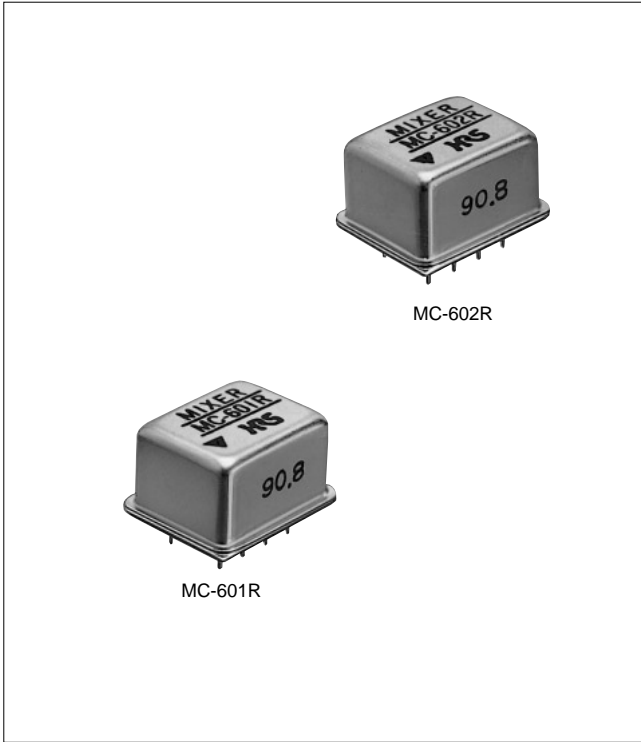


Double Balanced Mixers (Relay Headers)

MC-600R Series



These mixers mix the RF signal and LO signal to produce the IF signal (i.e., $f_{IF} = f_{RF} - f_{LO}$)

■ Features

1. Suited for High-Density Mounting

Ultraminiature design with a 2.54 mm pitch enables high-density mounting.

2. LO Level of +7 dBm

Mixers operate at a LO level of +7 dBm.

3. Highly Reliable Design

The metal case is designed with a hermetically sealed construction which contains inert gas. This permits quality to be maintained over a long period.

4. Easy Soldering

The leads have received solder dip processing which makes soldering work easier.

5. Prevention of Flux Creepage

Use of the supplied Teflon sheet permits the prevention of solder flux creepage.

■ Product Specifications

| | | | | |
|---------|--|------------------------------------|--|----------------------------|
| Ratings | Frequency range (Note) Characteristic impedance Maximum Input Power (Total input power) | 30 to 1800 MHz 50 ohms 30 mW | Operating temperature range Operating relative humidity | -10°C to +65°C 95% Max. |
|---------|--|------------------------------------|--|----------------------------|

Note: The frequency range will differ depending on the products.

| Item | Standard | Conditions |
|----------------------|---|--|
| 1. Vibration | No damage, cracks, or parts dislocation | Frequency of 10 to 2000 Hz, overall amplitude of 1.5 mm, acceleration of 98 m/s ² for 4 hours in each of 3 directions |
| 2. Shock | | Acceleration of 294 m/s ² , sine half-wave waveform, 3 cycles in each of the 3 axis |
| 3. Temperature cycle | | Temperature: -35°C → +5°C → +35°C → +80°C → +5°C → +35°C Time: 30 → 15 max. → 30 → 15 max. (Minutes) 5 cycles |

● The test method conforms to MIL-STD-202.

■ Materials

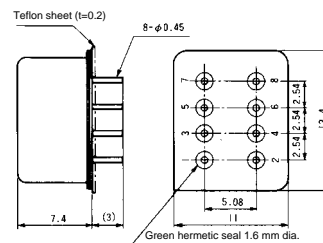
| Part | Material | Finish |
|-------------------|-------------------|----------------|
| External Cladding | Iron | Nickel plating |
| Contacts | Iron-nickel alloy | Solder dip |
| Hermetic seal | Glass | ----- |

■ Ordering Information

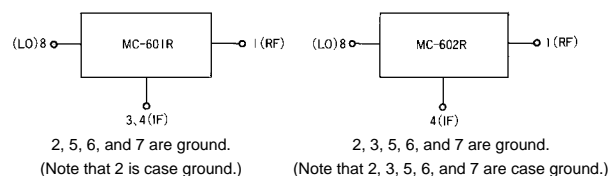
MC - 6 0 1 R
① ② ③ ④ ⑤

| | |
|---------------------------------------|-----------------------------------|
| ① Series Name: MC | ④ Suffix |
| ② 6: Indicates double balanced mixer. | ⑤ Form of Case R: Relay header |
| ③ LO level 0: +7dBm | |

■ External Dimensions



■ Function Diagram



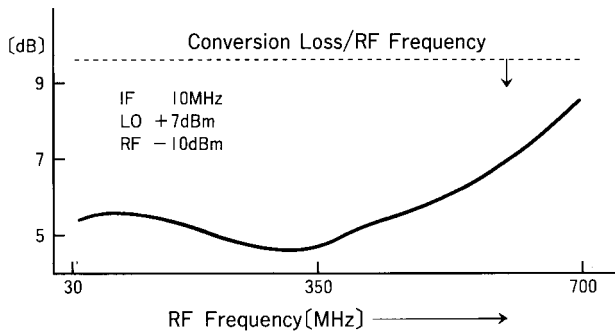
■ Specifications

| Part Number | Frequency Range (MHz) | | LO Power (dBm) | Conversion Loss (dB Max) | Isolation (dB Min) | | RF Input for 1dB Compression Level (dBm typ.) | Weight (g) |
|-------------|-----------------------|--------|----------------|--------------------------|-----------------------------------|-----------------------------------|---|------------|
| | RF/LO | IF | | | LO-RF | LO-IF | | |
| MC-601R | 30~700 | DC~700 | +7 | 9.5 | 20 | 15 | +3 | 3 |
| MC-602R | 600~1,800 | 30~200 | +7 | 9.5 | 20(600~1,000) 15(1,000~1,800) | 15(600~1,000) 10(1,000~1,800) | +5 | 3 |

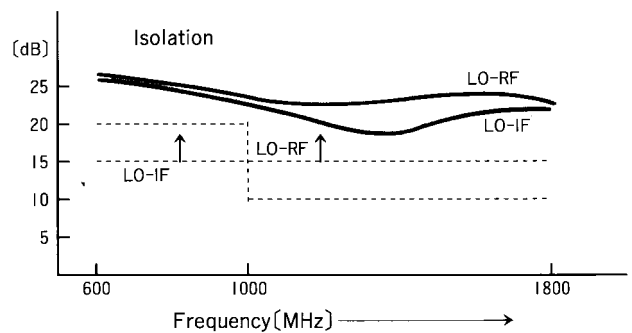
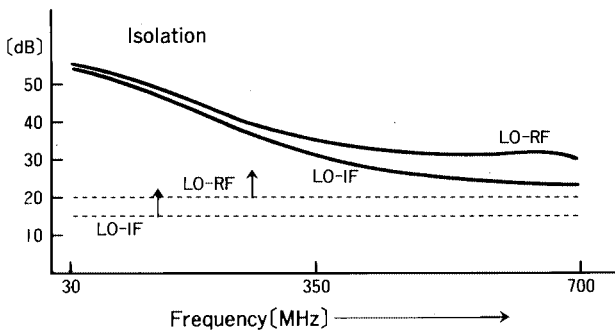
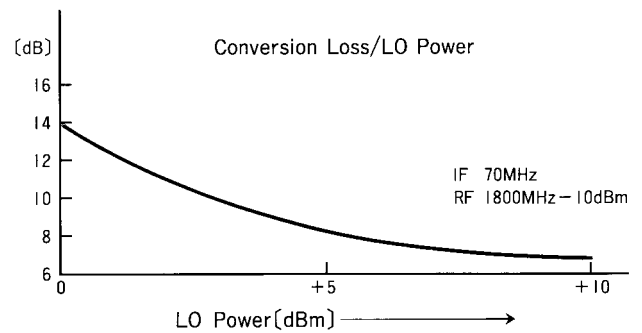
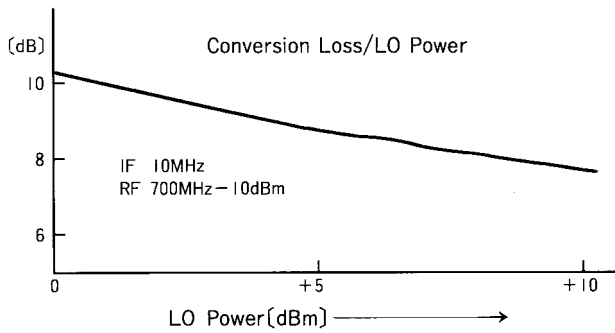
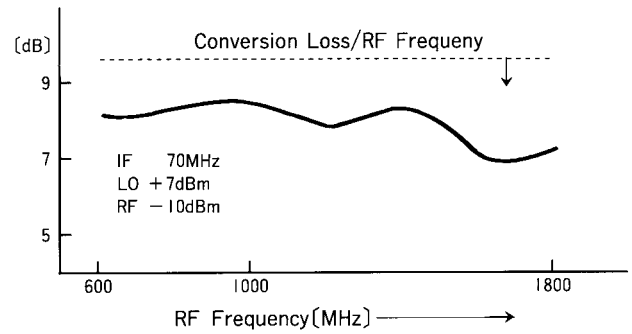
NOTE: The frequency range will differ depending on the product.

■ Typical Data

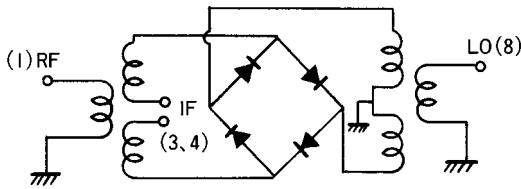
MC-601R



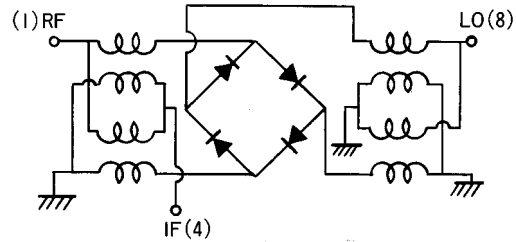
MC-602R



■Circuit Diagrams



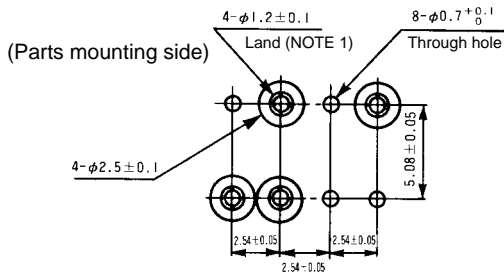
MC-601R



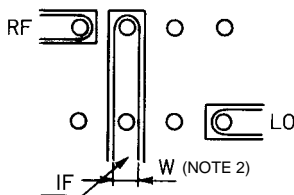
MC-602R

Numbers in parentheses () indicate port numbers.

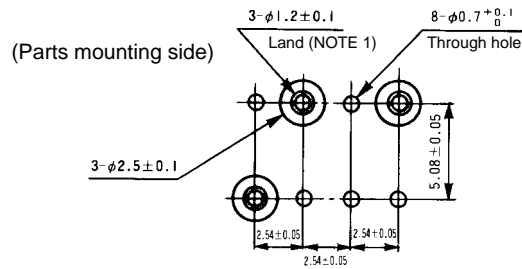
■PCB Mounting Pattern



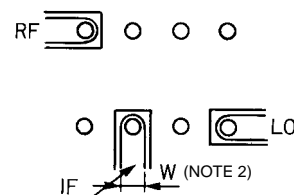
(Soldering side)



MC-601R



(Soldering side)



MC-602R

Note 1: One example is given for the form dimensions of the land.

Note 2: When glass epoxy board ($\epsilon_r \approx 4.7$) of 0.8 mm thickness is used, the width (W) of the 50Ω impedance micro stripline becomes $W \approx 1.4$ mm.

■Precautions

●This product uses diodes and therefore care must be taken against static electricity when handling. When using a soldering iron, please solder with a grounded soldering iron.

The soldering conditions are as described below.

Soldering temperature: 260°C or less

Soldering time: 10 seconds or less

●Please use the supplied Teflon sheet to prevent solder flux creepage and so that the leads do not become shorted due to solder flowing to the board mounting surface.