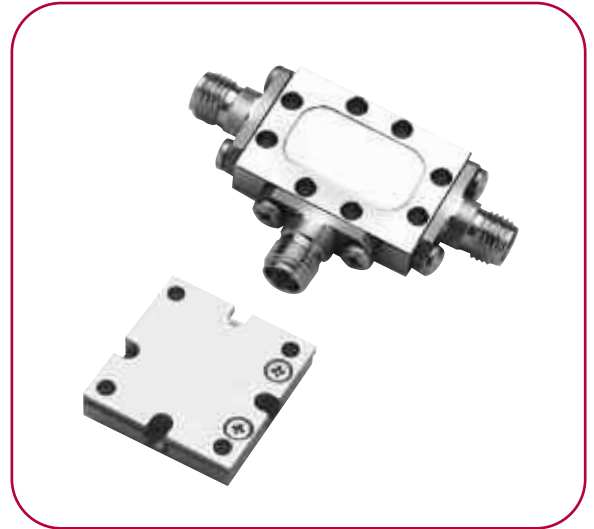


8 TO 18 GHz EVEN HARMONIC (1/2 LO) BALANCED MIXER

MODELS: SBE0818LA1, SBE1015LM2 AND SBE0818LM2

FEATURES

- RF coverage 8 to 18 GHz
- LO coverage 4 to 9 GHz
- IF operation DC to 1 GHz
- 2LO-to-RF isolation 60 dB typical
- High carrier rejection when used as an upconverter



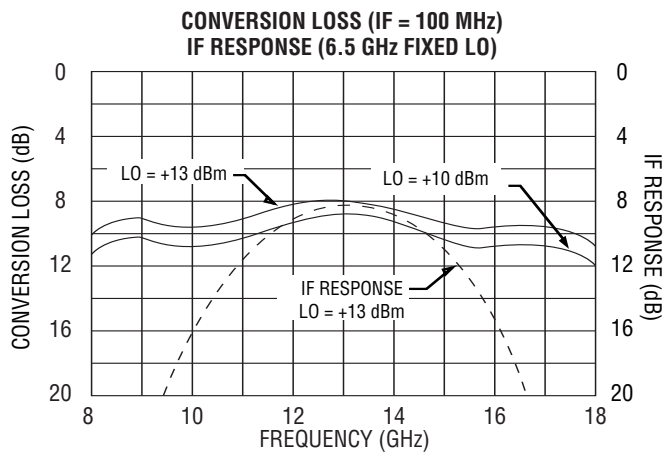
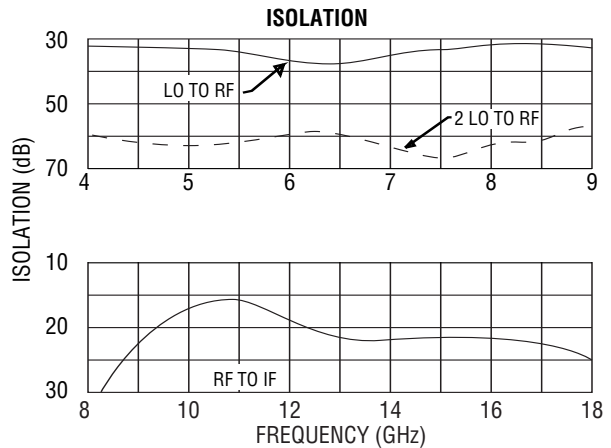
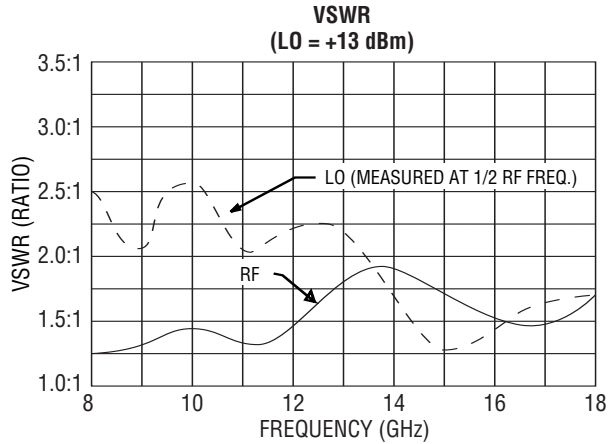
The SBE Series of mixers employs antiparallel ring diodes to achieve efficient RF-to-IF or IF-to-RF conversion using an LO at 1/2 the normal frequency. These units are particularly useful in miniature transceivers as upconverters, where high carrier rejection is desired without costly tunable filters or isolators.

ELECTRICAL SPECIFICATIONS

| INPUT PARAMETERS | CONDITION | UNITS | MIN. | TYP. | MAX. |
|--|-----------------------------|----------------|------|-----------------|----------|
| RF frequency range | | GHz | 8 | | 18 |
| RF VSWR (RF = -10 dBm, LO = +10 dBm) | 10 to 15 GHz 8 to 18 GHz | Ratio Ratio | | 1.5:1 1.75:1 | |
| LO frequency range | | GHz | 4 | | 9 |
| LO power range | | dBm | +13 | | +15 |
| LO VSWR (LO = +10 dBm) | 5 to 7.5 GHz 4 to 9 GHz | Ratio Ratio | | 2:1 1.75:1 | |
| TRANSFER CHARACTERISTICS | CONDITION | UNITS | MIN. | TYP. | MAX. |
| Conversion loss (IF = 100 MHz, LO = +13 dBm) | 10 to 15 GHz 8 to 18 GHz | dB dB | | 9 10 | 10 11 |
| Single-sideband noise figure | 8 to 18 GHz | dB | | 9.5 | |
| LO-to-RF isolation | 4 to 9 GHz | dB | | 35 | |
| 2LO-to-RF isolation | 4 to 9 GHz | dB | 40 | 60 | |
| RF-to-IF isolation | 8 to 18 GHz | dB | | 30 | |
| Input power at 1 dB compression | LO = +10 dBm | dBm | | -3 | |
| Input two-tone third-order intercept point | LO = +10 dBm | dBm | 5 | 7 | |
| OUTPUT PARAMETERS | CONDITION | UNITS | MIN. | TYP. | MAX. |
| IF frequency range | 1 dB bandwidth | MHz | DC | | 1000 |
| IF VSWR (IF = -10 dBm, LO = +13 dBm) | | Ratio | | 2:1 | |



SBE0818LA1 TYPICAL TEST DATA



SINGLE-TONE (m) RF x (n) LO RELATIVE SPUR LEVEL (dBc)
(AVERAGE MIDBAND RF, LO, IF FREQUENCIES,
RF = -10 dBm, LO = +13 dBm)

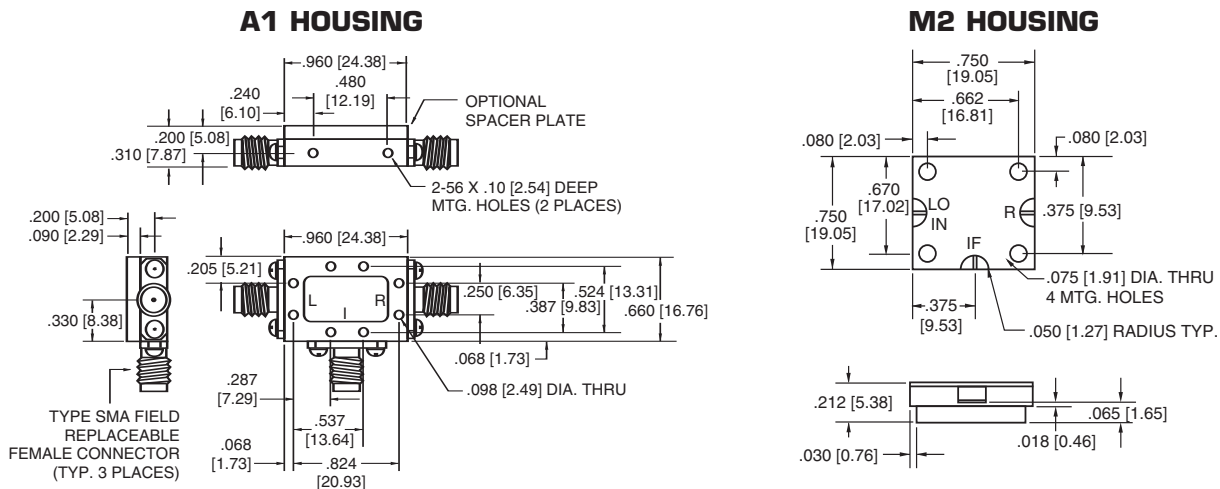
| | SPUR (m) RF x (n) LO | RF TEST FREQ. (GHz) | LO TEST FREQ. (GHz) | SPUR LEVEL (dBc) |
|---|----------------------|---------------------|---------------------|------------------|
| 1 | x 1 | 10.75 | 11.25 | -33 |
| 1 | x 2 | 14.5 | 7.5 | REF |
| 1 | x 3 | 16.36 | 5.62 | -30 |
| 2 | x 1 | 7.16 | 14.8 | -45 |
| 2 | x 2 | 10.87 | 11.12 | -50 |
| 2 | x 3 | 13.10 | 8.9 | -45 |
| 3 | x 1 | 5.37 | 16.6 | -40 |
| 3 | x 2 | 8.7 | 13.3 | -40 |
| 3 | x 3 | 10.91 | 11.08 | -50 |

MAXIMUM RATINGS

Specification temperature..... +25°C
 Operating temperature..... -54 to +85°C
 Storage temperature..... -65 to +125°C

NOTE: Test data supplied at 25°C; conversion loss and 2LO-to-RF isolation.

OUTLINE DRAWINGS



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

