*Coaxial*

# Frequency Mixer

## ZAY-1+

Level 23 (LO Power +23 dBm) 5 to 500 MHz

CASE STYLE: M22

| Connectors | Model |
|---|---|
| **BNC** | ZAY-1+ |
| **BRACKET (OPTION "B")** | |
| **BRACKET (OPTION "BR")** | |

***+RoHS Compliant***

*The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications*

### Maximum Ratings

| | |
|---|---|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 350mW |
| IF Current | 40mA |

Permanent damage may occur if any of these limits are exceeded.

### Coaxial Connections

| | |
|---|---|
| LO | 1 |
| RF | 3 |
| IF | 2 |

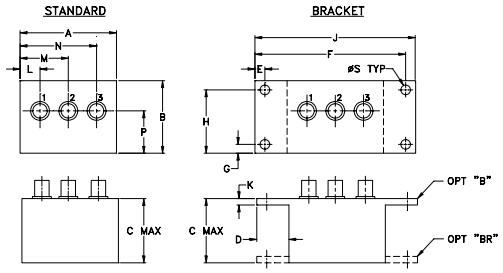
### Features

- low conversion loss, 6.57 dB typ.
- high L-R isolation, 40 dB typ. L-R & L-I
- rugged shielded case

### Applications

- VHF/UHF
- instrumentation
- federal & defense communication

### Outline Drawing




### Outline Dimensions ( inch / mm )

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| 2.25 | 1.38 | 1.24 | .50 | .150 | 3.100 | .138 | 1.238 |
| 57.15 | 35.05 | 31.50 | 12.70 | 3.81 | 78.74 | 3.51 | 31.45 |

| J | K | L | M | N | P | S | wt |
|---|---|---|---|---|---|---|---|
| 3.25 | .10 | .40 | 1.15 | 1.86 | .64 | .150 | grams |
| 82.55 | 2.54 | 10.16 | 29.21 | 47.24 | 16.26 | 3.81 | 74.0 |

### Electrical Specifications

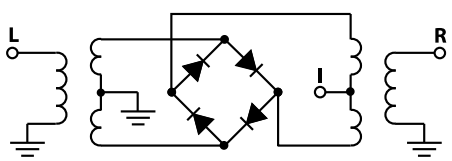
| FREQUENCY (MHz) | | CONVERSION LOSS (dB) | | | | LO-RF ISOLATION (dB) | | | | | | LO-IF ISOLATION (dB) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LO/RF | IF | Mid-Band m | | | Total Range | L | | M | | U | | L | | M | | U | |
| $f_L$-$f_U$ | | $\overline{X}$ | σ | Max. | Max. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | Min. |
| 5-500 | DC-500 | 6.57 | 0.9 | 7.5 | 8.5 | 55 | 45 | 40 | 30 | 30 | 25 | 55 | 45 | 40 | 30 | 30 | 20 |

1 dB COMP.: +15 dBm typ. L = low range [$f_L$ to 10 $f_L$] M = mid range [10 $f_L$ to $f_U$/_] U = upper range [$f_U$/2 to $f_U$]
m= mid band [2$f_L$ to $f_U$/2]

### Typical Performance Data

| Frequency (MHz) | | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|---|---|---|---|---|---|---|
| RF | LO | LO +23dBm | LO +23dBm | LO +23dBm | LO +23dBm | LO +23dBm |
| 5.00 | 35.00 | 6.52 | 57.02 | 82.02 | 1.29 | 2.50 |
| 10.00 | 40.00 | 6.40 | 56.72 | 82.32 | 1.14 | 2.37 |
| 20.00 | 50.00 | 6.40 | 54.48 | 81.28 | 1.06 | 2.33 |
| 35.94 | 65.94 | 6.43 | 51.51 | 75.99 | 1.05 | 2.31 |
| 50.00 | 80.00 | 6.40 | 48.82 | 72.57 | 1.07 | 2.37 |
| 82.35 | 52.35 | 6.39 | 45.62 | 62.91 | 1.08 | 2.20 |
| 100.00 | 70.00 | 6.36 | 44.05 | 58.66 | 1.10 | 2.25 |
| 144.22 | 114.22 | 6.53 | 41.60 | 53.71 | 1.12 | 2.11 |
| 175.16 | 145.16 | 6.68 | 40.04 | 51.38 | 1.14 | 2.25 |
| 200.00 | 170.00 | 6.69 | 39.45 | 50.73 | 1.16 | 2.06 |
| 221.57 | 191.57 | 6.52 | 36.41 | 46.45 | 1.18 | 2.17 |
| 252.50 | 222.50 | 6.52 | 36.33 | 47.23 | 1.20 | 2.04 |
| 283.44 | 253.44 | 6.64 | 36.36 | 47.98 | 1.22 | 2.10 |
| 314.38 | 284.38 | 6.74 | 36.35 | 46.73 | 1.24 | 1.96 |
| 345.32 | 315.32 | 6.62 | 33.85 | 44.99 | 1.26 | 2.04 |
| 376.26 | 346.26 | 6.50 | 30.50 | 41.75 | 1.29 | 1.96 |
| 407.19 | 377.19 | 6.43 | 32.89 | 42.28 | 1.31 | 1.95 |
| 438.13 | 408.13 | 6.50 | 33.81 | 42.66 | 1.35 | 1.90 |
| 469.07 | 439.07 | 6.81 | 33.63 | 41.41 | 1.38 | 1.87 |
| 500.00 | 470.00 | 6.62 | 34.24 | 40.42 | 1.44 | 1.83 |

### Electrical Schematic




**Notes**

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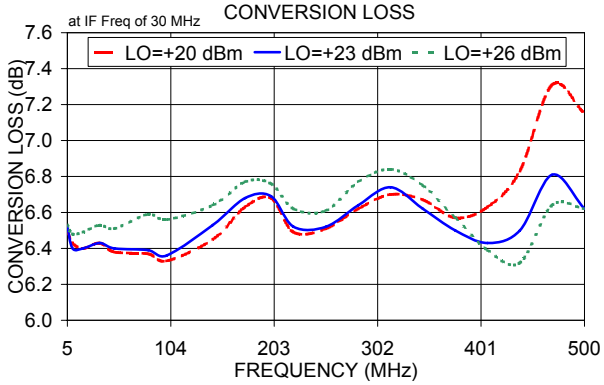
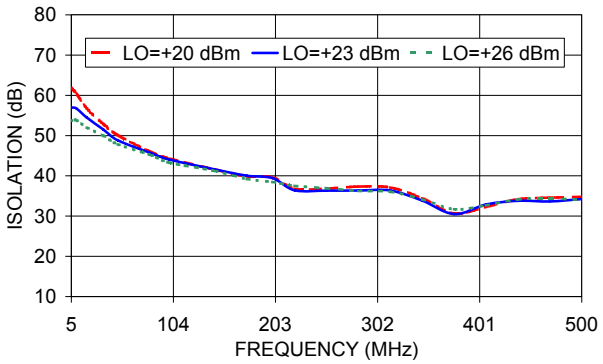
# Performance Charts

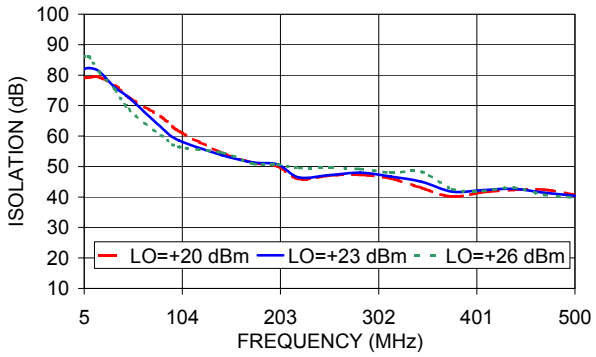
ZAY-1+
CONVERSION LOSS
at IF Freq of 30 MHz



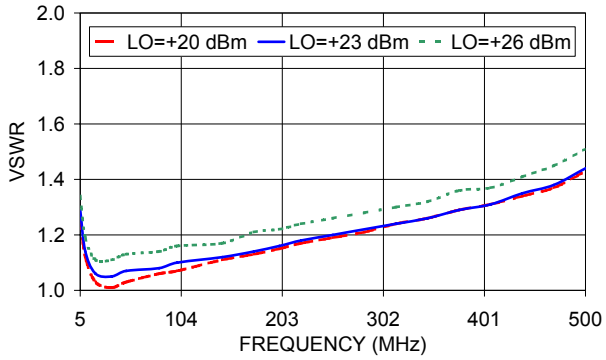

ZAY-1+
L-R ISOLATION



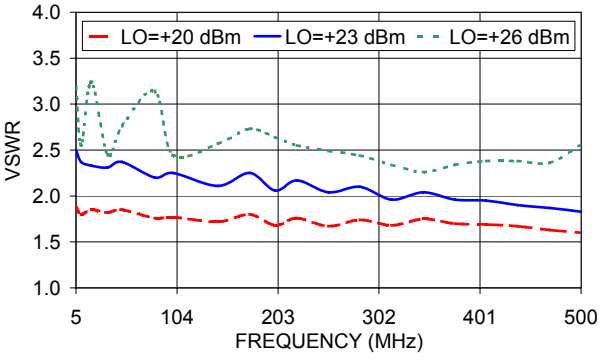

ZAY-1+
L-I ISOLATION



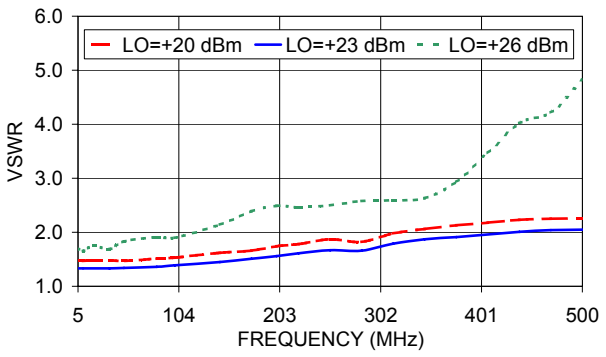

ZAY-1+
RF VSWR




ZAY-1+
LO VSWR




ZAY-1+
IF VSWR

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