

# Frequency Mixers

0.5 to 6000 MHz

NEW!

ZX05-SERIES



CASE STYLE: FL905

## Features

- rugged construction
- small size
- low conversion loss
- high L-R isolation
- multiple patents pending

## Applications

- cellular
- PCS
- instrumentation
- satellite communication

## Electrical Specifications (T<sub>AMB</sub> = 25°C)

| MODEL NO.    | LO level (dBm) | RF @ 1dB compr. (dBm) Typ. | FREQUENCY (MHz)                       |         | CONVERSION LOSS (dB) |                   |      |                  | LO-RF ISOLATION (dB) |             |             |             |                     |             | LO-IF ISOLATION (dB) |    |    |     |       |    | IP3@ center band Typ. (dBm) | E F A C T O R | PRICE \$ Qty. (1-24) |
|--------------|----------------|----------------------------|---------------------------------------|---------|----------------------|-------------------|------|------------------|----------------------|-------------|-------------|-------------|---------------------|-------------|----------------------|----|----|-----|-------|----|-----------------------------|---------------|----------------------|
|              |                |                            | LO/RF f <sub>L</sub> - f <sub>U</sub> | IF      | $\bar{x}$            | Mid band $\sigma$ | Max. | Total Range Max. | L Typ. Min.          | M Typ. Min. | U Typ. Min. | L Typ. Min. | M Typ. Min.         | U Typ. Min. |                      |    |    |     |       |    |                             |               |                      |
| ZX05-1L      | +3             | 0                          | 2-500                                 | DC-500  | 5.2                  | 0.1               | 7.2  | 8.0              | 68                   | 50          | 55          | 30          | 44                  | 30          | 55                   | 40 | 45 | 30  | 35    | 25 | 16                          | 1.3           | 37.95                |
| † ZX05-10L   | +4             | +1                         | 10-1000                               | DC-800  | 7.2                  | 0.1               | 8.2  | 8.8              | 70                   | 55          | 60          | 40          | 47                  | 37          | 40                   | 26 | 37 | 20  | 24    | 13 | 16                          | 1.2           | 37.95                |
| ZX05-1       | +7             | +1                         | 0.5-500                               | DC-500  | 5.0                  | 0.1               | 6.5  | 7.8              | 70                   | 50          | 55          | 35          | 45                  | 30          | 65                   | 45 | 40 | 25  | 30    | 20 | 15                          | 0.8           | 37.95                |
| † ZX05-2     | +7             | +1                         | 5-1000                                | DC-1000 | 6.67                 | 0.26              | 8.0  | 9.5              | 65                   | 50          | 47          | 25          | 35                  | 22          | 62                   | 35 | 45 | 25  | 32    | 20 | 20                          | 1.3           | 37.95                |
| ZX05-10      | +7             | +1                         | 10-1000                               | DC-800  | 6.8                  | 0.1               | 7.8  | 8.3              | 80                   | 50          | 60          | 40          | 47                  | 37          | 40                   | 26 | 33 | 20  | 24    | 13 | 16                          | 0.9           | 37.95                |
| † ZX05-5     | +7             | +1                         | 5-1500                                | DC-1000 | 6.6                  | 0.1               | 7.5  | 9.3              | 50                   | 40          | 40          | 25          | 33                  | 23          | 50                   | 40 | 30 | 20  | 20    | 10 | 15                          | 0.8           | 37.95                |
| ZX05-11X     | +7             | +1                         | 10-2000                               | 5-1000  | 7.1                  | 0.1               | 8.2  | 9.8              | 62                   | 45          | 36          | 20          | 27                  | 18          | 60                   | 45 | 37 | 20  | 38    | 20 | 9                           | 0.2           | 37.95                |
| • ZX05-C24   | +7             | +1                         | 300-2400                              | DC-700  | 6.1                  | 0.1               | 8.9  | —                | 40 (typ.) 25 (min.)  |             |             |             | 25 (typ.) 15(min.)  |             |                      |    | 10 | 0.3 | 37.95 |    |                             |               |                      |
| ZX05-30W     | +7             | +1                         | 300-4000                              | DC-950  | 6.8                  | 0.2               | 9.0  | 9.8              | 35 (typ.) 17 (min.)  |             |             |             | 16 (typ.) 7(min.)   |             |                      |    | 12 | 0.5 | 37.95 |    |                             |               |                      |
| ZX05-C42     | +7             | +1                         | 1000-4200                             | DC-1500 | 6.1                  | 0.1               | 8.9  | —                | 35 (typ.) 23 (min.)  |             |             |             | 20 (typ.) 12(min.)  |             |                      |    | 10 | 0.3 | 37.95 |    |                             |               |                      |
| • ZX05-C60   | +7             | +1                         | 1600-6000                             | DC-2000 |                      |                   |      |                  |                      |             |             |             |                     |             |                      |    |    |     |       |    |                             |               |                      |
|              |                |                            | 1600-4400                             | DC-2000 | 6.3                  | 0.2               | 8.3  | —                | 32 (typ.) 20 (min.)  |             |             |             | 17 (typ.) —         |             |                      |    | 9  | 0.2 | 37.95 |    |                             |               |                      |
|              |                |                            | 4400-6000                             | DC-2000 | 6.2                  | 0.3               | 8.5  | —                | 23 (typ.) 17 (min.)  |             |             |             | 18 (typ.) —         |             |                      |    | 8  | 0.1 | 37.95 |    |                             |               |                      |
| ZX05-1LHW    | +10            | +5                         | 2-750                                 | DC-750  | 5.3                  | 0.1               | 6.8  | 8.5              | 66                   | 50          | 52          | 35          | 46                  | 27          | 64                   | 40 | 50 | 27  | 40    | 20 | 15                          | 0.5           | 38.95                |
| • ZX05-C24LH | +10            | +5                         | 300-2400                              | DC-700  | 6.5                  | 0.1               | 8.9  | —                | 40 (typ.) 25 (min.)  |             |             |             | 30 (typ.) 15 (min.) |             |                      |    | 13 | 0.3 | 38.95 |    |                             |               |                      |
| ZX05-C42LH   | +10            | +5                         | 1000-4200                             | DC-1500 | 6.0                  | 0.1               | 8.9  | —                | 38 (typ.) 23 (min.)  |             |             |             | 20 (typ.) 11 (min.) |             |                      |    | 12 | 0.2 | 38.95 |    |                             |               |                      |
| • ZX05-C60LH | +10            | +5                         | 1600-6000                             | DC-2000 |                      |                   |      |                  |                      |             |             |             |                     |             |                      |    |    |     |       |    |                             |               |                      |
|              |                |                            | 1600-4400                             | DC-2000 | 6.3                  | 0.1               | 7.9  | —                | 35 (typ.) 23 (min.)  |             |             |             | 17 (typ.) —         |             |                      |    | 13 | 0.3 | 38.95 |    |                             |               |                      |
|              |                |                            | 4400-6000                             | DC-2000 | 6.0                  | 0.1               | 8.3  | —                | 27 (typ.) 20 (min.)  |             |             |             | 21 (typ.) —         |             |                      |    | 11 | 0.1 | 38.95 |    |                             |               |                      |
| † ZX05-1MHW  | +13            | +9                         | 0.5-600                               | DC-600  | 5.2                  | 0.1               | 6.9  | 8.0              | 63                   | 50          | 53          | 32          | 43                  | 20          | 56                   | 40 | 44 | 25  | 30    | 20 | 17                          | 0.4           | 39.95                |
| ZX05-12MH    | +13            | +9                         | 10-1200                               | DC-1200 | 6.3                  | 0.1               | 8.0  | 9.3              | 62                   | 45          | 45          | 32          | 40                  | 26          | 68                   | 40 | 42 | 27  | 30    | 20 | 22                          | 0.9           | 39.95                |
| • ZX05-C24MH | +13            | +9                         | 300-2400                              | DC-700  | 6.1                  | 0.1               | 8.6  | —                | 40 (typ.) 20 (min.)  |             |             |             | 25 (typ.) 14 (min.) |             |                      |    | 13 | 0   | 39.95 |    |                             |               |                      |
| ZX05-25MH    | +13            | +9                         | 5-2500                                | 5-1500  | 6.9                  | 0.1               | 8.8  | 9.8              | 47                   | 28          | 34          | 23          | 34                  | 23          | 34                   | 23 | 32 | 18  | 23    | 17 | 18                          | 0.5           | 39.95                |
| ZX05-42MH    | +13            | +9                         | 5-4200                                | 5-3500  | 7.5                  | 0.2               | 9.8  | 11.8             | 47                   | 28          | 29          | 20          | 30                  | 15          | 34                   | 23 | 26 | 17  | 23    | 17 | 19                          | 0.6           | 39.95                |
| ZX05-C42MH   | +13            | +9                         | 1000-4200                             | DC-1500 | 6.2                  | 0.1               | 8.9  | —                | 35 (typ.) 15 (min.)  |             |             |             | 20 (typ.) 10 (min.) |             |                      |    | 16 | 0.3 | 39.95 |    |                             |               |                      |
| • ZX05-C60MH | +13            | +9                         | 1600-6000                             | DC-2000 |                      |                   |      |                  |                      |             |             |             |                     |             |                      |    |    |     |       |    |                             |               |                      |
|              |                |                            | 1600-4400                             | DC-2000 | 6.9                  | 0.1               | 8.5  | —                | 32 (typ.) 25 (min.)  |             |             |             | 17 (typ.) —         |             |                      |    | 15 | 0.2 | 39.95 |    |                             |               |                      |
|              |                |                            | 4400-6000                             | DC-2000 | 6.0                  | 0.1               | 8.5  | —                | 22 (typ.) 18 (min.)  |             |             |             | 15 (typ.) —         |             |                      |    | 15 | 0.2 | 39.95 |    |                             |               |                      |
| ZX05-1HW     | +17            | +14                        | 5-750                                 | DC-750  | 6.0                  | 0.1               | 8.6  | 9.0              | 64                   | 45          | 48          | 35          | 42                  | 28          | 50                   | 35 | 40 | 30  | 30    | 20 | 26                          | 0.9           | 41.95                |
| † ZX05-10H   | +17            | +14                        | 10-1000                               | DC-800  | 7.0                  | 0.1               | 8.5  | 9.5              | 68                   | 52          | 55          | 38          | 47                  | 25          | 46                   | 30 | 32 | 20  | 26    | 13 | 22                          | 0.5           | 41.95                |
| ZX05-17H     | +17            | +14                        | 100-1700                              | 50-1500 | 7.2                  | 0.1               | 8.5  | 9.5              | 32                   | 20          | —           |             | 36                  | 22          | 32                   | 20 | —  |     | 37    | 22 | 25                          | 0.8           | 41.95                |
| ZX05-20H     | +17            | +14                        | 1500-2000                             | DC-300  | 5.2                  | 0.2               | 7.8  | —                | 31 (typ.) 22 (min.)  |             |             |             | 34 (typ.) 20 (min.) |             |                      |    | 22 | 0.5 | 41.95 |    |                             |               |                      |

E FACTOR= [IP3(dBm)-LO Power(dBm)]/10

† Models noted have positive phase detection. Phase detection negative for all other models.

• Conversion loss specification at 30 MHz IF. For performance vs. IF See our website.

L = low range [f<sub>L</sub> to 10 f<sub>L</sub>]M = mid range [10 f<sub>L</sub> to f<sub>U</sub>/2]m = mid band [2f<sub>L</sub> to f<sub>U</sub>/2]U = upper range [f<sub>U</sub>/2 to f<sub>U</sub>]

Mini-Circuits®

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ISO 9001 CERTIFIED

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# ZX05-SERIES

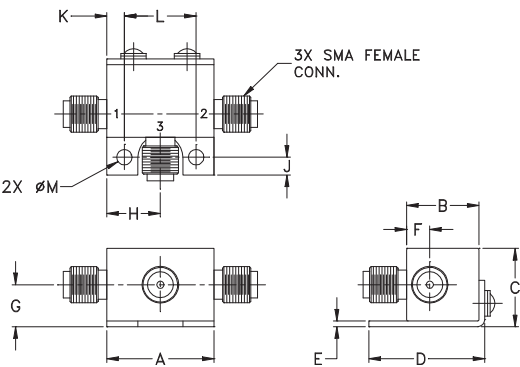
## Maximum Ratings

|                       |                             |
|-----------------------|-----------------------------|
| Operating Temperature | -40°C to 85°C               |
| Storage Temperature   | -55°C to 100°C              |
| RF Power              | 50mW, 200mW(for LO+13, +17) |
| IF Current            | 40mA                        |

## Port Connections

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

## Outline Drawing



## Outline Dimensions (inch/mm)

|       |       |       |       |      |      |      |      |      |
|-------|-------|-------|-------|------|------|------|------|------|
| A     | B     | C     | D     | E    | F    | G    | H    | J    |
| .74   | .50   | .54   | .80   | .04  | .16  | .29  | .37  | .122 |
| 18.80 | 12.70 | 13.72 | 20.32 | 1.02 | 4.06 | 7.37 | 9.40 | 3.10 |
| K     | L     | M     | wt.   |      |      |      |      |      |
| .122  | .496  | .106  | grams |      |      |      |      |      |
| 3.10  | 12.60 | 2.69  | 20.0  |      |      |      |      |      |