# VDI Integrated Mixer / Amplifier / Multiplier Chain Specifications

| Product Name | WR15MixAMC-I | WR12MixAMC-I | WR10MixAMC-I | WR8.0MixAMC-I | WR6.5MixAMC-I | WR5.1MixAMC-I | WR4.3MixAMC-I |
|---|---|---|---|---|---|---|---|
| RF Frequency Band (GHz) | 50-75 | 60-90 | 75-110 | 90-140 | 110-170 | 140-220 | 170-260 |
| RF Flange (UG-387/U-M) | WR-15 | WR-12 | WR-10 | WR-8.0 | WR-6.5 | WR-5.1 | WR-4.3 |
| Standard Multiplication Factor | 6 | 6 | 6 | 12 | 12 | 12 | 24 |
| LO Input Frequency (GHz, Standard Multiplication Factor) | 8.33-12.5 | 10-15 | 12.5-18.33 | 7.5-11.67 | 9.17-14.17 | 11.67-18.33 | 7.08-10.83 |
| Alternative Multiplication Factor†† | - | - | - | 6 | 6 | 6 | 12 |
| LO Input Frequency (GHz, Alt Multiplication Factor) | - | - | - | 15-23.33 | 18.33-28.33 | 23.33-36.67 | 14.17-21.67 |
| RF Power Limits: Compression / Damage (dBm) | -10 / 0 | -10 / 0 | -10 / 0 | -10 / 0 | -10 / 0 | -10 / 0 | -10 / 0 |
| MixAMC-I-N SSB Conversion Loss (Typical) (dB)† | 10 | 10 | 10 | 10 | 10 | 11 | 11 |
| MixAMC-I SSB Conversion Loss (Typical) (dB)† | -2 | -2 | -2 | -2 | -2 | -1 | -1 |
| IF Output Port, Max Frequency (GHz) | 7.5 | 9 | 11 | 14 | 17 | 22 | 26 |
| Bias Voltage (V) | +5.5 | +5.5 | +5.5 | +5.5 | +5.5 | +5.5 | +5.5 |

| Product Name | WR3.4MixAMC-I | WM-710(WR-2.8)MixAMC-I | WM-570(WR-2.2)MixAMC-I | WM-380(WR-1.5)MixAMC-I | WM-250(WR-1.0)MixAMC-I | | |
|---|---|---|---|---|---|---|---|
| RF Frequency Band (GHz) | 220-330 | 260-400 | 330-500 | 500-750 | 750-1100 | | |
| RF Flange (UG-387/U-M) | WR-3.4 | WR-2.8 | WR-2.2 | WR-1.5 | WR-1.0 | | |
| Standard Multiplication Factor | 24 | 24 | 36 | 54 | 72 | | |
| LO Input Frequency (GHz, Standard Multiplication Factor) | 9.17-13.75 | 10.83-16.67 | 9.17-13.89 | 9.26-13.89 | 10.42-15.28 | | |
| Alternative Multiplication Factor†† | 12 | 12 | 12 | 18 | 36 | | |
| LO Input Frequency (GHz, Alt Multiplication Factor) | 18.33-27.5 | 21.67-33.33 | 27.5-41.67 | 27.78-41.67 | 20.83-30.56 | | |
| RF Power Limits: Compression / Damage (dBm) | -10 / 0 | -10 / 0 | -10 / 0 | -10 / 0 | -20 / -10 | | |
| MixAMC-I-N SSB Conversion Loss (Typical) (dB)† | 12 | 13 | 14 | 18 | 25 | | |
| MixAMC-I SSB Conversion Loss (Typical) (dB)† | 0 | 1 | 2 | 6 | 13 | | |
| IF Output Port, Max Frequency (GHz) | 40 | 40 | 40 | 40 | 40 | | |
| Bias Voltage (V, ±0.1V) | +5.5 | +5.5 | +5.5 | +9 | +9 | | |

†For MixAMC-I (configured with internal IF amplifier with ~12dB gain), intrinsic mixer conversion loss is estimated by adding 12dB to the MixAMC-I SSB Conversion Loss data.

For MixAMC-I-N (configured without internal IF amplifier), the MixAMC-I-N SSB Conversion Loss is the intrinsic mixer conversion loss.

††MixAMC-I can be configured with alternative LO multiplication factors. VDI recommends using lower LO multiplication factors whenever possible.

**MixAMC-I Optional Accessories:**

- Micrometer Driven Attenuator (~0-30dB)
- Horn Antenna
- Waveguide Test Port Extensions (1" and 2" available)

**General Notes:**

- MixAMC-I products require a user supplied voltage.
- MixAMC-I products are shipped with a heat sink and fan assembly, but may be removed. If heat sink and fan assembly is removed, user must provide sufficient heat sinking to maintain a maximum case temperature below 45 C.
- All LO and IF connectors are 2.9mm(f).
- LO Input Damage Limit for the Standard Multiplication Factor configuration is 6dBm. Contact VDI for damage limits for alternative multiplication factors.
- Standard configuration includes ~100kHz-40GHz IF amplifier, ~12dB gain. There is no direct access to the mixer IF port.
- The user can choose to remove the IF amplifier from the MixAMC-I. If the amplifier is removed, the IF port is extremely ESD sensitive. To choose this option, add -N to the name on the Purchase Order. For example, for WR10MixAMC-I with no IF amplifier, customer must specify WR10MixAMC-I-N on the Purchase Order.
- Intrinsic mixer conversion loss is specified at IF ~322.5 MHz, loss increases at a rate of ~1.5dB/10 GHz up to the specified maximum IF.

**How to Order:**

PRODUCT or PRODUCT-N or PRODUCT-MXX or PRODUCT-N-MXX
PRODUCT = Choose from "Product Name" in above table.
-N = To configure product without integrated IF amplifier
-MXX = To configure product with alternative multiplication factor, where XX is the multiplication factor

*Examples:*

*WR6.5MixAMC-I: 110-170 GHz Integrated Mixer / Amplifier / Multiplier Chain, with standard multiplication factor (N=12), with integrated IF amplifier*
*WR6.5MixAMC-I-N: 110-170 GHz Integrated Mixer / Amplifier / Multiplier Chain, with standard multiplication factor (N=12), with NO IF amplifier. IF port is extremely ESD sensitive.*
*WR6.5MixAMC-I-M6: 110-170 GHz Integrated Mixer / Amplifier / Multiplier Chain, with multiplication factor of N=6, with integrated IF amplifier*
*WR6.5MixAMC-I-N-M6: 110-170 GHz Integrated Mixer / Amplifier / Multiplier Chain, with multiplication factor of N=6, with NO IF amplifier. IF port is extremely ESD sensitive.*

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