

## U-Band 4th Harmonic Mixer

RF:40-60 GHz/LO:10-15 GHz/IF:DC-1.5 GHz

Model: TLHM-4060-04-19

TLHM-4060-04-19 is a U-Band 4th harmonic mixer. The mixer supports the full waveguide band operation for LO frequency from 10 to 15 GHz and RF frequency from 40 to 60 GHz with an extremely broad IF output from DC to 1.5 GHz. The mixer offers a conversion loss of 12 dB typical and LO input power of 15 dBm typical.

### Features:

- Low LO Power Requirement
- Subharmonic mixer
- Compact Package

### Applications:

- Radar Systems
- Communication Systems
- Test Equipment

### Electrical Characteristics:

| Parameter       | Min | Typ | Max | Units |
|-----------------|-----|-----|-----|-------|
| RF Frequency    | 40  |     | 60  | GHz   |
| RF Input Power  |     |     | 0   | dBm   |
| LO Frequency    | 10  |     | 15  | GHz   |
| IF Frequency    | DC  |     | 1.5 | GHz   |
| LO-Input power  |     | 15  |     | dBm   |
| Conversion Loss | -16 | -12 | -9  | dB    |
| Harmonic Order  |     | 4   |     |       |

### Mechanical Specifications:

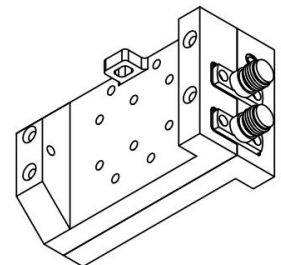
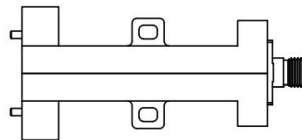
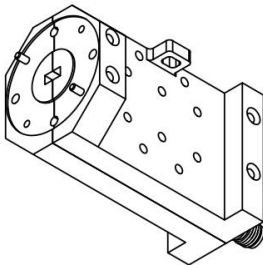
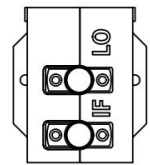
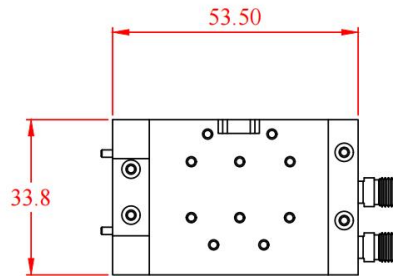
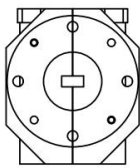
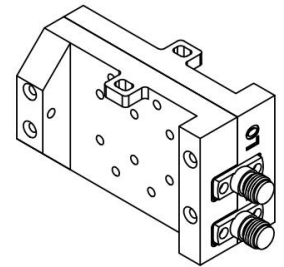
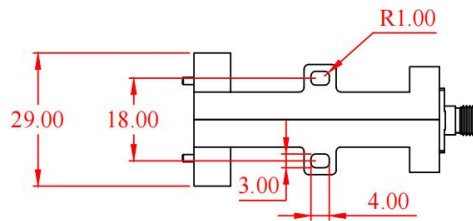
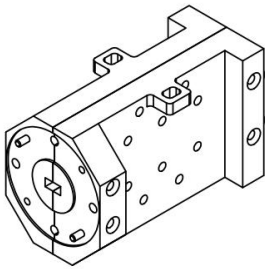
| Parameter    | Value          | Units |
|--------------|----------------|-------|
| RF Connector | WR-19/UG-383/U |       |
| LO Connector | SMA Female     |       |
| IF Connector | SMA Female     |       |
| Size         | 54*34*23       | mm    |
| Weight       | 200            | g     |

## Absolute Maximum Ratings:

| Parameter             | Value                |
|-----------------------|----------------------|
| RF Input Power        | 0 dBm                |
| IF Input Power        | TBD                  |
| LO Input Power        | TBD                  |
| ESD sensitivity (HBm) | Class 0, passed 150V |

## Outline Drawing:

Unit:mm



ESD Protection: Strictly adhere to ESD precautions to prevent electrostatic damage.

### Environmental Conditions:

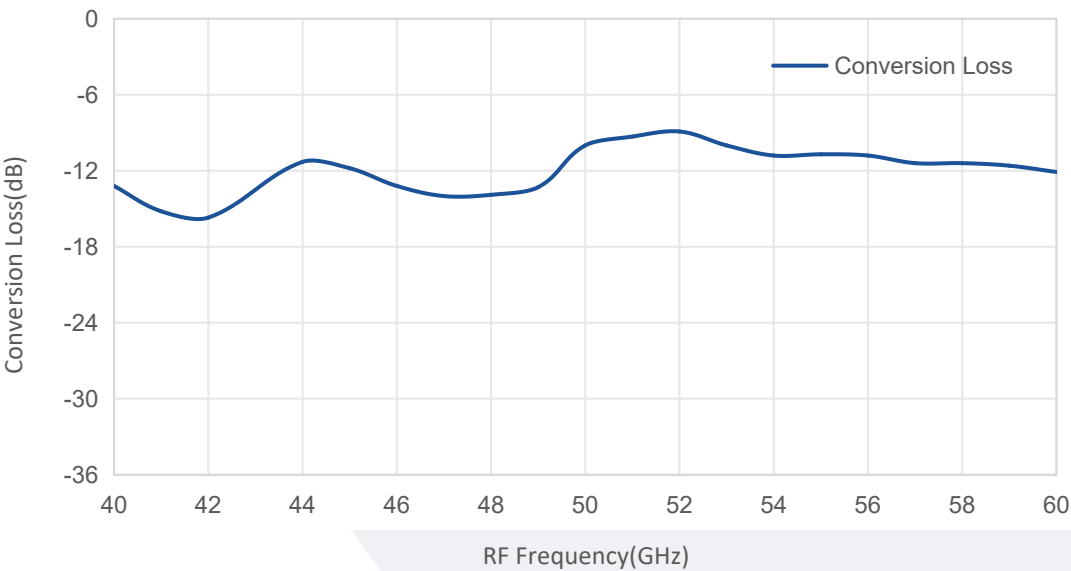
| Parameter                       | Min                                                 | Typ | Max | Units |
|---------------------------------|-----------------------------------------------------|-----|-----|-------|
| Operating Temperature           | -10                                                 |     | +65 | °C    |
| Non-operating Temperature       | -45                                                 |     | +85 | °C    |
| Relative humidity               |                                                     | 95  |     | %     |
| Altitude                        | 10,000                                              |     |     | feet  |
| Shock / Vibration(MIL-STD-810F) | 25g rms (15 degree 2KHz) endurance, 1 hour per axis |     |     |       |
| Shock(non operating)            | 20G for 11msc half sin wave,3 axis both directions  |     |     |       |

### Ordering Information:

| Base Number     | Description                                                      | Revision |
|-----------------|------------------------------------------------------------------|----------|
| TLHM-4060-04-19 | U-Band Subharmonic Mixer<br>RF:40-60GHz,LO:10-15GHz,IF:DC-1.5GHz | Rev.1.1  |

### Typical Performance Data:

Conversion Loss vs RF Frequency



Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.