

## **IQ Mixer**

**RF:10-40 GHz/LO:10-40 GHz/IF:DC-12 GHz**

**Model: TLIQ-1040-12-K**

TLIQ-1040-12-K is an ultra-broadband mixer spanning 10 to 40 GHz on the RF and LO ports with an IF from DC to 12 GHz. Up to 24 dBc of image rejection is available due to the excellent phase and amplitude balance of its on-chip LO quadrature hybrid.

### **Features:**

- RF/LO coverage : 10-40 GHz
- IF operation : DC-12 GHz
- Conversion loss: -12dB Typ
- LO power : 10dBm Typ
- Image Rejection : 24dBc Typ

### **Applications:**

- Single Sideband and Image Rejection Mixing
- IQ Modulation / Demodulation
- Vector Amplitude Modulation
- Band Shifting

### **电气特性 Electrical Characteristics:**

| 参数 Parameter                                         | Min | Typ | Max | 单位 Units |
|------------------------------------------------------|-----|-----|-----|----------|
| RF频率 RF Frequency                                    | 10  |     | 40  | GHz      |
| LO频率 LO Frequency                                    | 10  |     | 40  | GHz      |
| LO 驱动功率 LO-Input power                               | 4   | 10  | 13  | dBm      |
| IF频率 IF Frequency                                    | DC  |     | 12  | GHz      |
| 镜像抑制 Image Rejection<br>@RF/LO:6-26GHz,I+Q:DC-0.2GHz |     | 24  |     | dBc      |
| 变频损耗 Conversion Loss<br>@RF/LO:6-26GHz,I/Q:DC-23GHz  |     | -12 |     | dB       |
| LO to IF 隔离 LO to IF Isolation                       |     | 40  |     | dB       |
| LO to RF 隔离 LO to RF Isolation                       |     | 40  |     | dB       |
| RF to IF 隔离 RF to IF Isolation                       |     | 30  |     | dB       |

## 机械特性 Mechanical Specifications:

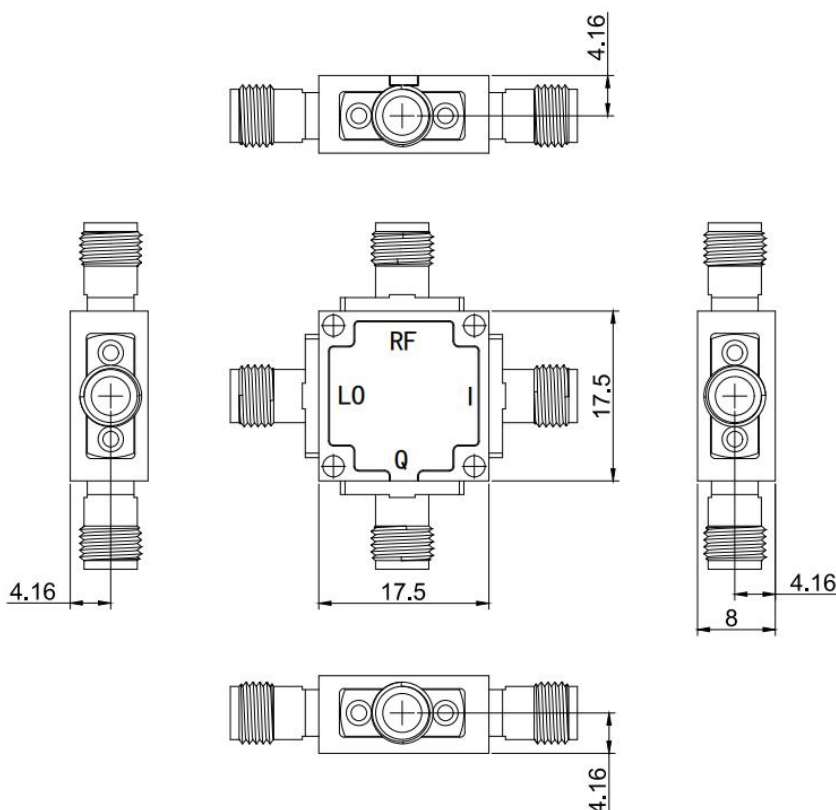
| 参数 Parameter      | 指标 Value                       | 单位 Units |
|-------------------|--------------------------------|----------|
| RF接口 RF Connector | 2.92mm Female                  |          |
| LO接口 LO Connector | 2.92mm Female                  |          |
| IF接口 IF Connector | SMA Female                     |          |
| 尺寸 Size           | 17.5*17.5*8(Without Connector) | mm       |

## 绝对最大值 Absolute Maximum Ratings:

| 参数 Parameter                 | 指标 Value             |
|------------------------------|----------------------|
| LO 输入功率 LO Input Power       | +20 dBm              |
| RF/IF 输入功率 RF/IF Input Power | +2 dBm               |
| ESD灵敏度 ESD sensitivity (HBm) | Class 0, passed 150V |

## 外形图 Outline Drawing:

Unit:mm



## 温度环境 Environmental Conditions:

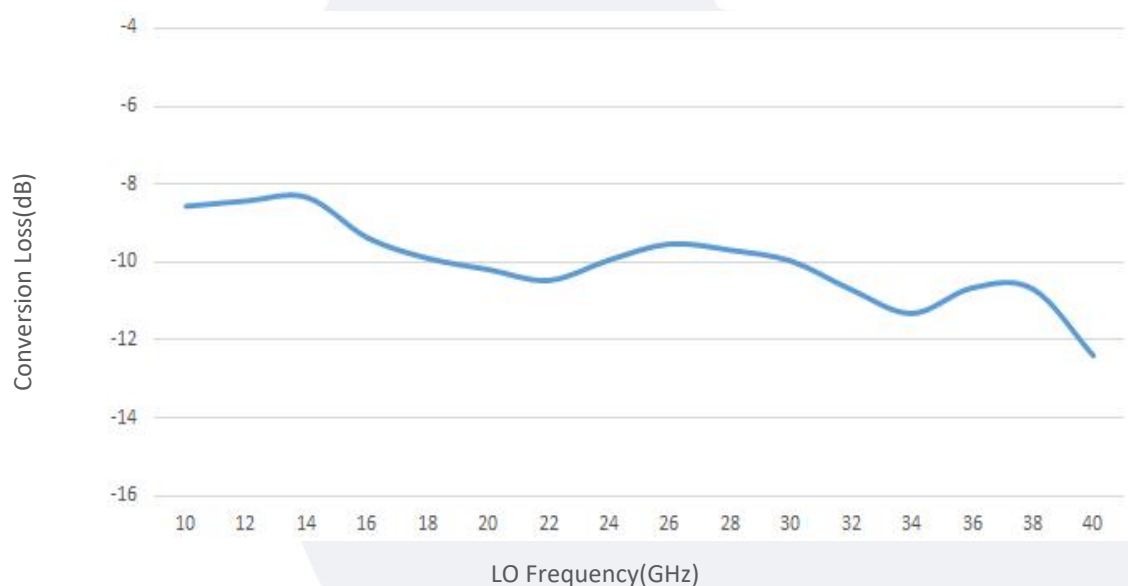
| 参数 Parameter                       | Min                                                 | Typ | Max  | 单位 Units |
|------------------------------------|-----------------------------------------------------|-----|------|----------|
| 操作温度 Operating Temperature         | -45                                                 |     | +85  | °C       |
| 存储温度 Non-operating Temperature     | -55                                                 |     | +100 | °C       |
| 相对湿度 Relative humidity             |                                                     | 95  |      | %        |
| 海拔 Altitude                        | 10,000                                              |     |      | feet     |
| 震动 Shock / Vibration(MIL-STD-810F) | 25g rms (15 degree 2KHz) endurance, 1 hour per axis |     |      |          |
| 冲击 Shock(non operating)            | 20G for 11msc half sin wave,3 axis both directions  |     |      |          |

## 订货信息 Ordering Information:

| 标准型号 Base Number | 描述 Description                                                      | 版本号 Revision |
|------------------|---------------------------------------------------------------------|--------------|
| TLIQ-1040-12-K   | Image Rejection or I/Q Mixer<br>RF:10-40GHz,LO:10-40GHz,IF:DC-12GHz | Rev.1.1      |

## 典型曲线 Typical Performance Data:

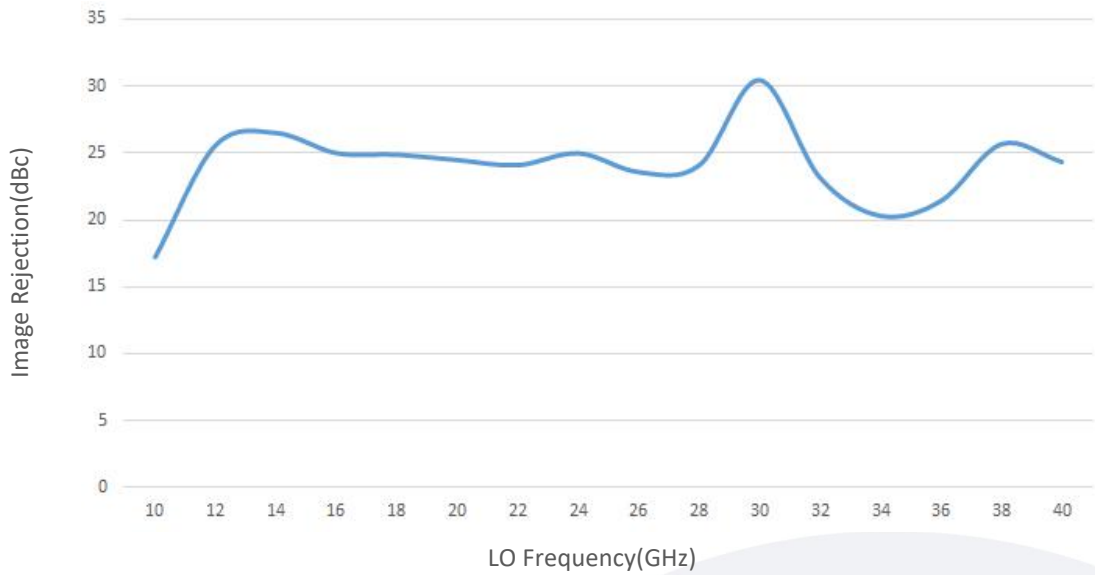
Conversion Loss vs LO Frequency



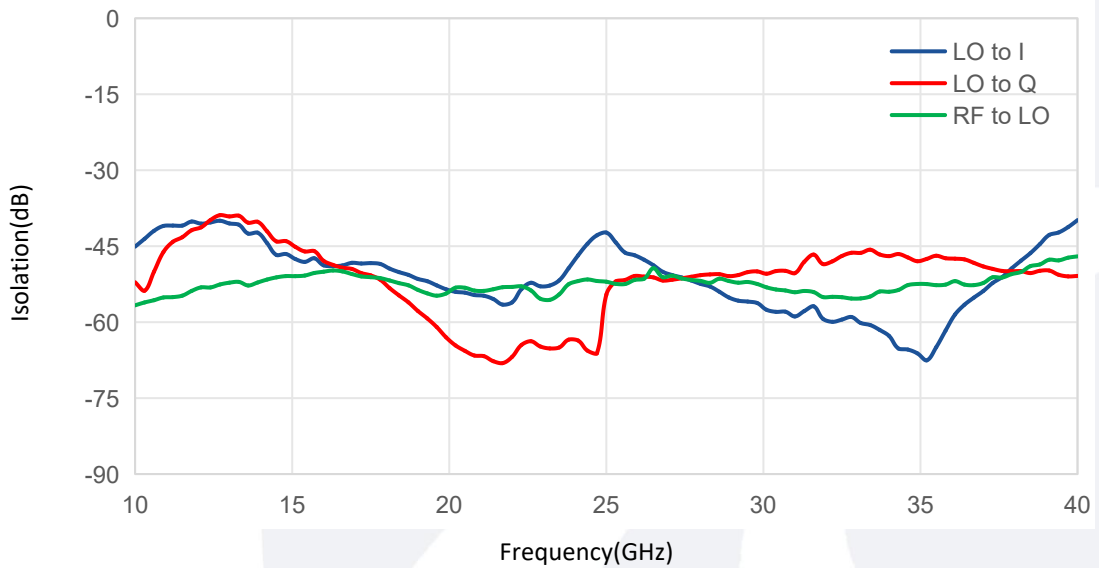
Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

## 典型曲线 Typical Performance Data:

### Image Rejection vs LO Frequency

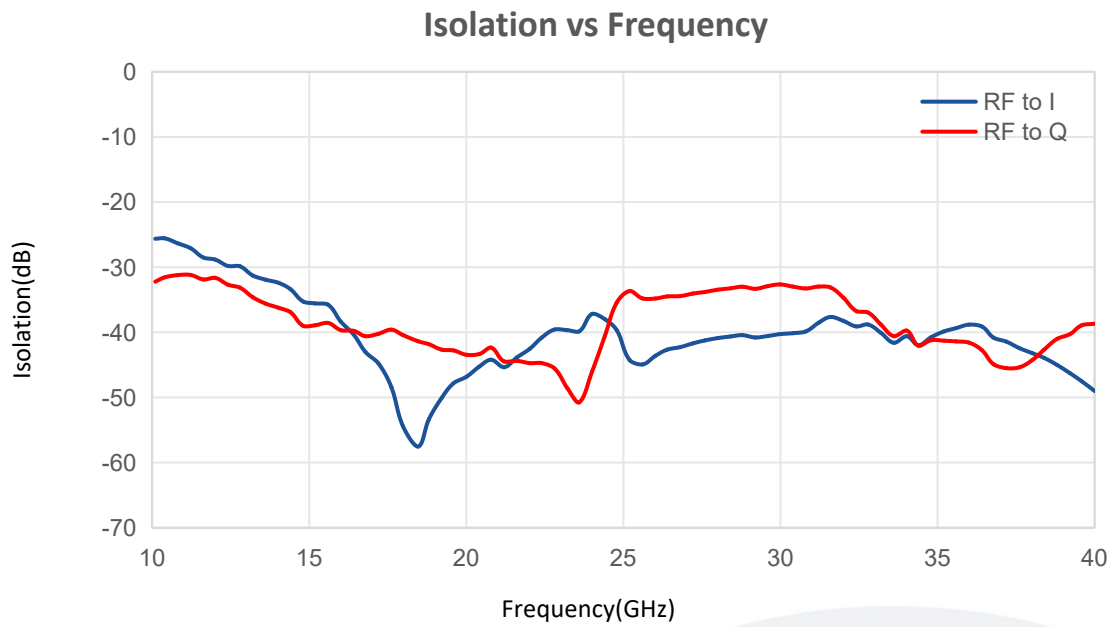


### Isolation vs Frequency



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