泰莱微波
Talent Microwave

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G-Band Up/Down-conversion Extender

140-220GHz /WR-5.1 Model: TLUCM-140220-12-05/TLDCM-140220-12-05

TLUCM-140220-12-05/TLDCM-140220-12-05 up/down-conversion extenders provide seamless frequency coverage from 140 GHz to 220 GHz, utilizing a WR05 waveguide RF connector. To support flexible operation and minimize unwanted signals,a set of four external bandpass filters is available. These filters enable the selective elimination of sideband and local oscillator signals, ensuring optimal performance and signal quality across the entirefrequency range.

Features:

- Frequency range: 140-220 GHz
- Conversion loss: 12 dB Typ
- Unconditional stability

Applications:

- Frequency extenders for communication systems measurement
- 5G Backhaul Equipment Testing
- Antenna Testing
- 6G system chip measurement

电气特性 Electrical Characteristics:

参数 Parameter	Min	Typ	Max	单位 Units
频率范围 Frequency range	140		220	GHz
本振输入频率 LO Input Frequency	11.66		18.33	GHz
中频输入频率 IF Input Frequency	DC		40	GHz
本振输入功率 LO Input Power	3	5	7	dBm
中频输入功率 IF Input Power(Up-conversion)		-10	0	dBm
射频输入功率 RF Input Power(Down-conversion)		-10	0	dBm
倍频次数 Multiplication Factor		12		
变频损耗 Mixer Conversion Loss SSB		12		dB
交流供电 AC Supply Voltage	100		240	V AC
外部功放供电 Power Supply(External Amplifier)		12		V DC

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机械特性 Mechanical Specifications:

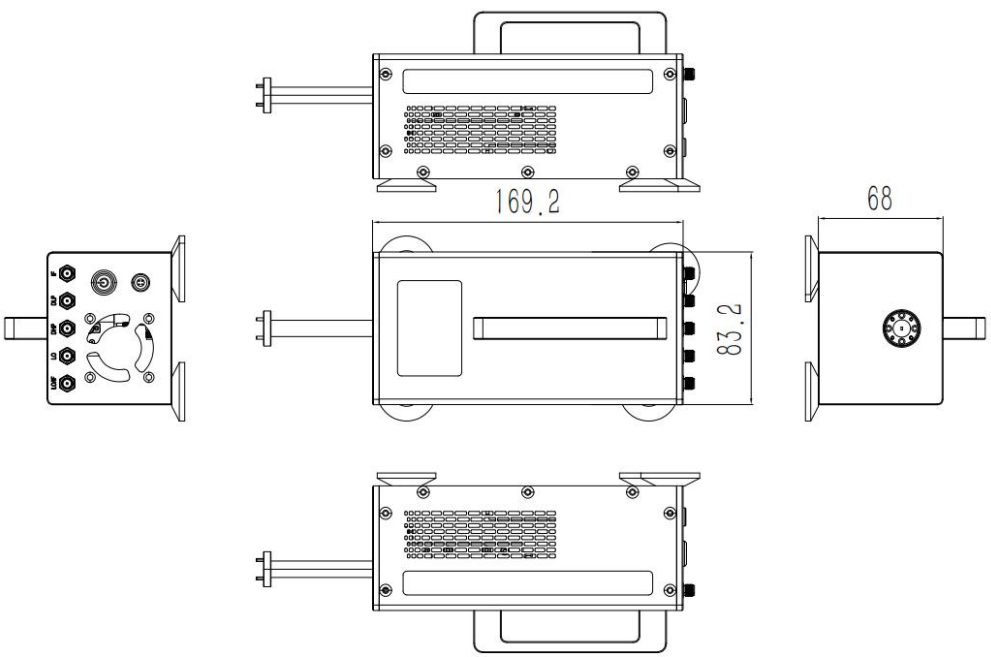
参数 Parameter	指标 Value	单位 Units
RF输入端口 RF Input Ports	WR-5.1/UG-387/U	
IF端口 IF Ports	2.92mm Female	
LO输入接口 LO Input Connector	SMA Female	
材质 Material	Aluminum	
表面处理 Finish	Spray gray paint	
供电引脚 Power Supply Pin	FGG 0B 4 Core	
尺寸 Size	169.2*83.2*68	mm

绝对最大值 Absolute Maximum Ratings :

参数 Parameter	指标 Value
中频/射频输入功率 IF/RF Input Power	0 dBm
本振输入功率 LO Input Power	+10 dBm
交流电压 Supply AC Voltage	+240 V AC
外部放大器电压 External Amplifier Voltage	+15 V DC
ESD灵敏度 ESD sensitivity (HBm)	Class 0, passed 150V

外形图 Outline Drawing:

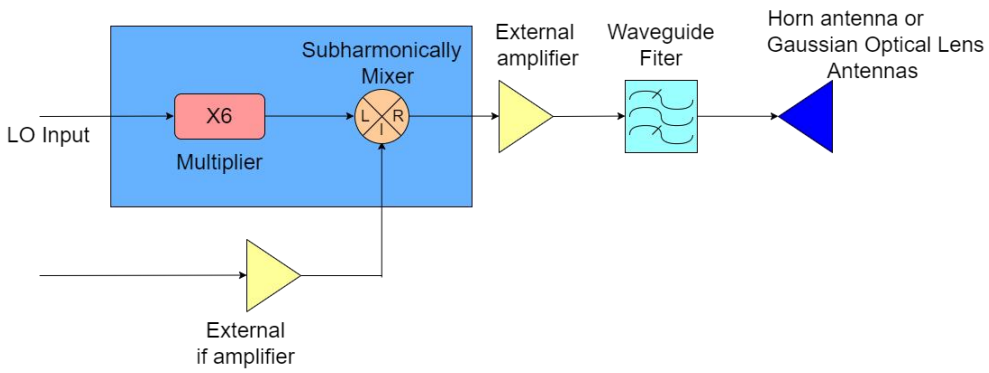
Unit:mm; Tolerance:±0.1mm



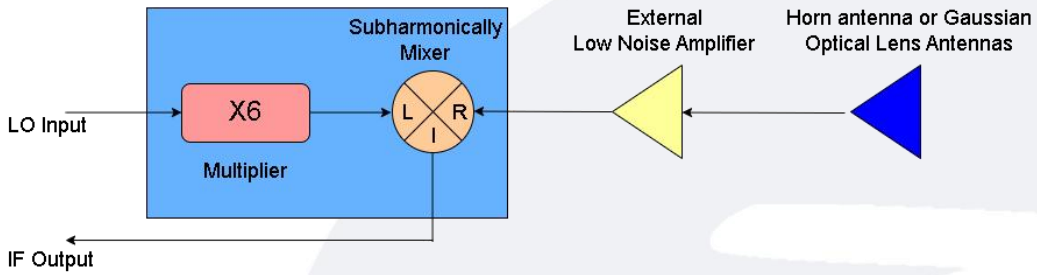
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原理框图 Block Diagrams:

Up-conversion



Down-conversion



环境和物理特性 Envrionmental And Physical Characteristics:

参数 Parameter	Min	Typ	Max	单位 Units
操作温度 Operating Temperature	0		+45	℃
存储温度 Non-operating Temperature	-55		+125	℃
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			

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订货信息 Ordering Information:

标准型号 Part Number	描述 Description	版本号 Revision
TLUCM-140220-12-05	G-Band Up-conversion Extender,140-220GHz, Conversion loss: 12 dB Typ	Rev.1.0
TLDCM-140220-12-05	G-Band Down-conversion Extender,140-220GHz, Conversion loss: 12 dB Typ	Rev.1.0

外部配件 External Accessories:

标准型号 Part Number	描述 Description
TLBF-170200-40	Waveguide Bandpass filter, 170 GHz to 200 GHz
TLBF-CUST	Support customization
TLLA50K43G-30-50	IF amplifier 50KHz-43GHz 30dB gain
TMLA-170200-2040-05	RF amplifier, 170 GHz to 200 GHz 20 dB gain Noise Figure: 4.0
TMPA-140220-2013-05	RF amplifier, 140 GHz to 220 GHz 18dB gain Psat: 12dBm
TL-5SHA25	Horn antenna, 140 GHz to 240 GHz Gain: 25dB
TLHG-140220-45-04	Gaussian Optical Lens Antenna 140 to 220GHz Gain: 45dB