

## Fullband 75-500 GHz Up/Downconverters

### General Features

- Full band coverage from 75 – 500 GHz
- Broadband output power
- Upconverter / Downconverter Pairs with Linear Operation
- High sensitivity receivers
- 5G/6G communications research



Fig 1 110-330 GHz Upconverter



Fig 2 110-330 GHz Downconverter

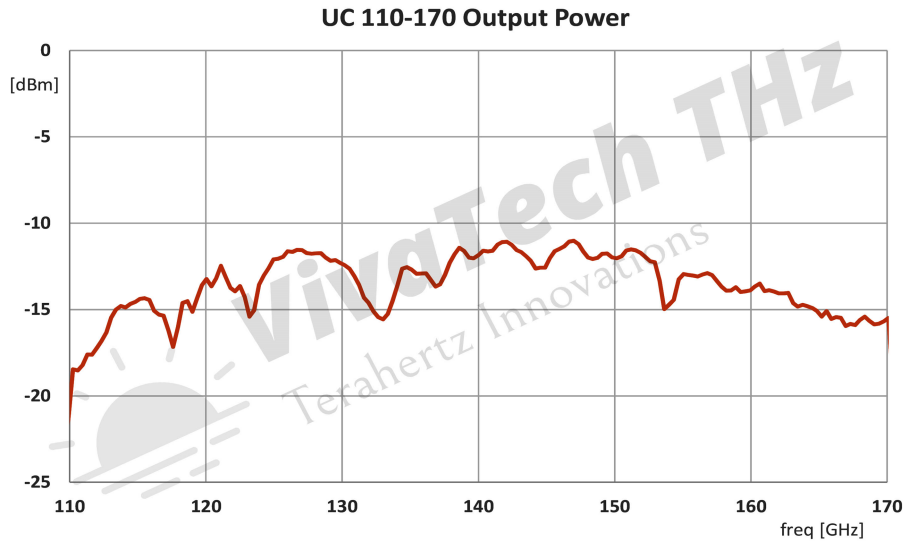
### Specifications (75-220 GHz)

Model	THZBUC-10	THZBDC-10	THZBUC-06	THZBDC-06	THZBUC-05	THZBDC-05
FUNCTION	UPCONVERTER	DOWNCONVERTER	UPCONVERTER	DOWNCONVERTER	UPCONVERTER	DOWNCONVERTER
RF Frequency (GHz)	75-110	75-110	110-170	110-170	140-220	140-220
RF Power Output (dBm)	+18 typical	-	-15 typical	-	-15 typical	-
RF Input Maximum (dBm)	-	-20	-	-15	-	-15
IF Input Frequency (GHz)	0.1-18	-	0.1-20	-	0.1-20	-
IF Input at saturation (dBm)	10	-	-5	-	-5	-
IF Output Frequency (GHz)	-	0.1-18	-	0.1-20	-	0.1-20
Conversion Gain, (dB)	20 typical	20 typical	20 typical	20 typical	20.0 typical	20.0 typical
Noise Figure (dB), DSB typical	-	< 7.5	-	10-12	-	10-12
LO Frequency (GHz) @ +13 dBm	12.5-18.33	12.5-18.33	9.17-14.17	9.17-14.17	11.66-18.33	11.66-18.3
LO /IF Connector	2 X SMA/K (F)	2 X SMA/K (F)	2 X SMA/K (F)	2 X SMA/K (F)	2 X SMA/K (F)	2 X SMA/K (F)
RF Connector	WR10, UG387/U-M	WR10, UG387/U-M	WR06, UG387/U-M	WR06, UG387/U-M	WR05, UG387/U-M	WR05, UG387/U-M

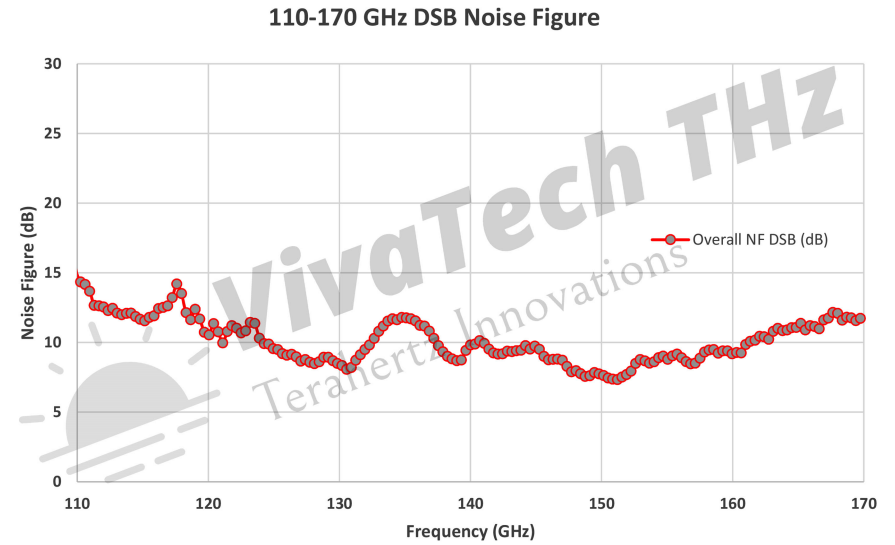
### Notes

1. Module dimensions 70 x 100 x 180 mm (3 Channel THZBUC and THZBDC) excluding fixings (TBC)
2. Test data: Upconverter - power output and spectrum, downconverter - gain and noise figure
3. DSB operation; SSB options to order
4. Option: internal oscillator with 10 MHz or 100 MHz synchronization
5. Optional: RF input LNA and output PA to customer specifications; consult factory
6. **How to make a request:** choose Model, or state full specifications, required interfaces, email to: [sales@vivatechthz.com](mailto:sales@vivatechthz.com)

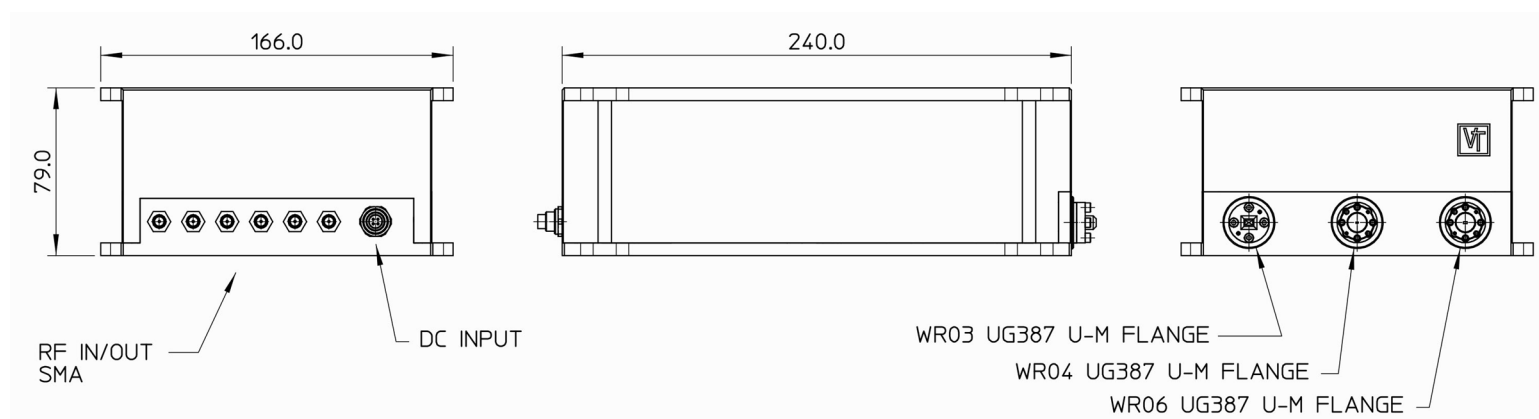
## Test Data Models THZBUC-06/ THZBDC-06



**Fig 3 110-170 GHz Upconverter Output Power**



**Fig 4 110-170 GHz Downconverter Noise Figure**



**Fig 5 110-330 GHz Converter Module**

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- Linear operation
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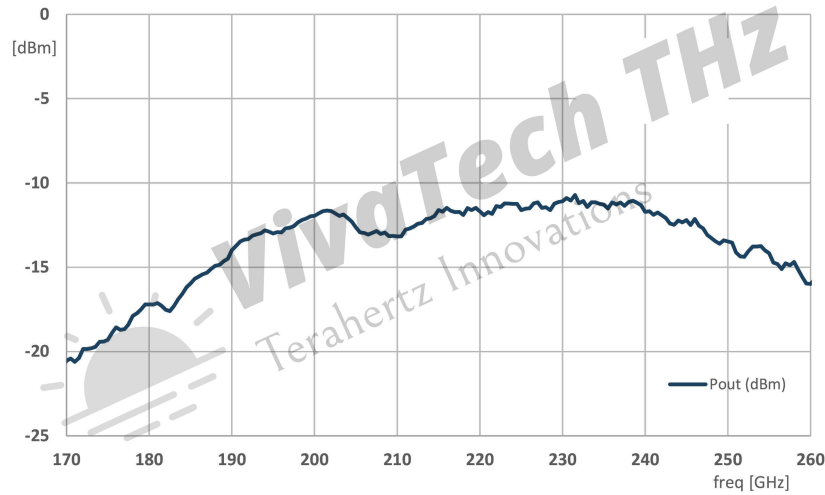
### Specifications (170-500 GHz)

Model	THZBUC-04	THZBDC-04	THZBUC-03	THZBDC-03	THZBUC-2.2	THZBDC-2.2
<b>FUNCTION</b>	<b>UPCONVERTER</b>	<b>DOWNCONVERTER</b>	<b>UPCONVERTER</b>	<b>DOWNCONVERTER</b>	<b>UPCONVERTER</b>	<b>DOWNCONVERTER</b>
<b>RF Frequency (GHz)</b>	170-260	170-260	220-330	220-330	330-500	330-500
<b>RF Power Output (dBm)</b>	-14 to -20 typical	-	-15 typical	-	-20 to -30 typical	-
<b>RF Input Maximum (dBm)</b>	-	-15	-	-15	-	-15
<b>IF Input Frequency (GHz)</b>	0.1-20	-	0.1-20	-	0.1-20	-
<b>IF Input at saturation (dBm)</b>	-5	-	-5	-	-5	-
<b>IF Output Frequency (GHz)</b>	-	0.1-20	-	0.1-20	-	0.1-20
<b>Conversion Gain, (dB)</b>	20 typical	10 typical	20.0 typical	10.0 typical	20.0 typical	10 typical
<b>Noise Figure (dB), DSB typical</b>	-	12-15	-	12-15	-	15-20
<b>LO Frequency (GHz) @ +13 dBm</b>	14.17-21.67	14.17-21.67	10.83-13.75	10.83-13.75	13.75-20.83	13.75-20.83
<b>LO /IF Connector</b>	2 X SMA/K (F)	2 X SMA/K (F)	2 X SMA/K (F)	2 X SMA/K (F)	2 X SMA/K (F)	2 X SMA/K (F)
<b>RF Connector</b>	WR04, UG387/U-M	WR04, UG387/U-M	WR03, UG387/U-M	WR03, UG387/U-M	WR2.2, UG387/U-M	WR2.2, UG387/U-M

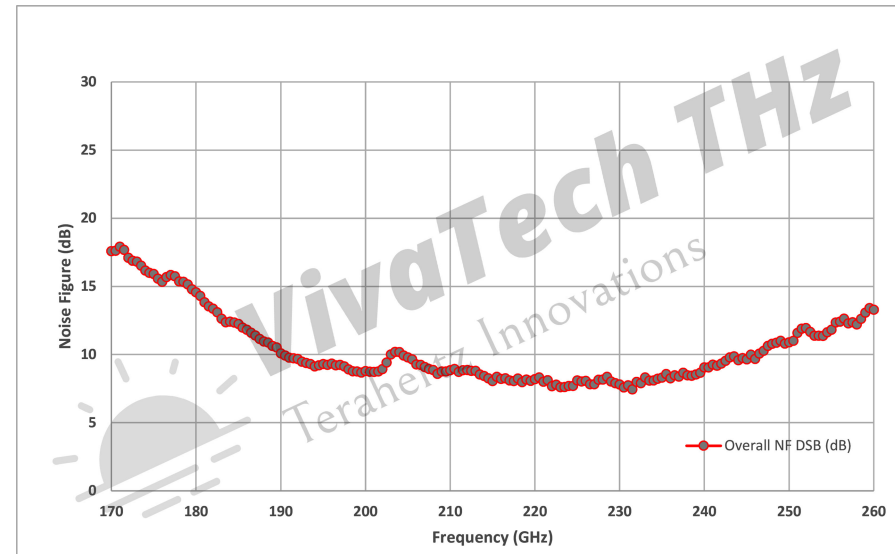
#### Notes

1. Module dimensions 70 x 100 x 180 mm (3 Channel THZBUC and THZBDC) excluding fixings (TBC)
2. Test data: Upconverter - power output and spectrum, downconverter - gain and noise figure
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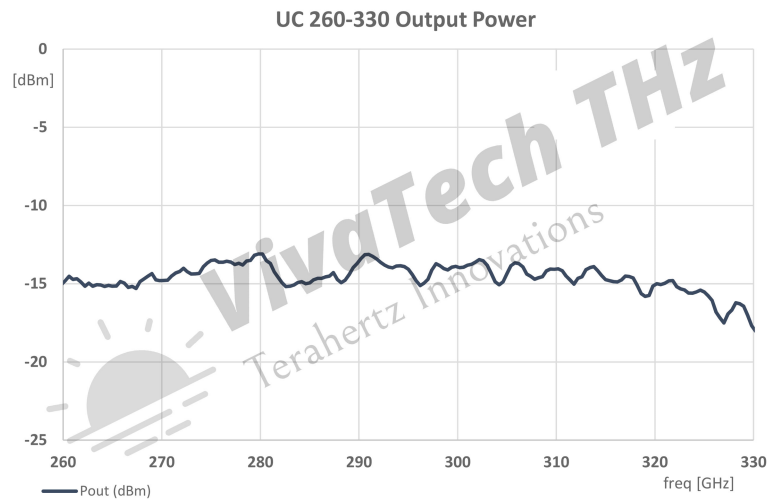
## Test Data Models THZBUC/BDC-04 & THZBUC/BDC-03



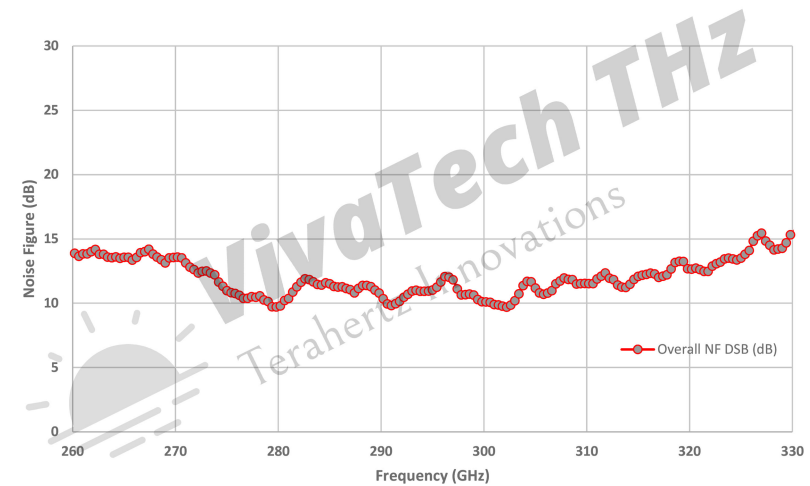
**Fig 6 170-260 GHz Upconverter Output Power**



**Fig 7 170-260 GHz Downconverter Noise Figure**



**Fig 8 260-330 GHz Upconverter Output Power**



**Fig 9 260-330 GHz Downconverter Noise Figure**