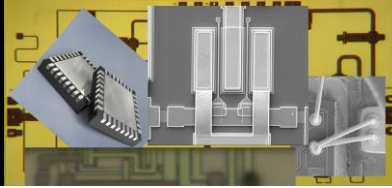


# TMC252D

## 24-30 GHz

### Front End Module



**mmTRON**  
Unleashing the  
mmWave Frontier

## Product Features

- RF frequency: 24 to 30 GHz
- TX Linear Gain: 22 dB, TX  $P_{sat}$ : 6 W
- TX Linear Gain: 19 dB, RX NF: 5dB
- Die Size: X=3.0 mm, Y=3.0 mm, Z=0.1mm
- TX DC Power: 23 VDC, 590 mA
- RX DC Power: 23 VDC, 60mA
- Positive Logic Switch:  $V_{control} = (0V, 23V)$

## Application

- mmWave 5G
- Point-to-Point Radios and VSATs
- Fiber Optics
- Military, EW and Space

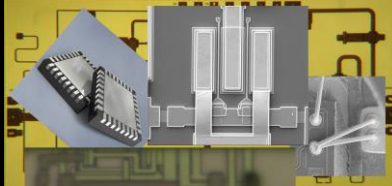
## Product Description

The TMC252D GaN Front End Module is a high linearity device, designed for use in mmWave 5G, Radios, Military, EW and Space applications. In TX mode, the TMC252D delivers 6W saturated power from 24 to 30 GHz with 22% PAE. In RX mode, the TMC252D has 19dB gain and 5dB noise figure from 24 to 30 GHz. A single pole, double throw RF switch reconfigures the circuit's common port to TXOUT or RXIN using positive control voltage, eliminating the need for negative control voltage. Both bond pad and backside metallization are Au-based that is compatible with ribbon and wedge bonding and high conductivity epoxy and eutectic die attach methods. The packaged version is available as TMC252 in a 5x5 Air-Cavity QFN.

### ***TX Electrical Performance : Vdd = 23 V, Vgg = -3.8 V, TA = 25 °C, F = 27 GHz***

	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>
<b>Frequency</b>	24		30	GHz
<b>Gain</b>		22		dB
<b>P1dB</b>		37		dBm
<b>Psat</b>		38		dBm
<b>PAE @ Psat</b>		22		%
<b>OIP3</b>		42		dBm
<b>Bias Voltage</b>		23		V
<b>Bias Current</b>		590		mA

**TMC252D**  
**24-30 GHz**  
**Front End Module**



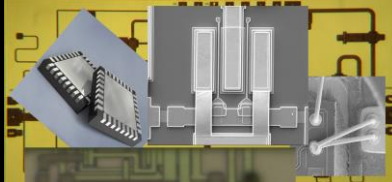
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**RX Electrical Performance : Vdd = 23 V, Vgg = -4.5 V, TA = 25 °C, F = 27 GHz**

	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Units</b>
<b>Frequency</b>	24		30	GHz
<b>Gain</b>		19		dB
<b>Noise Figure</b>		5		dB
<b>P1dB</b>		25		dBm
<b>OIP3</b>		29		dBm
<b>Bias Voltage</b>		23		V
<b>Bias Current</b>		60		mA

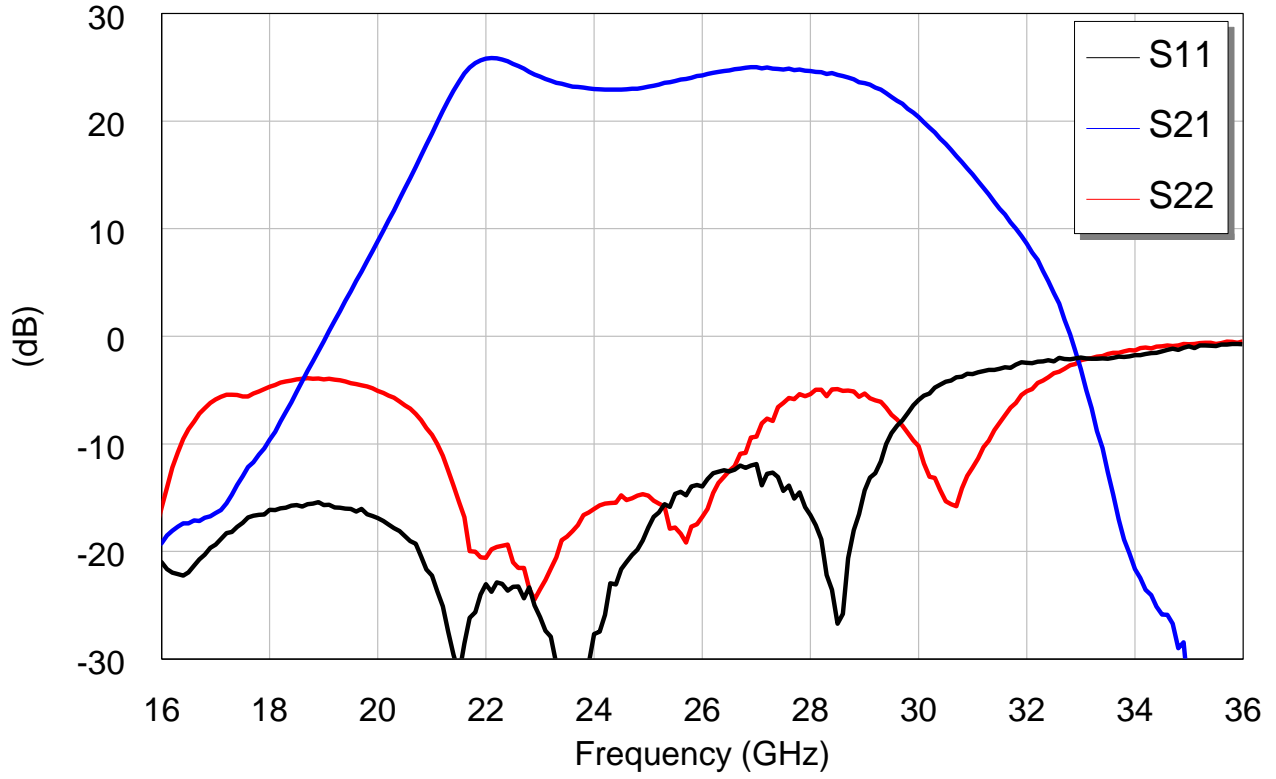
Ver 1.0 2024

# TMC252D 24-30 GHz Front End Module

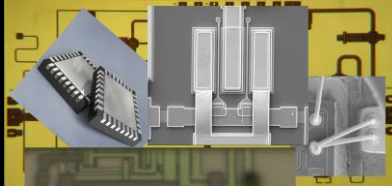


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### TMC252 TX Mode Measured On Wafer S Parameters

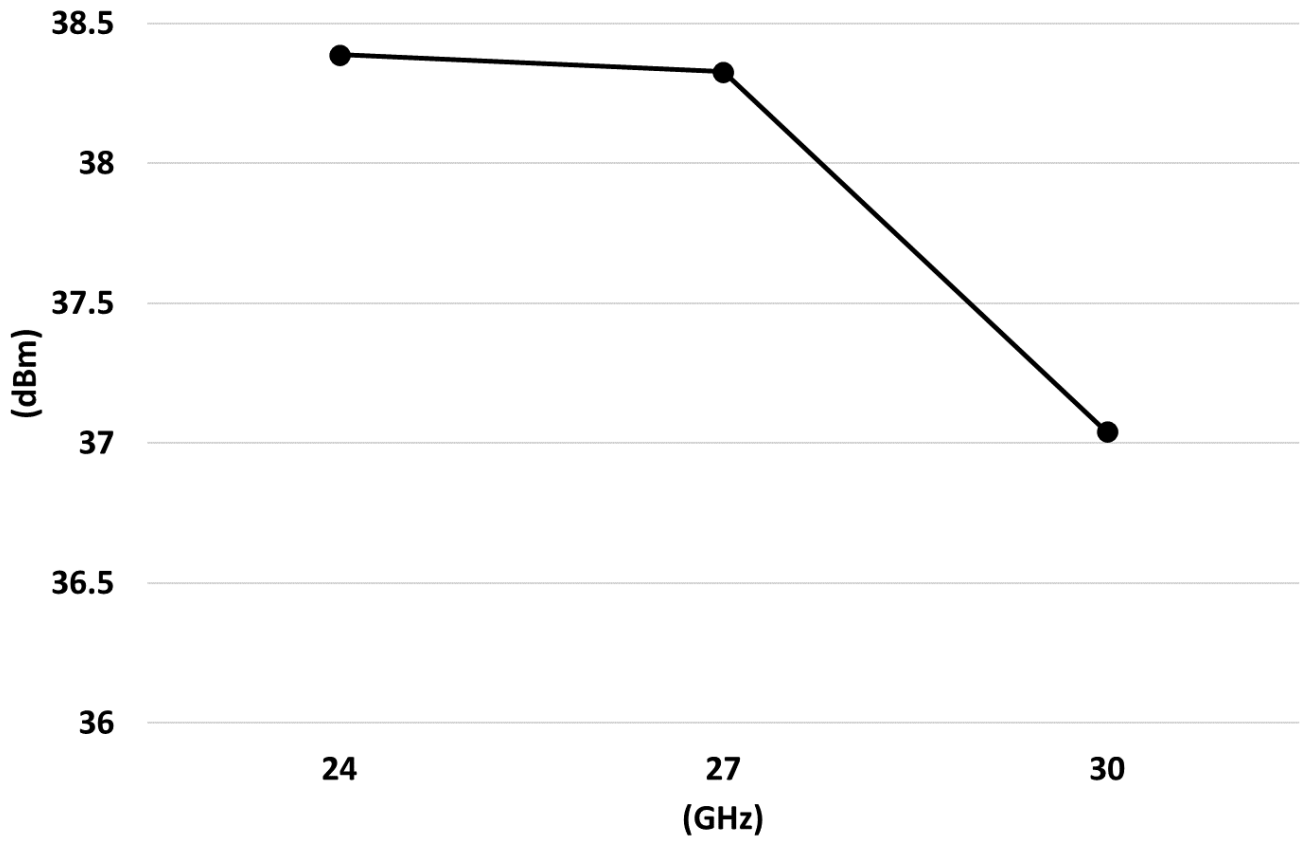


# TMC252D 24-30 GHz Front End Module

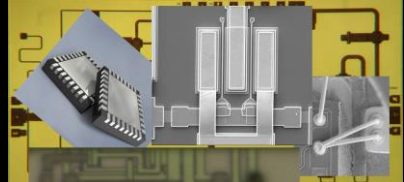


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**TMC252 TX Mode Measured On Wafer Power vs Frequency,  
Pin = 18dBm**

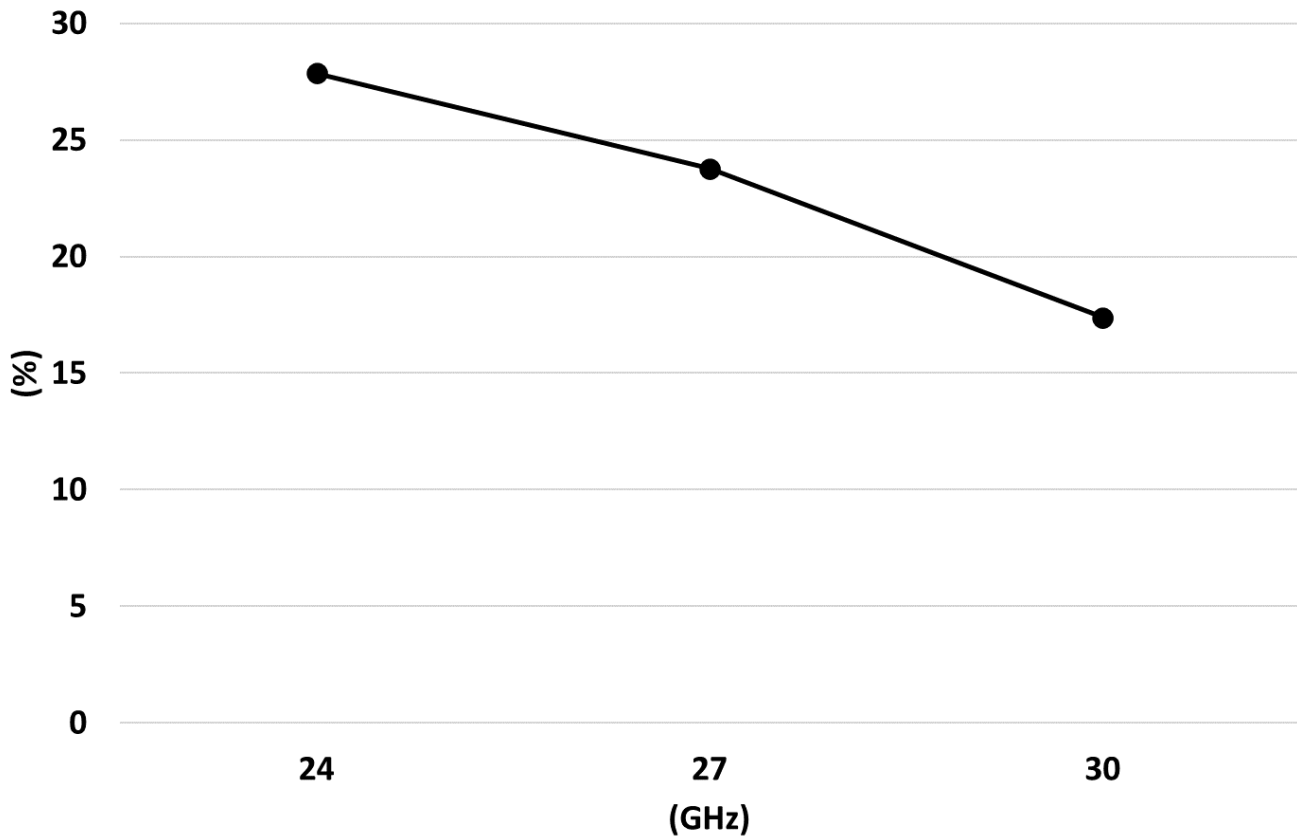


# TMC252D 24-30 GHz Front End Module

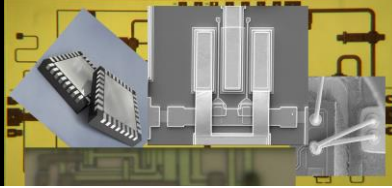


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TMC252 TX Mode Measured On Wafer PAE vs Frequency,  
Pin = 18dBm

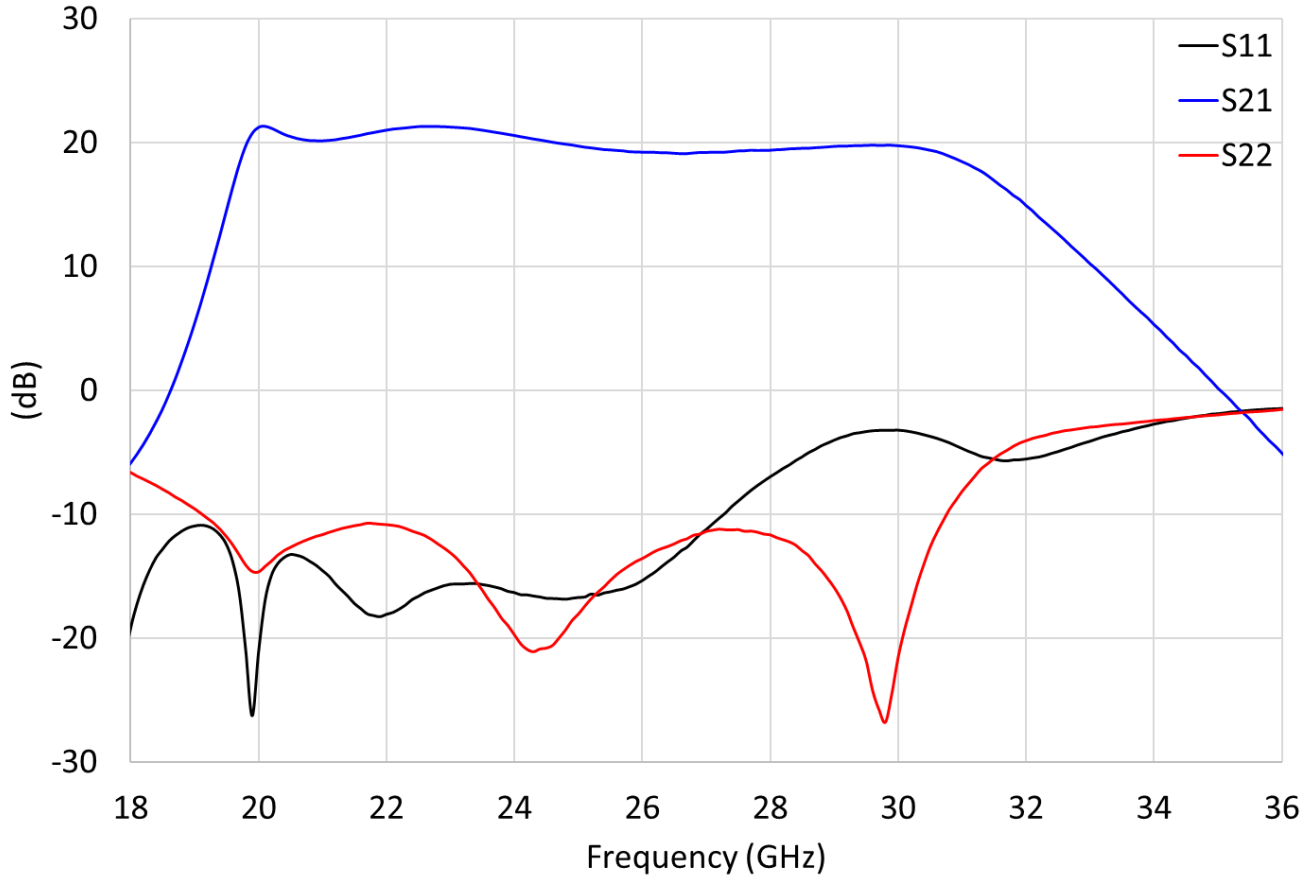


# TMC252D 24-30 GHz Front End Module

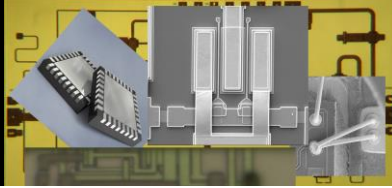


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### TMC252 RX Mode Measured On Wafer S Parameters

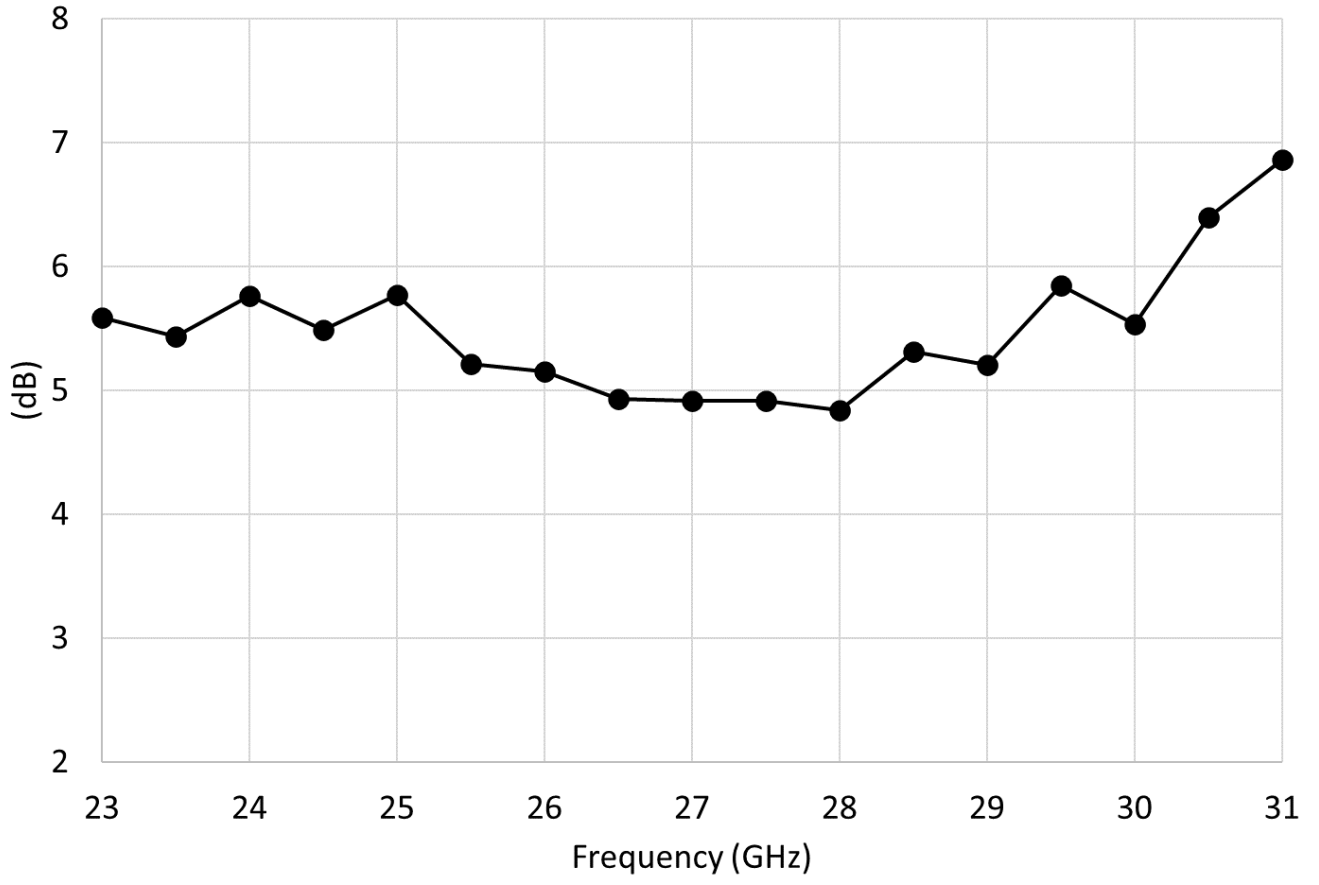


# TMC252D 24-30 GHz Front End Module

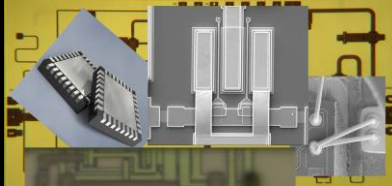


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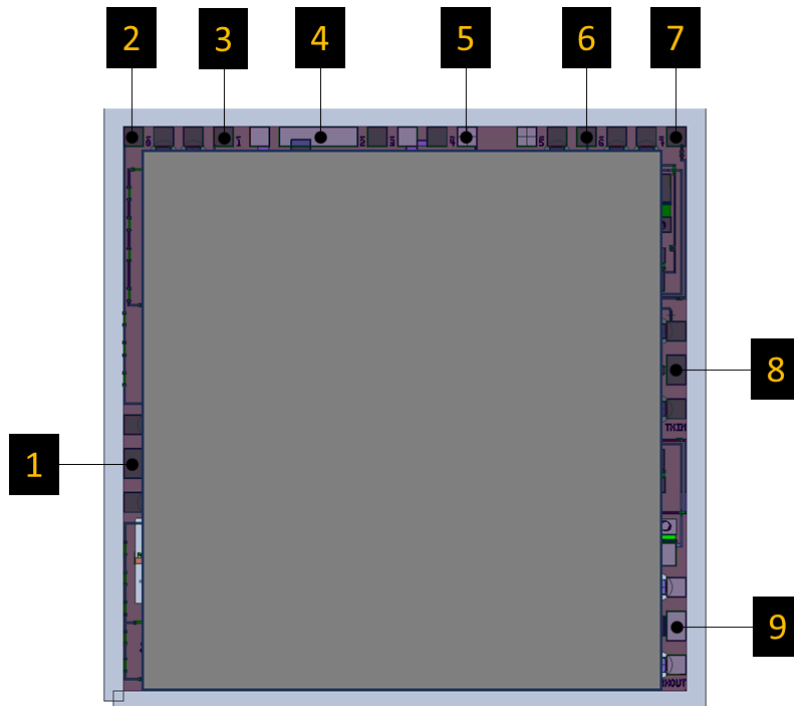
### TMC252 RX Mode Measured On Wafer Noise Figure



# TMC252D 24-30 GHz Front End Module



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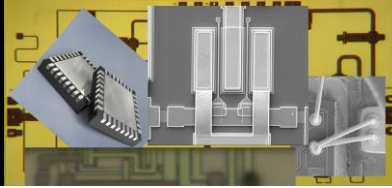


Pad #	Function
1	COMMON
2	VCRX
3	VCTX
4	VDTX
5	VDRX
6	VGTX
7	VGRX
8	TXIN
9	RXOUT

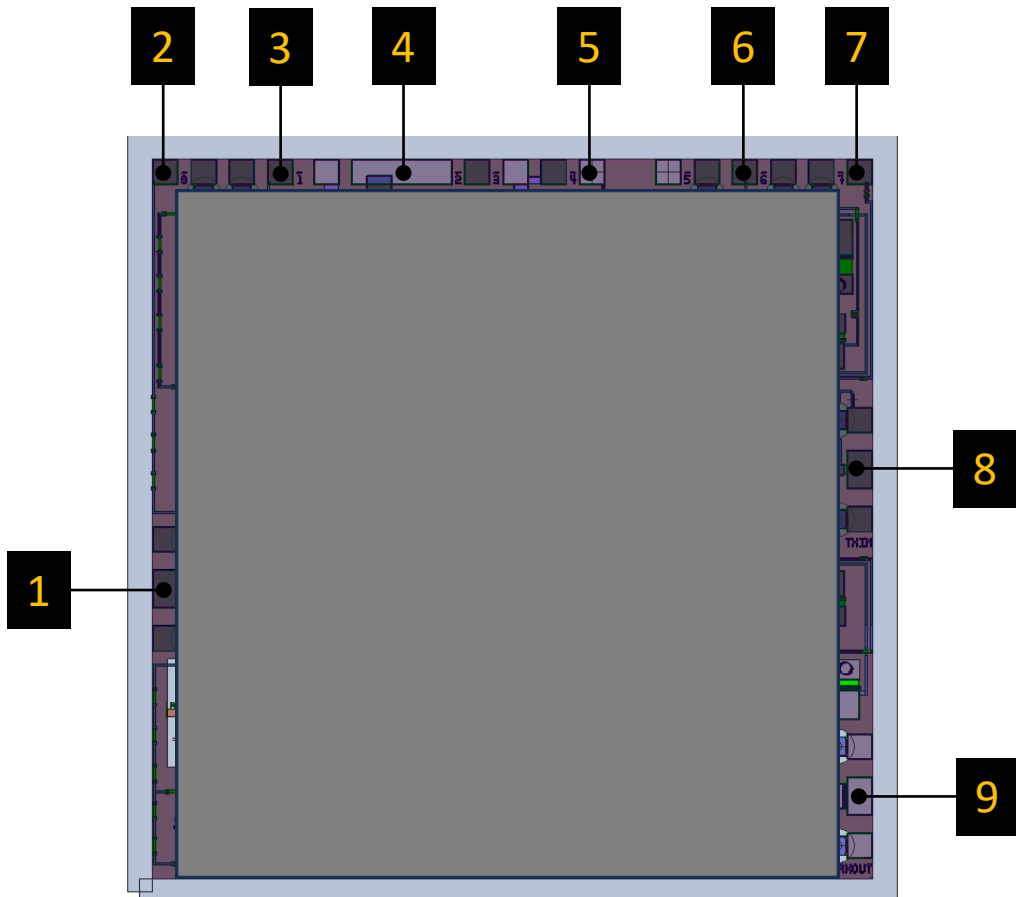
**1. DXF and detailed assembly drawings are available on request.**



# TMC252D 24-30 GHz Front End Module



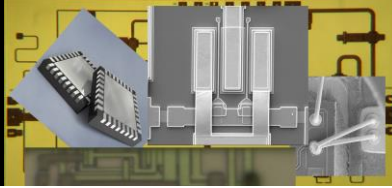
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# TMC252D

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### Front End Module



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