mmTron
Unleashing the mmWave Frontier

TMC657-D
DC-60 GHz Distributed Low Noise Amplifier

Product Features

- RF frequency: DC to 60 GHz
- Linear Gain: 9 dB
- Noise Figure: 3.5 dB
- Die Size: X=1.65 mm, Y=1 mm, Z=0.05mm
- DC Power: 5 VDC, 75 mA

Application

- Point-to-Point Radios and VSATs
- Test instrumentation
- Fiber Optics
- Military, EW and Space

Product Description

The TMC657D GaAs PHEMT Distributed amplifier is a broadband low noise device, designed for use in Radios, Test instrumentation, Military, EW and Space applications. The TMC657D is a 50 W matched design providing 3.5dB of noise figure, offers excellent return loss at low-end for optical instrumentation, interface to photodiodes, and eliminates the need for RF port matching. 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.

Electrical Performance : **Vdd = 5 V, Vgg = -0.3 V, TA = 25 °C, F = 50 GHz**				
	min	**Typ**	**Max**	**Units**
Frequency	DC		60	GHz
Gain		9		dB
P1dB		12		dBm
Psat		13		dBm
Noise Figure		3.5		dB
OIP3		20		dBm
Bias Voltage		5		V
Bias Current		75		mA

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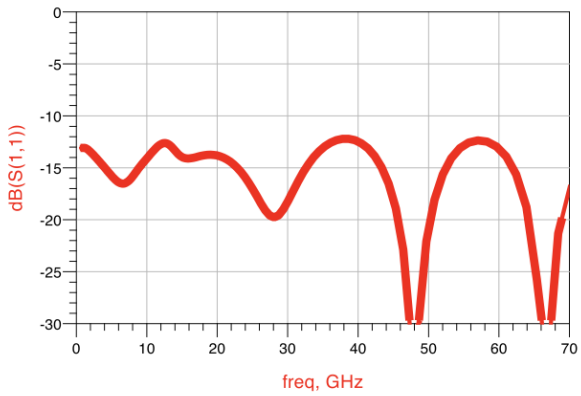
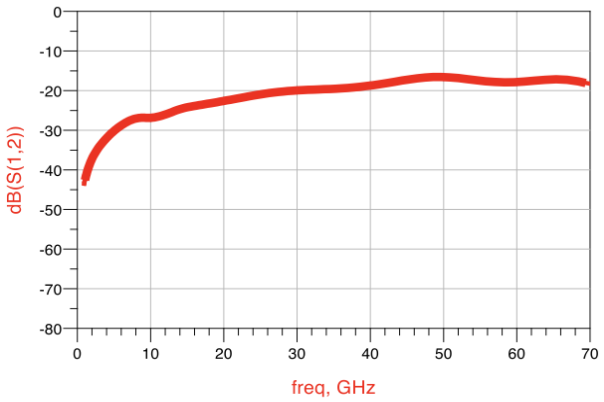
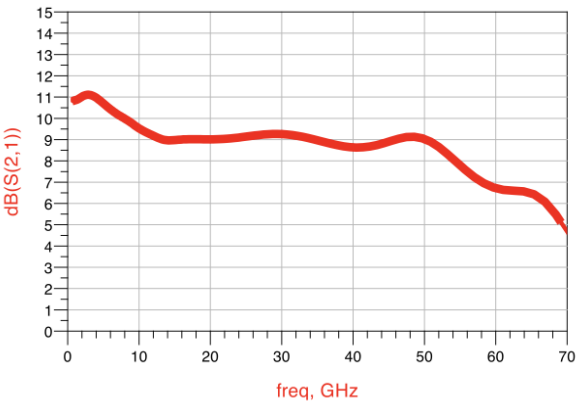
TMC657 Input Return Loss



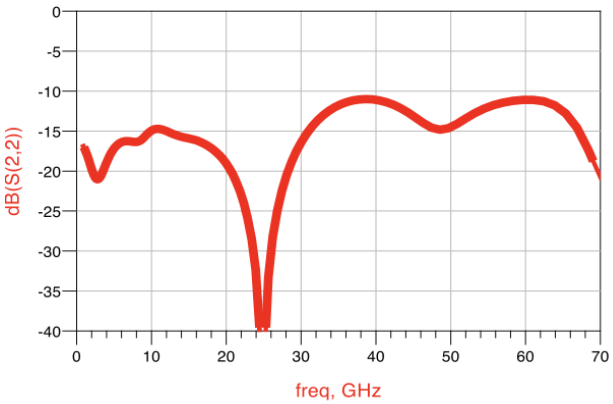
TMC657 Reverse Isolation



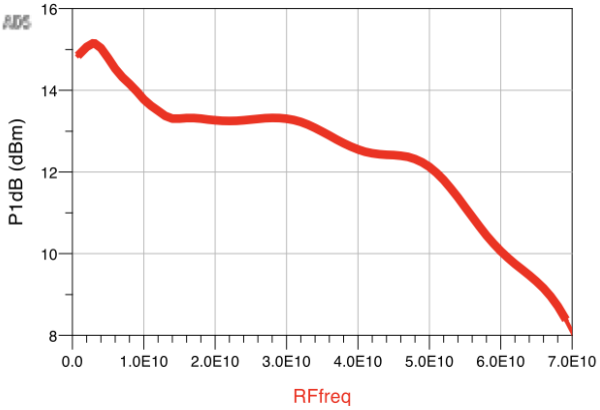
TMC657 Gain



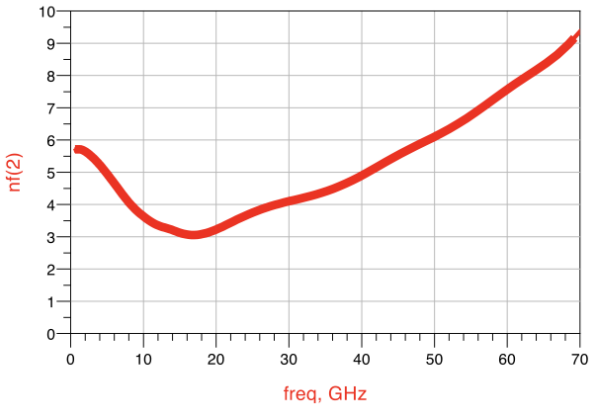
TMC657 Output Return Loss

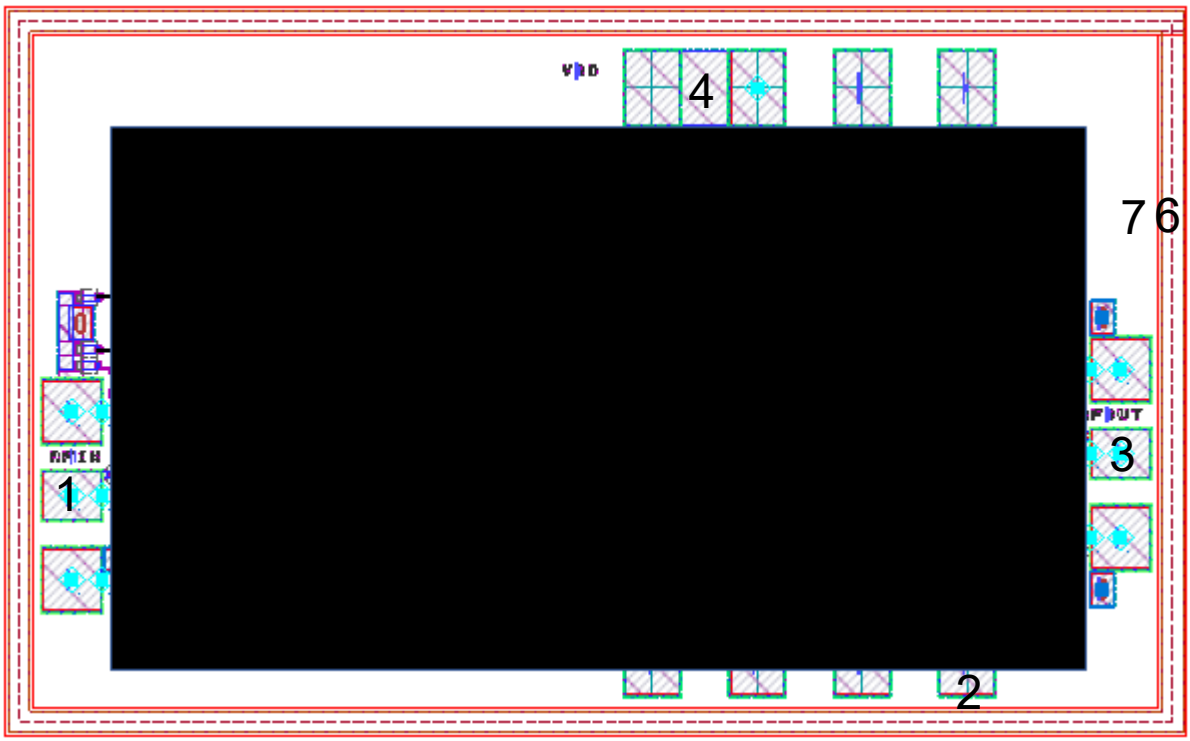


TMC657 P1dB



TMC657 Noise Figure





Pad #	Function
1	RF INPUT
2	VGG BIAS
3	RF OUTPUT
4	VDD

1. The low frequency operation can be extended to kHz range by adjusting the bypass capacitances connected to Pads # 4-7.
2. DXF and detailed assembly drawings are available on request.



Electrostatic Discharge Caution

This integrated circuit can be damaged by ESD. mmTron Inc. recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications. III-V MMICs are ESD-sensitive. Preventative ESD measures must be employed in all aspects of storage, handling, and assembly. MMIC ESD precautions, handling considerations, and die-attach and bonding methods are critical factors in successful III-V MMIC performance and reliability.



RoHS Compliant

This part is RoHS compliant, meeting the requirements of the EU Restriction of Hazardous Substances Directive 2002/95/EC, commonly known as RoHS. Six substances are regulated: lead, mercury, cadmium, chromium VI (hexavalent chromium), polybrominated biphenyls (PBB), and polybrominated biphenyl ethers (PBDE). RoHS compliance requires that any residual concentration of these substances is below the Directive's maximum concentration values (MCV): cadmium 100ppm by weight and all others 1000ppm by weight.

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