mmTron
Unleashing the mmWave Frontier

TMC774-D
DC-160 GHz Distributed Amplifier

Product Features

- RF frequency: DC to 160 GHz
- Linear Gain: 11 dB
- Noise Figure: 8.5 dB
- Die Size: X=1040 um, Y=800 um, Z=75 um
- DC Power: 8/2 VDC, 60 mA

Application

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

Product Description

The TMC774D Distributed amplifier is a broadband high gain device with positive gain slope, designed for use in Radios, Test instrumentation, Military, EW and Space applications. The TMC774D is a 50 W matched design providing 8dB 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 : **Vcc = 8 V, VBB=2V, TA = 25 °C, F = 110 GHz**				
	min	**Typ**	**Max**	**Units**
Frequency	DC		160	GHz
Gain		11		dB
P1dB		13		
Noise Figure		8.5		dB
Bias Voltage (VCC)		8		V
Bias Voltage (VBB)		2		V
Bias Current		60		mA

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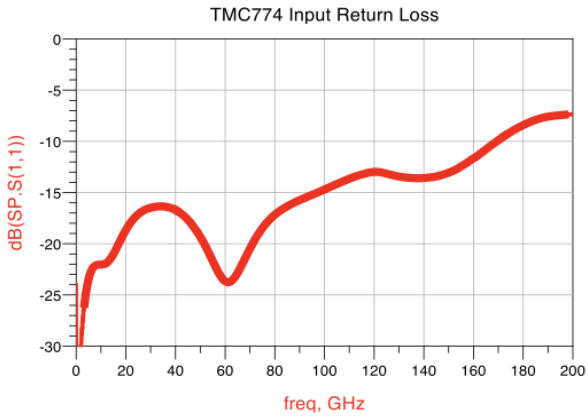
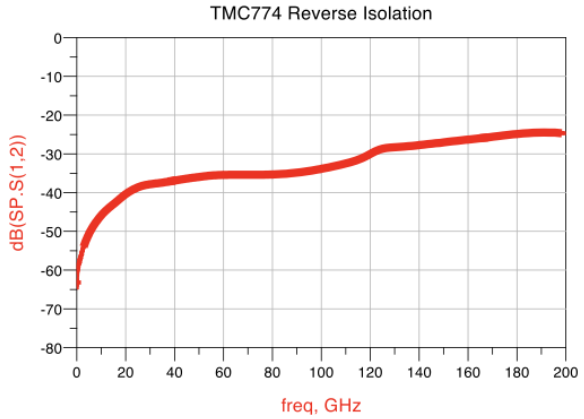
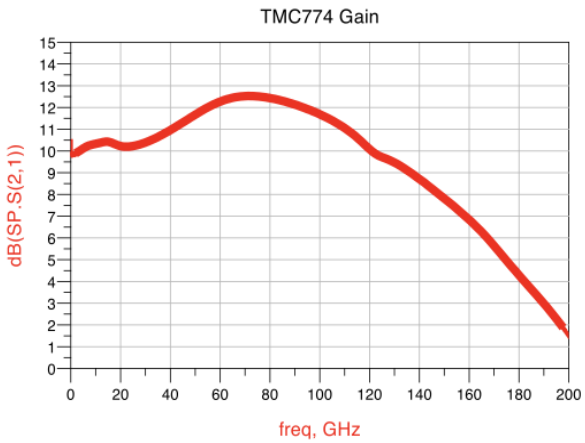
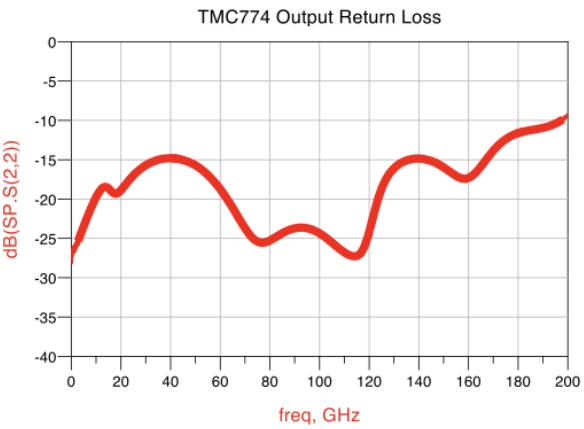
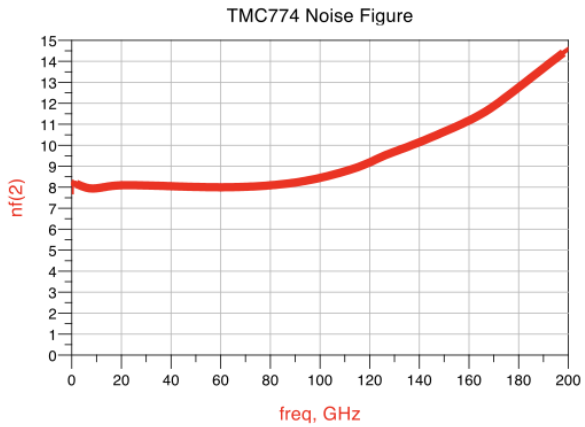
On-wafer Data

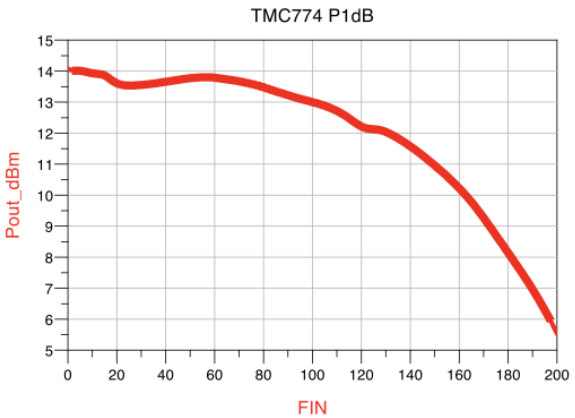


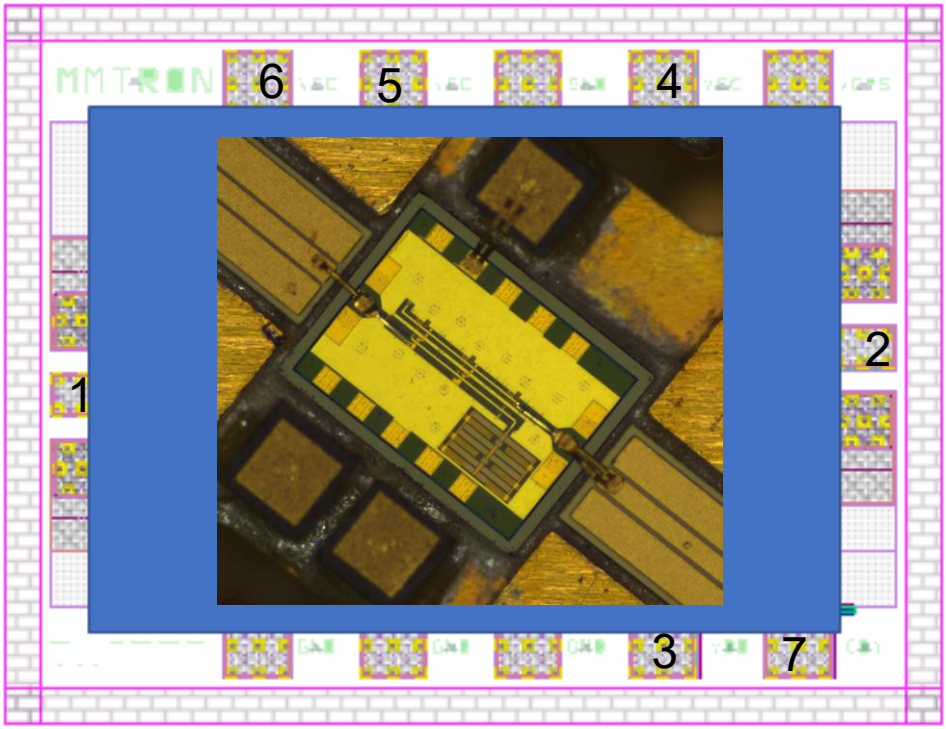










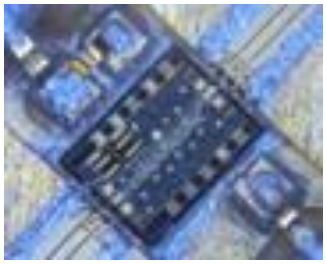


Pad #	Function
1	RF INPUT
2	RF OUTPUT
3	VBB
4,5,6	VCC
7	Bypass using a 100nF Cap to GND

Note: TMC773, TMC774D and TMC775 parts have identical footprints and pad configurations.



Measured Data in a Fixture





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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