

# TEST FIXTURE FOR MEASURING GaN PACKAGED TRANSISTORS

APP NOTE: 39-002

In today's race for higher power and higher efficiency, the Gallium Nitride (GaN) amplifiers are starting to replace GaAs amplifiers at much higher frequencies (above 10 GHz). Switching mode amplifiers now operate with over 80% efficiency utilizing this new GaN technology, therefore reducing the dissipated power. These new GaN based amplifiers are widely used in numerous civilian and military radar systems for air surveillance, target tracking, civilian air traffic, and weather observation.

During the development process engineers have to prototype and characterize these GaN amplifiers using various packed GaN transistors. To reduce the prototyping cycle, Electro-Photonics has designed an off the shelf DC-12.4 GHz test fixture shown in Fig 1. The FRFS-0352 test fixture makes testing of various GaN transistors a breeze.

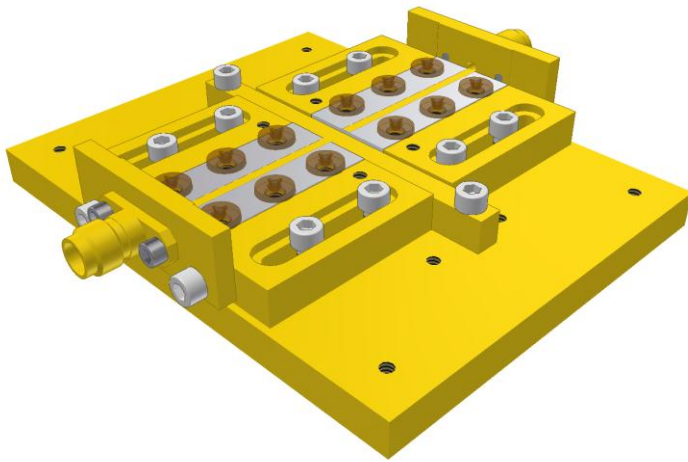


Fig 1: Standard 2 port DC-12.4GHz fixture for measuring GaN transistors

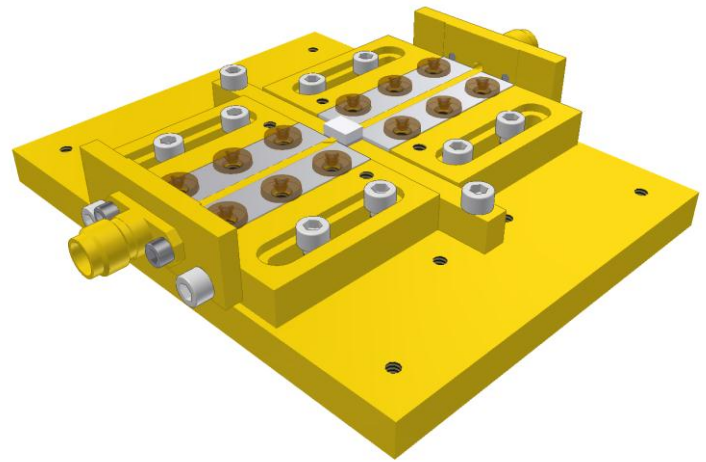


Fig 2: Cree high mobility transistor in FRFS-0352 test fixture.

The FRFS-0352 can be easily customized to allow characterization of various packaged GaN transistors by swapping out appropriate mid-sections. For example, Cree GaN high mobility transistor (P/N: CGH40006P) is shown in Fig 2.

The end launches are designed with low 1.10:1 VSWR at 3.5 GHz to accommodate standard PCB thicknesses from 0.010 to 0.062 inches thick. The FRFS-0352 has everything you need to evaluate packaged GaN transistors to 12.4 GHz.