

Publication: AN/RF/CMX90A705/14 November 2024

WARNING Evaluation Kits (EVK) are intended solely for use by technically qualified, professional electronics engineers who are familiar with the dangers and application risks associated with handling electrical mechanical components, systems, and subsystems. User shall operate the Evaluation Kit within CML’s recommended guidelines and any applicable legal or environmental requirements as well as reasonable and customary safeguards. Failure to set up and/or operate the Evaluation Kit within CML’s recommended guidelines may result in damage to the evaluation kit, test equipment or property damage. Proper set up entails following CML’s instructions for electrical ratings of interface circuits such as input, output and electrical loads.

The EV90A705 evaluation or reference board contains parts and assemblies sensitive to electrostatic discharge (ESD). Electrostatic control precautions are required when installing, testing, servicing or repairing the assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with electrostatic control procedures, refer to the applicable ESD protection handbooks and guidelines. Also refer to the CMX90A705 datasheet for the ESD rating of the device, [CMX90A705_ds.pdf \(cmlmicro.com\)](#).

The EV90A705, as stated in the CMX90A705 datasheet, should be mounted to a suitable heatsink using the four corner holes on the EVK along with suitable thermal compound. The heatsink and any fan should be chosen to ensure sufficient cooling under ambient conditions. Refer to the EV90A705 image below with the four mounting holes marked with red crosses (Figure 1). For optimal RF performance and to ensure the device is not damaged it is essential to provide good thermal dissipation. It is particularly important to consider the device dissipation if running at high RF output power continuously as this can damage the device. It is advised that the best RF performance is observed in a RF pulsed environment. At the operating frequencies of the EV90A705 it is also important to consider the board losses, approximately 0.7 dB at the input and output, for further details on this contact the CML technical support team.

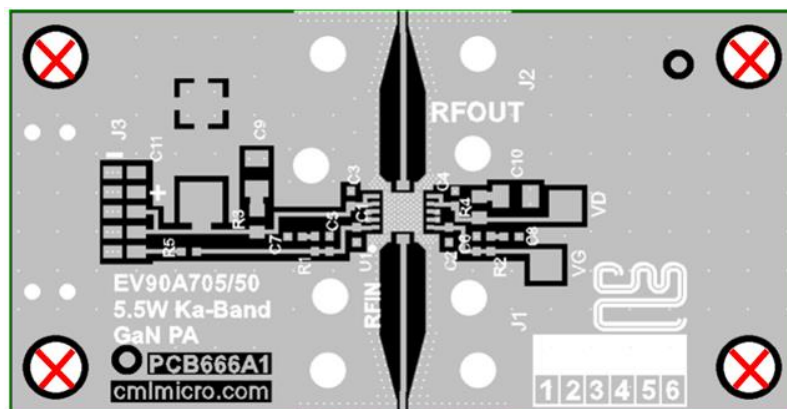


Figure 1 – EV90A705 PCB Top Layer View

The EV90A705 is shipped with 4 fixings in these X positions to ensure the integrity of the board is maintained during transportation and handling. It should be noted that the PCB used for the EV90A705 is a single layer of Isola I-TERA MT40 which is only 8 thou thick, so extra care should be taken when handling the evaluation kit to ensure the board is not damaged by allowing the board to be lifted from the carrier. The surface finish of the board, immersion silver, was chosen for its excellent RF performance, however this will degrade with handling i.e. contact of bare hands on the immersion

silver finish of the boards will cause tarnishing of the surface and exposure to a humid environment can also degrade the surface finish.

If for any reasons the RF connectors are removed (J1 and J2), it is important to take great care when mounting them back on to the PCB/carrier. The alignment of the connectors is best done under a microscope to ensure that the central signal pin is aligned accurately with the RF input/output track. The connector is a compression type, and it is critical in high frequency applications that they are precisely aligned and tightened to the correct torque setting (0.1Nm) for optimal and repeatable RF performance.