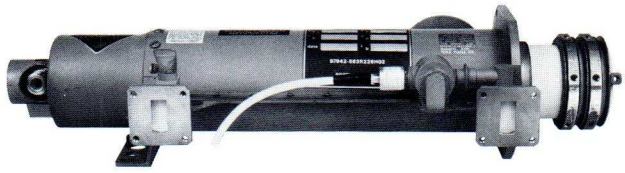
LITTON COUPLED CAVITY TRAVELING WAVE TUBES

Multi-Kilowatt Pulsed

PPM Focused TWTs 2 GHz to 20 GHz



Features

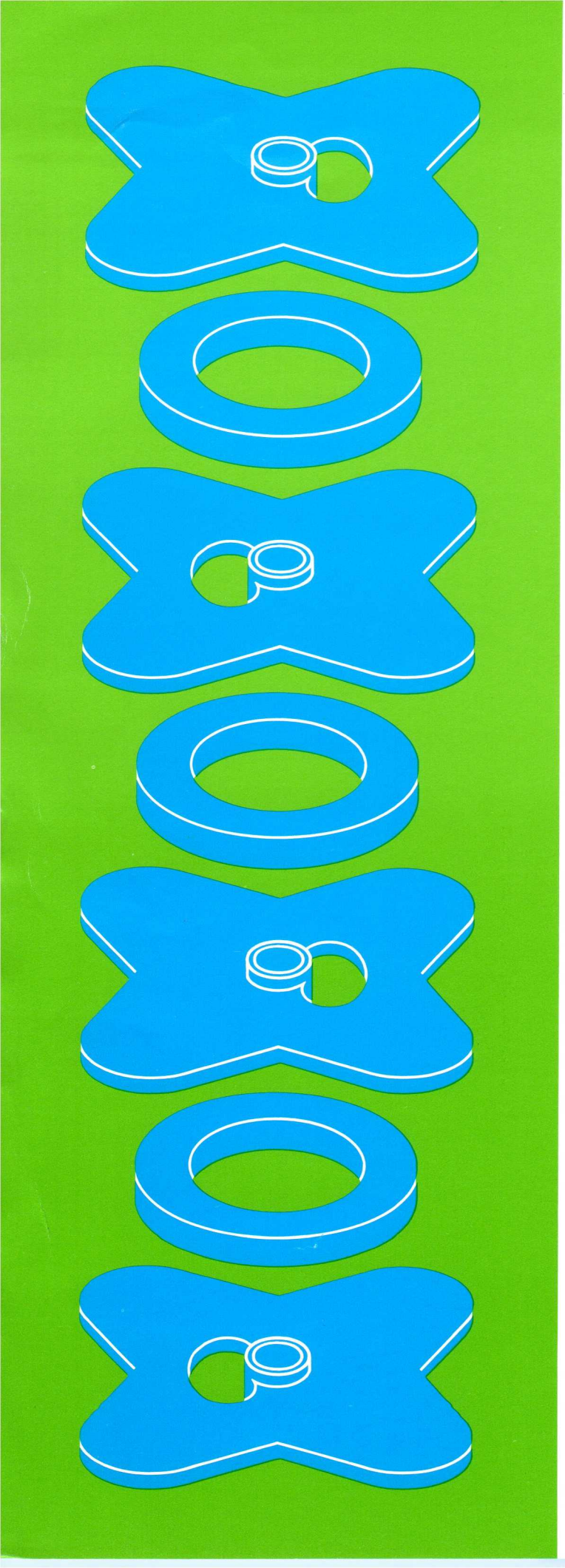
High Average Power

Light Weight

Ruggedness

Excellent Stability

Long Life



Description

Litton Pulsed Coupled Cavity Traveling Wave Tubes produce multi-kilowatts of peak microwave power for radar and ECM applications. The tubes are available in discrete bandwidths from 2 to 50%, at frequencies from 2 to 20 GHz, with pulsed output powers from 1 to 200 kilowatts.

Coupled Cavity Traveling Wave Tubes are rugged, survive the most severe environmental conditions and are the ideal choice for microwave systems requiring high average power and high peak power.

Applications

Specific applications for Litton Coupled Cavity TWTs include use in high resolution radar systems such as airport surveillance, aircraft fire control, air to ground mapping, tracking, etc. They may be employed in threat-oriented ECM systems either as drivers or output tubes. Coupled Cavity Traveling Wave Tubes are used in ground installations and vehicles, on ships, in aircraft and in space.

The Coupled Cavity Circuit

The coupled cavity circuit consists of integral pole pieces and copper spacers forming a series of RF cavities electromagnetically coupled through "kidney" slots. Pole pieces and spacers are brazed together at high temperatures forming a rugged RF circuit. Because of its high thermal conductivity, the circuit is capable of handling high average power. Most modern Coupled Cavity TWTs are PPM (Periodic Permanent Magnet) focused with samarium-cobalt magnets. X or I-Band Coupled Cavity TWTs are capable of producing 1 kilowatt of average microwave power. For higher average powers, the Coupled Cavity TWT may be focused with a wrapped-on solenoid, thereby increasing the average power capability to several kilowatts at X or I-Band.

Many Litton coupled cavity TWTs use the proprietary pill magnet and clover leaf pole piece circuit, in place of the conventional ring magnet and circular pole piece design. This increases the efficiency of the magnetic circuit, while reducing both the weight and the cost.

Carefully designed and controlled loss patterns, using both loss buttons and Litton's proprietary "loss segments," give these tubes excellent stability with uniformly high efficiency over wide frequency ranges.

The Electron Gun

Litton provides Coupled Cavity TWTs with either cathode-pulsed or grid-pulsed guns, depending on customer requirements. In all grid-pulsed guns, the control grid is protected by a shadow grid at cathode potential, which minimizes grid current and allows operation at high duty.

All Litton guns use potted heaters for ruggedness and optimum heat transfer from heater to cathode.