# Abstracts

## A High-Power Ferroelectric Limiter (1964 [MWSYM])

*M. Cohn and A.F. Eikenberg. "A High-Power Ferroelectric Limiter (1964 [MWSYM])." 1964 PTGMTT International Symposium Program and Digest 64.1 (1964 [MWSYM]): 144-149.*

A new type of solid state high-power limiter, which utilizes the large-signal nonlinear characteristics of ferroelectric materials, has been developed. Experimental 218 Mc units have handled peak input power levels in excess of 25 kw while yielding saturated output power levels of about 300 watts and a small-signal insertion loss of 0.5 db. The limiter consists of a symmetrical, loop-coupled, capacity-loaded, coaxial line cavity as shown in Fig. 1. A large portion of the capacity loading is provided by the ferroelectric pellet. Due to the large amount of capacitive loading yielded by the very high dielectric constant ferroelectric material, the cavity length is well under a quarter wavelength. An electric heater is located outside the cavity, but near the ferroelectric pellet, in order to bring the pellet temperature within a few degrees of its Curie temperature. Figure 1 also contains an expanded drawing of the region near the ferroelectric pellet. The power handling capability, saturated power output level, and small-signal insertion loss are determined by the radius (r/sub f/) and height (d/sub f/) of the ferroelectric pellet. High-voltage breakdown in this region is retarded by coating the lateral surfaces of the ferroelectric pellet and its supporting brass posts with corona dope. The entire assembly is also filled with sulfur hexafluoride gas (SF/sub 6/) as a further precaution against high-voltage breakdown.

❑ Return to main document.