Abstracts

Novel asymmetric gate-recess engineering for sub-millimeter-wave InP-based HEMTs

K. Shinohara, T. Matsui, T. Mimura and S. Hiyamizu. "Novel asymmetric gate-recess engineering for sub-millimeter-wave InP-based HEMTs." 2001 MTT-S International Microwave Symposium Digest 01.3 (2001 Vol. III [MWSYM]): 2159-2162 vol.3.

A self-aligned asymmetric gate-recess structure for ultra-high speed InGaAs-InAlAs high electron mobility transistors (HEMTs) is successfully fabricated. A 50 nm T-shaped-gate HEMT with a longer drain-side recess exhibits a much-improved maximum oscillation frequency (f/sub max/) of 503 GHz, while retaining a similarly high current-gain cutoff frequency (f/sub t/) of 307 GHz compared to that with a conventional symmetric recess structure. This result indicates reduced electric field between gate and drain while keeping a small source resistance (R/sub s/) in the developed asymmetrically recessed HEMT.

❑ Return to main document.