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Sommario/riassunto	This work describes the development process of state-of-the-art electrical broadband amplifiers, which are suitable as modulator drivers in electrical time division multiplex (ETDM) systems, operating at 80 Gbit/s. The realization is successfully accomplished in three major development steps: optimization of the transistor geometry of InP-based Double Heterojunction Bipolar Transistors (DHBT), extraction of large- and small-signal models, and design and realization of lumped and distributed amplifiers.