

### Low Noise Amplifiers for D-band

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**Abstract** – Four low noise amplifiers for D-band (110-170 GHz) operation are presented. The amplifier circuits have been manufactured using a 100-nm gate length metamorphic high electron mobility transistor technology. A good agreement between simulations and measurements is verified by on-wafer measurements. Selected amplifiers have been assembled into a split-block waveguide module. The design and performance of the amplifier modules are presented. The amplifier modules exhibit better than 15-20 dB small signal gain with 6.0-7.5 dB noise figure. The bandwidths range from 141-152 GHz to 130-170 GHz.