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标题: One-half milliwatt 2.31 THz continuous-wave QCL operating at 77K
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摘要: THz semi-insulating surface plasmon waveguide QCL's based on the bound-to-continuum design have been developed with 2.31 THz output powers of similar to 0.5 milliwatt from a single facet, input powers of similar to 5 watts, and threshold current densities of 117 A/cm(2) operating continuous wave at 77K. These results were achieved by depositing alloy metal on both contact layers, only annealing the bottom metal layers, and thinning the substrate thickness to similar to 170 mu m to assure good heat dissipation. The structure was based on a previously published 2.83 THz design that was scaled to emit at 2.31 THz. The demonstration of this high temperature, high power laser with low input power enables its use in compact, coherent THz transceivers for heterodyne detection with liquid nitrogen cooling.
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