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Title:Compact fiber-pigtailed InGaAs photoconductive antenna module for terahertzwave generation and detection
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Abstract:We propose a compact fiber-pigtailed InGaAs photoconductive antenna (FPP) module having an effective heat-dissipation solution as well as a module volume of less than 0.7 cc. The heat-dissipation of the FPP modules when using a heat-conductive printed circuit board (PCB) and an aluminium nitride (AlN) submount, without any cooling systems, improve by 40% and 85%, respectively, when compared with a photoconductive antenna chip on a conventional PCB. The AlN submount is superior to those previously reported as a heat-dissipation solution. Terahertz timedomain spectroscopy (THz-TDS) using the FPP module perfectly detects the absorption lines of water vapor in free space and an α-lactose sample. © 2012 Optical Society of America.
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