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标题: Engineering heavily doped silicon for broadband absorber in the terahertz regime
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摘要: Highly efficient absorber is of particular importance in terahertz regime as naturally occurring materials with frequency-selective absorption in this frequency band is difficult to find. Here we present the design and characterization of a broadband terahertz absorber based on heavily Boron-doped silicon (0.7676 Omega cm) grating. It is numerically demonstrated by utilizing both the zero- and first order diffraction in the doped silicon wafer, relative absorption bandwidth larger than 100% can be achieved. Furthermore, the design can be easily extended to higher frequencies as the optical property of doped silicon is tunable through changing the doping concentration. (c) 2012 Optical Society of America
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