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标题: Ultralow power continuous-wave frequency conversion in hydrogenated amorphous silicon waveguides
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摘要: We demonstrate wavelength conversion through nonlinear parametric processes in hydrogenated amorphous silicon (a-Si: H) with maximum conversion efficiency of -13 dB at telecommunication data rates (10 GHz) using only 15 mW of pump peak power. Conversion bandwidths as large as 150 nm (20 THz) are measured in continuous-wave regime at telecommunication wavelengths. The nonlinear refractive index of the material is determined by four-wave mixing (FWM) to be n(2) = 7.43 x 10(-13) cm(2)/W, approximately an order of magnitude larger than that of single crystal silicon. (C) 2012 Optical Society of America
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