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Title:Development of terahertz-wave photomixer module using a uni traveling carrier photodiode

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Abstract:As a promising power source for various terahertz-wave (THz-wave) applications, we have developed a compact, lightweight, high-power, and ultrawideband THz-wave photomixer module using a uni-traveling-carrier photodiode. The module operates at room temperature and exhibits output power of over 0.5 mW at 0.35 THz and a 10-dB-down bandwidth of 260 GHz. Its output frequency can be swept continuously over an extremely wide frequency range in the terahertz band. In this article, we report on the photomixing technique using an ultrahigh-speed, high-power photodiode to generate THz-waves and the development of two versions of the photomixer module.

Number of references:6

Inspec controlled terms:optical communication - photodiodes - submillimetre wave mixers - terahertz wave devices

Uncontrolled terms:terahertz-wave photomixer module - unitraveling carrier photodiode - power source - ultrawideband THz-wave photomixer module - photomixing technique - ultrahigh-speed high-power photodiode - high-speed optical communication systems - frequency 0.35 THz - temperature 293 K to 298 K - bandwidth 260 GHz

Inspec classification codes:B6260 Optical communication - B4250 Photoelectric devices

Numerical data indexing:frequency 3.5E+11 Hz;temperature 2.93E+02 2.98E+02 K;bandwidth 2.6E+11 Hz

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