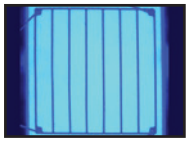
in brief

BIG BLUE

PAGE 1358 Researchers in Korea have reported record high-power operation of a GaN-based blue LED with a single-chip package. By increasing the LED chip dimensions, the package not only achieves very high power but improved efficiency characteristics.



Increased dimensions improves LED output power

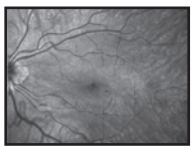
REPEATING RECORD

PAGE 1355 A semiconductor disk laser delivering ultra-short pulses at a record high repetition rate of 200 GHz has been presented by researchers in Finland. An output power of 1 W was achieved with efficient cooling, so the laser can benefit a range of applications, including optical clocking, arbitrary waveform generation and rapid terahertz time-domain spectroscopy.

Efficient cooling and high pulse frequency make the laser suitable for optical clocking

FINE WIDE TUNING

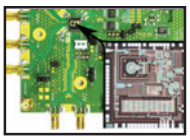
PAGE 1331 Researchers in the US have demonstrated the first integrated MEMS-VCSEL operating near 1060 nm. Their device is capable of continuous singlemode tuning over 100 nm, and combined with the group's previous work on 1310 nm MEMS-VCSELs with 150 nm of tuning, the results show the possibility for extending ultra-tunable laser technology to arbitrary wavelengths.



Tuning ranges for VCSELs are continuing to grow with the help of MEMS technology

DECIMATED CONSUMPTION

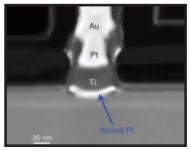
PAGE 1361 The first implementation of a downstream clock and data recovery decimator architecture using Bi-PON is reported in work from Belgium and the US. Bi-PON (bit-interleaving downstream concept for passive optical networks) is a recently reported time division multiplexing concept that allows early decimation of incoming data and lowering of the processing speed to the user rate of the optical network unit, significantly reducing power consumption.



The use of Bi-PON in the architecture allows significant improvement in power consumption

CHANNEL FREQUENCY

PAGE 1352 100 nm gate length InAs PHEMTs with record cut-off frequency of 421 GHz and maximum oscillation frequency in excess of 600 GHz are demonstrated in work from the US. The results were achieved through optimisation of the fabrication process and the use of an InAs sub-channel to mitigate the parasitic delay associated with the extrinsic fringing gate capacitance.



Adjustments in the fabrication process and an InAs sub-channel have led to PHEMTS with record cut-off frequency

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