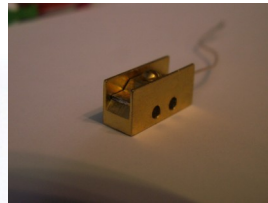


Laser diodes for the spectral range of 3.04–3.60 μm

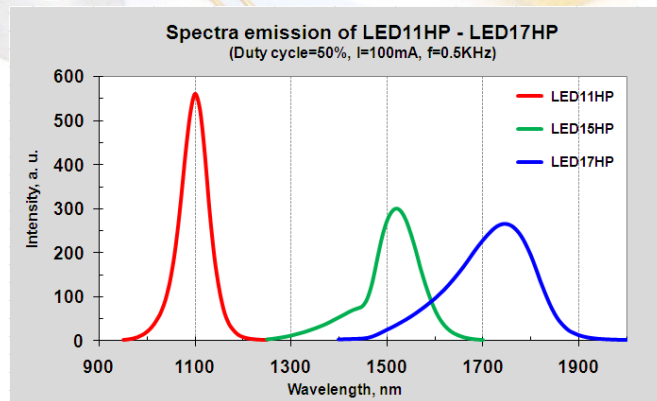
Models LD304...LD360 of laser diodes for the spectral range of 3.04–3.60 μm have been developed. The A^3B^5 -based laser heterostructures were grown by LPE techniques in the InAs–GaSb system. Both single-mode and multi-mode lasers with output optical power of 2–15 mW and operating temperature range of $\Delta T = 77\text{--}15\text{ K}$ are produced.



The single-mode tunable lasers with the wide turning range up to 100 \AA can be applied in DL spectroscopy for measuring the concentration of such industrial and noxious gases as OCS, NH_3 , CH_3Cl and others. This type of laser diodes make it possible to design compact gas sensors with record values of selectivity and sensitivity (at ppb).

High-power LEDs for the spectral range of 1.1–1.74 μm

High-power LED11HP – LED17HP (FWHM = 60 – 200 nm) for the gas detection in the spectral range of 1.1–1.74 μm have been developed. The LEDs demonstrate an output power up to 9 mW in CW mode and 55 mW in pulsed mode, respectively.



Photodiodes with deep thermoelectrical cooling

The design of the photodiodes with deep thermoelectrical cooling for reduction in noise levels and increasing the PD's detectivity has been realized. For 3-stage thermocooler (TEC): maximum temperature drop is $\Delta T=110^\circ\text{ C}$, maximum current is 0.7 A, maximum voltage is 5.7 V. The thermocooler is equipped with a 10 kOhm thermoresistor for temperature control. Sapphire window with an antireflection coating is used for the transmission increasing by 5-7%. This design is recommended for IR photodiodes with sensitive area diameter of 1-2 mm for the spectral range of 2-5 μm .

