

Integratated IR detection modules

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In this paper we present the results of the development of the techniques of integration the infrared detectors with the high speed front-end circuits. The integrated detector consists of: miniature uncooled LWIR/MWIR/SWIR fast detector [1,2], Peltier element and fast low noise transimpedance amplifier. The benefits of the integrated solution compared to the standard IR detection module:

- High speed due to the reduced distance between the amplifier and the detector, which results in decrease of the parastatic inductance and capacitance.
- Improved immunity to the EMI – the preamp is shielded, the uput signal is strong
- Ease of use – the output impedance is standard 50 Ohm – the following amplifier stage may be designed by using common RF techniques

We developed PCB and integration techniques including connection between detector and amplifier, reliable examination of the detector with the preamplifier and hermetic packaging.

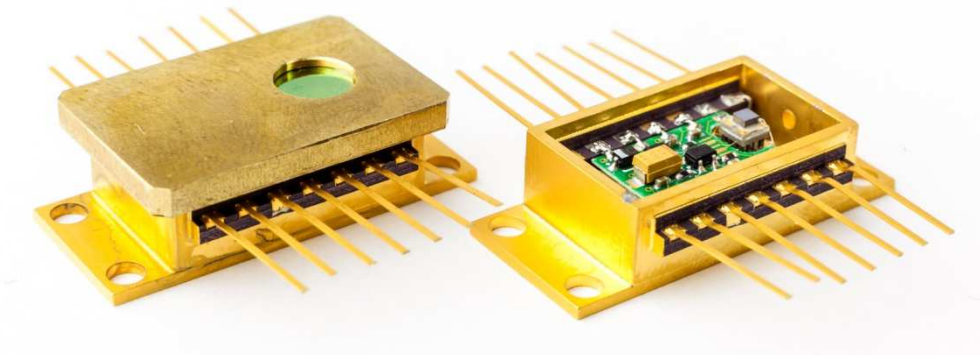


Fig. 41. Integrated IR detection module in 14-pin butterfly package.

Acknowledgement

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References

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