Active heat sinks as a new concept in microelectronics

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We studied the problem of removing heat generated during the operation of electronic products. A number of carried out experiments proved the effectiveness of micro-pumps usage as a cooling device for semiconductor devices, computers, lasers, LED systems, and so on. We have identified some features of the micropumps use. The obtained results are very important for the development of integrated systems (including MEMS technology).

Keywords: *active heat sink, micropump, piezodrive, membrane piezodrive.*

REFERENCES

[1] Kiseev V., Aminev D., Cherkashin V., Murzin R. Dvukhfaznye teploperedayuschie sistemy dlya okhlazhdeniya svetodiodnykh svetilnikov [Two-phase heat transfer system for cooling the LED lamps]. Poluprovodnikovaya svetotekhnika — Solid-State Lighting, 2011, no. 3, pp. 27–31.

[2] www.teplostok-plastic.ru

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