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Laser Microprocessing for LED Industry



The **MULTITECH Ltd.** micromachining specialists have developed an innovation technology of laser intravolume scribing of sapphire substrates (wafers). The technology is specially intended for High Brightness Light Emission Diodes (HB LED) production. The proposed technology has the set of advantages over conventional methods of wafer dicing that are widely applied today: diamond saw dicing and ablation (evaporation of material) scribing by VUV laser.

Main features of our technology:

- Low operation costs;
- High throughput;
- High cutting precision and edge quality;
- Extremely high yield of good chips (96-98%);
- Free of wafer surface evaporation and dusting;
- Free of semiconductor structure contamination;
- Applied laser wavelength cannot cause damage or degradation of semiconductor structure (the known defect of VUV laser scribing);
- Absence of any thermal detriments or thermal stresses;
- No external cooling of treated material is necessary;
- Long longevity of tools;
- High thickness wafer (up to 500 μm) processing;
- Low-power laser (1-st class of laser radiation danger) does not require special protection.

The proposed technology is absolutely new and unique, basing on physical principles that were not applied for LED industry before. Our method of sapphire dicing radically differs from known technologies of laser treatment of sapphire wafers, such as thermal zero-width breaking by CO₂ laser or VUV laser scribing.

Our technology is production-proved and patented.

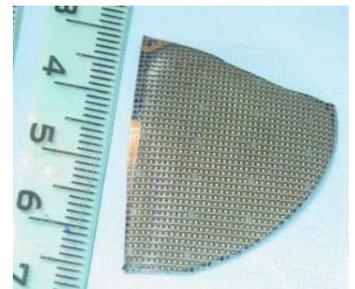
MULTITECH Ltd. is seeking for partnership for joint commercial advancement of technology and wide manufacturing applications. Our primary interest in HB LED manufacturers or technology research developers in this area.

Our company has skills and facilities for production of laser processing equipment as well as laboratory investigations and developments of laser microprocessing technique and technology. Our laboratory-production capabilities allow for laser dicing up to 1000000 chips per a week.

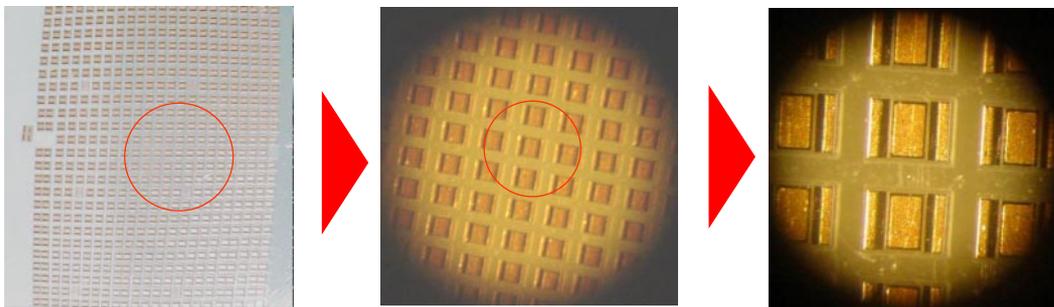
We are open for any proposals of collaboration.



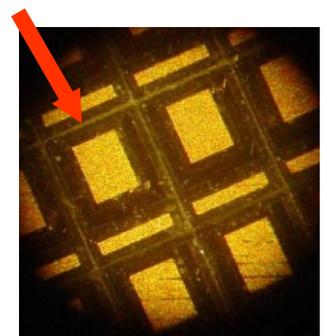
The Sapphire Setup



Diced wafer. 1/4 of plate



Separate chips on the stretched supporting ribbon



Diced wafer. Arrow points at cutting line

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