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(71) Applicant (for all designated States except US): **XSIL  
TECHNOLOGY LIMITED** [IE/IE]; Unit 2, Trinity  
Enterprise Centre, Pearse Street, Dublin 2 (IE).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **BOYLE, Adrian**  
[IE/IE]; 9 Togher Grove, Monasterevin, County Kildare  
(IE).

(74) Agents: **WANT, Clifford, J.** et al.; Harrison Goddard  
Foote, 40-43 Chancery Lane, London WC2A 1JA (GB).

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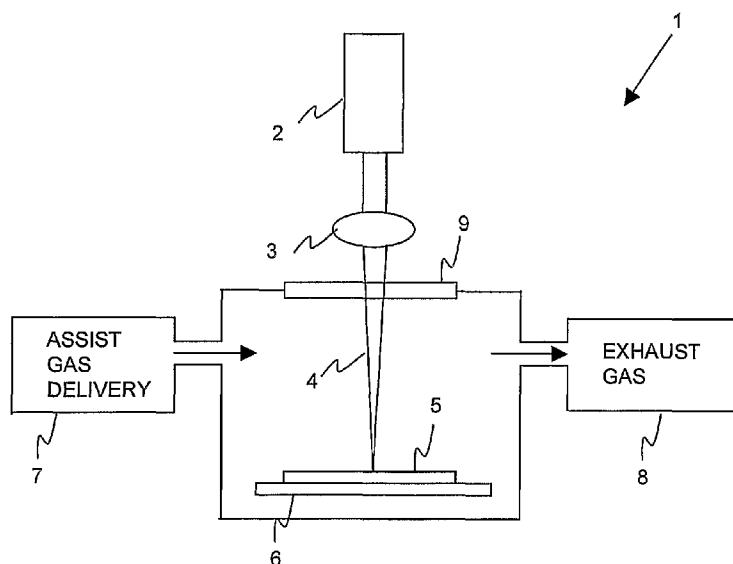
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(54) Title: LASER MACHINING USING AN ACTIVE ASSIST GAS



(57) Abstract: A silicon workpiece 5 is machined by a laser 2 with a laser beam 4 with a wavelength of less than 0.55 microns by providing a halogen environment for the silicon workpiece to form an active assist gas for laser machining. The laser beam is focussed onto the silicon workpiece at a power density above an ablation threshold of silicon so that the assist gas reacts with the silicon workpiece at or near a focus of the laser beam such that laser machining speed is increased and strength of the machined workpiece is increased due to an improvement in machining quality. The invention has particular application in the dicing of a silicon wafer in the presence of sulphur hexafluoride (SF<sub>6</sub>), resulting in increased strength of resultant dies.

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