

Title (en)

MONOLITHIC PRINT HEAD STRUCTURE AND A MANUFACTURING PROCESS THEREFOR USING ANISOTROPIC WET ETCHING

Title (de)

MONOLITHISCHE DRUCKKOPFSTRUKTUR UND HERSTELLUNGSVERFAHREN

Title (fr)

STRUCTURE MONOLITHIQUE DE TETE D'IMPRESSION ET PROCEDE DE FABRICATION FAISANT APPEL A LA GRAVURE HUMIDE ANISOTROPIQUE

Publication

EP 0765240 A1 19970402 (EN)

Application

EP 96910771 A 19960410

Priority

- AU PN230695 A 19950412
- US 9604815 W 19960410

Abstract (en)

[origin: WO9632283A1] A manufacturing process and construction for printing heads which operate using coincident forces, drop on demand printing principles. The print head integrates many nozzles into a single monolithic silicon structure. Semiconductor processing methods such as photolithography and chemical etching are used to simultaneously fabricate a multitude of nozzles into the monolithic head. The nozzles are etched through the silicon substrate, allowing two dimensional arrays of nozzles for color printing. The manufacturing process can be based on existing CMOS, nMOS and bipolar semiconductor manufacturing processes, allowing fabrication in existing semiconductor fabrication facilities. Drive transistors, shift registers, and fault tolerance circuitry can be fabricated on the same wafer as the nozzles. The manufacturing process uses anisotropic wet etching to etch ink channels and nozzle barrels from the back surface of the wafer to the front surface of the wafer. The etching follows the crystallographic planes of the silicon, which result in highly accurate and consistent etch angles using simple etching equipment.

IPC 1-7

B41J 2/16

IPC 8 full level

B41J 2/16 (2006.01)

CPC (source: EP)

B41J 2/16 (2013.01); **B41J 2/1623** (2013.01); **B41J 2/1628** (2013.01); **B41J 2/1629** (2013.01); **B41J 2/1631** (2013.01); **B41J 2/1635** (2013.01); **B41J 2/1642** (2013.01); **B41J 2/1645** (2013.01); **B41J 2202/16** (2013.01)

Citation (search report)

See references of WO 9632283A1

Designated contracting state (EPC)

DE GB

DOCDB simple family (publication)

WO 9632283 A1 19961017; AU PN230695 A0 19950504; EP 0765240 A1 19970402; JP H10501760 A 19980217

DOCDB simple family (application)

US 9604815 W 19960410; AU PN230695 A 19950412; EP 96910771 A 19960410; JP 53108796 A 19960410