

Title (en)  
QUANTUM WELL INTERMIXING

Title (de)  
QUANTENTOPF MISCHUNG

Title (fr)  
MELANGE DE Puits QUANTIQUE

Publication  
**EP 1261986 A1 20021204 (EN)**

Application  
**EP 01907971 A 20010302**

Priority

- SG 0000039 W 20000308
- SG 0000038 W 20000308
- SG 2000047860 A 20000911
- SG 2000047878 A 20000911
- GB 0100904 W 20010302

Abstract (en)  
[origin: WO0167497A1] The present invention provides a novel technique based on gray scale mask patterning (110), which requires only a single lithography and etching step (110, 120) to produce different thickness of SiO<sub>2</sub> implantation mask (13) in selected regions followed by a one step IID (130) to achieve selective area intermixing. This novel, low cost, and simple technique can be applied for the fabrication of PICs in general, and WDM sources in particular. By applying a gray scale mask technique in IID in accordance with the present invention, the bandgap energy of a QW material can be tuned to different degrees across a wafer (14). This enables not only the integration of monolithic multiple-wavelength lasers but further extends to integrate with modulators and couplers on a single chip. This technique can also be applied to ease the fabrication and design process of superluminescent diodes (SLDs) by expanding the gain spectrum to a maximum after epitaxial growth.

IPC 1-7  
**H01L 21/18; H01L 21/266; H01S 5/026**

IPC 8 full level  
**H01L 29/06** (2006.01); **H01L 21/18** (2006.01); **H01L 21/26** (2006.01); **H01L 21/263** (2006.01); **H01L 21/268** (2006.01); **H01L 27/15** (2006.01); **H01L 33/06** (2010.01); **H01L 33/08** (2010.01); **H01L 33/30** (2010.01); **H01S 5/026** (2006.01); **H01S 5/22** (2006.01); **G02B 6/12** (2006.01); **H01S 5/20** (2006.01); **H01S 5/34** (2006.01)

CPC (source: EP KR)  
**B82Y 20/00** (2013.01 - EP); **G02B 6/29361** (2013.01 - KR); **H01L 21/182** (2013.01 - EP); **H01L 29/861** (2013.01 - KR); **H01L 33/0045** (2013.01 - KR); **H01L 33/02** (2013.01 - KR); **H01S 5/026** (2013.01 - EP); **G02B 2006/12128** (2013.01 - EP); **H01S 5/2063** (2013.01 - EP); **H01S 5/2068** (2013.01 - EP); **H01S 5/3413** (2013.01 - EP); **H01S 5/3414** (2013.01 - EP)

Citation (search report)  
See references of WO 0167497A1

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)  
**WO 0167497 A1 20010913**; AU 3583001 A 20010917; AU 3583601 A 20010917; AU 774678 B2 20040701; AU 775026 B2 20040715; BR 0109073 A 20021126; CA 2398301 A1 20010913; CA 2398359 A1 20010913; CN 1416589 A 20030507; CN 1416607 A 20030507; DE 60106575 D1 20041125; EP 1261986 A1 20021204; EP 1262002 A1 20021204; EP 1262002 B1 20041020; HK 1048390 A1 20030328; HK 1048393 A1 20030328; IL 150834 A0 20030212; IL 150835 A0 20030212; JP 2003526918 A 20030909; JP 2004500715 A 20040108; KR 20020086626 A 20021118; KR 20020089386 A 20021129; MX PA02008450 A 20050203; MX PA02008451 A 20040514; WO 0167568 A1 20010913

DOCDB simple family (application)  
**GB 0100904 W 20010302**; AU 3583001 A 20010302; AU 3583601 A 20010302; BR 0109073 A 20010302; CA 2398301 A 20010302; CA 2398359 A 20010302; CN 01806266 A 20010302; CN 01806267 A 20010302; DE 60106575 T 20010302; EP 01907965 A 20010302; EP 01907971 A 20010302; GB 0100898 W 20010302; HK 02109190 A 20021218; HK 02109191 A 20021218; IL 15083401 A 20010302; IL 15083501 A 20010302; JP 2001566173 A 20010302; JP 2001566234 A 20010302; KR 20027011816 A 20020909; KR 20027011820 A 20020909; MX PA02008450 A 20010302; MX PA02008451 A 20010302