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DD LDD SEG(Selective Epitaxial Growth) LDD(Lightly Doped Drain) L

9

, CMOS, LDD , SEG, , LDD

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102 : 104 :

106 : 108 :

110 :            112 : LDD  
 114 : LDD        116 : LDD  
 118 : LDD        120 :  
 122 :            124 :  
 126 :        /  
 128 :

LDD(Lightly Doped Drain)  
 (short channel effect)

가 (short channel effect)    가가    가 (μm)    /    (source/drain) (short channel effect)  
 (effective channel length)가    가    /    가    /    가  
 가    가    가 0.20μm    가    (punch-through)    ,  
 /    가    ,    /    ,  
 (junction leakage current)    ,    /    ,  
 가    ,    ,    가    /

(short channel effect)

LDD(Lightly Doped Drain)

LDD    , LDD    ,    ,    LDD    LDD  
 LDD    ,    ,    LDD    LDD    LDD  
 , /    , SEG    ,    LDD    ,    ,

LDD /

가

1 9 CMOS(Complementary Metal-Oxide-Semiconductor) PMOS NMOS

1 ion) (P-Well) , P (102) (104) NMOS 'p - ' STI(Shallow Trench Isolat (boron) P-

(106) (108) (108) (106)

(110)

2) e Glass) LDD (112) LDD (112) 2 LDD (112) TEOS(TetraEthylOrtho Silicat (10 20 (SiO<sub>2</sub>), SiC, USG(Un-doped Silicate Glass)

200 LDD (114) LDD (112) LDD (114)

(SiOF), SOG(Sping On Glass)

2 14) 114) , LDD LDD LDD (112) (102) LDD (102) LDD (1

, LDD 가 RTP(Rapid Temperature Precess) LDD (114) LDD (114) LDD (112)

(profile) 가 LDD 가 LDD (112)

3 4 resure CVD) , LDD (116) , LDD (116) LPCVD(Low P (no mask) (blanket) (etch back)

LDD (112) LDD 가 (116) 가 (110) (110) LDD (112) LDD (102)

118)가

5 가 (110) LDD (114) LDD (118) 가 LDD (112) , LDD (118) (130)

6 (112) 120) 가 HCl Cl SEG 600 750 SEG(Selective Epitaxial Growth) (110) LDD (114) Si SiGe LDD (Si<sub>2</sub>H<sub>6</sub>) (DCS(DiChloro Silane), SiH<sub>4</sub>) /

7 / / LDD (118) (120) (1

22) (122) (120) , '140a' .  
 8 (annealing) (122)  
 (102) LDD (114) , LDD (114)  
 (124) (110) LDD  
 (114) (124) 가 / (126) , '140b'  
 , /  
 (124) (124) LDD (114) (120)  
 , LDD (114) (124) 6 LDD SEG (120)  
 9 (cobalt) (titanium) ( )  
 , RTP / (126) (110) (metal s  
 self align silicide; 128) RTP  
 (128) .

가 가 가

LDD

(57)

1.

- (a) ;
- (b) LDD ;
- (c) LDD LDD ;
- (d) LDD LDD ;
- (e) LDD ;
- (f) SEG (e) LDD ;
- (g) / ;
- (h) , , LDD /

2.

1 ,  
 LDD LDD TEOS (c) LDD  
 , LDD 20 200

3.  
1

가

4.  
1

Si SiGe

5.  
1

(h)

LDD

6.  
1

LDD

(h)

7.  
1

(h)







