

Doc. No	o.: TD - LO	018-PF-2001		8μm Logic 1P6M Salicide Doc.Rev: Tech Dev Page No.:1/4 V/3.3V Process Flow 0.1T Rev: 0.1
			1.0	0.11 Rev. 0.1
Docum	ent Level:	(For Engineerin	ng & Quality Doo	cument/工程暨品质文件专用)
☐ Level	1 - Manual	☑ Lev	vel 2 – Procedure/S	SPEC/Report
Security	y Level:			
☐ Secur	ity 1 - SMIC	C Confidential	✓ Security	2 - SMIC Restricted
			Docun	nent Change History
Doc.	Tech	Effective	Author	Change Description
Rev.	Dev. Rev.	Date		
0T		2002-3-20	Allen Fan	Initiate
0.1T	0.1	2003-06-10	JianHua_Ju	Add Technology Develop Revision:0.1
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Doc. No.: TD-LO18-PF-2001	Doc. Title: 0.18µm Logic 1P6M Salicide	Doc.Rev:	Tech Dev	Page No.:2/4
	1.8V/3.3V Process Flow	0.1T	Rev: 0.1	

1. Title:

0.18µm Logic 1P6M Salicide 1.8V/3.3V Process Flow

2. Purpose:

Process flow highlights.

3. Scope:

All SMIC Fabs.

4. Nomenclature: NA

5. Reference: NA

6. Responsibility:

TD is responsible before wafer yield and E1 is responsible after wafer yield.

7. Subject Content:

7 1	Wafer Start	P-Type Substrate 8 ~ 12 Ohm -Cm
/	water Start	P-IVNE Slingirate X ~ 17 Unm -Cm

Depth =
$$3500A$$

Liner Oxide =
$$110A$$

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^{7.10} Gate Oxidation 1



7.11 Dual Gate Etching 7.12 Gate Oxidation 2 32A Thin Gate Oxide 7.13 Poly Deposition 2000A 7.14 Poly Patterning Litho/Etch 7.15 Poly Oxidation Litho/1.8V NLDD Implant 7.16 NLDD1 Patterning Litho/1.8V PLDD Implant 7.17 PLDD1 Patterning Litho/3.3V PLDD Implant 7.18 PLDD2 Patterning Litho/3.3V NLDD Implant 7.19 NLDD2 Patterning Litho/3.3V NLDD Implant 7.20 Spacer Deposition Oxide/Nitride/Oxide 7.21 Spacer Etch Width = 900A 7.22 N+ S/D Patterning Litho/Implant 7.23 P+ S/D Patterning Litho/Implant 7.24 ESD Patterning Litho/Implant 7.25 SAB Deposition 350A 7.26 S/D Anneal RTA 7.27 SAB Patterning Litho/Etch 7.28 Co Salicide Formation CoSi2 Thickness = 300A Sheet Resistance (Diffusion) = 6 ohm/sq Sheet Resistance (Poly) = 8 ohm/sq <	
7.12 Gate Oxidation 2 32A Thin Gate Oxide 70A Thick Gate Oxide 70B Thick Gate Oxide	
7.13 Poly Deposition 7.14 Poly Patterning 7.15 Poly Oxidation 7.16 NLDD1 Patterning 7.17 PLDD1 Patterning 7.18 PLDD2 Patterning 7.19 NLDD2 Patterning 7.19 NLDD2 Patterning 7.20 Spacer Deposition 7.21 Spacer Etch 7.22 N+ S/D Patterning 7.23 P+ S/D Patterning 7.24 ESD Patterning 7.25 SAB Deposition 7.26 S/D Anneal 7.27 SAB Patterning 7.28 Co Salicide Formation 7.29 Short Patterning 7.20 Contain Patterning 7.21 Litho/Implant 7.22 P+ S/D Patterning 7.23 P+ S/D Patterning 7.24 ESD Patterning 7.25 SAB Deposition 7.26 S/D Anneal 7.27 SAB Patterning 7.28 Co Salicide Formation 7.29 Short Resistance (Diffusion) = 6 ohm/sq 8 Sheet Resistance (Poly) = 8 ohm/sq	
7.14 Poly Patterning 7.15 Poly Oxidation 7.16 NLDD1 Patterning 7.17 PLDD1 Patterning 7.18 PLDD2 Patterning 7.19 NLDD2 Patterning 7.20 Spacer Deposition 7.21 Spacer Etch 7.22 N+ S/D Patterning 7.23 P+ S/D Patterning 7.24 ESD Patterning 7.25 SAB Deposition 7.26 S/D Anneal 7.27 SAB Patterning 7.28 Co Salicide Formation 7.29 Contact Signature And Sheet Resistance (Poly) = 8 ohm/sq 7.19 NLDD2 Patterning 7.20 Litho/Implant 7.21 Spacer Etch 7.22 Width = 900A 7.23 Litho/Implant 7.24 ESD Patterning 7.25 SAB Deposition 7.26 S/D Anneal 7.27 SAB Patterning 7.28 Co Salicide Formation 7.29 Sheet Resistance (Diffusion) = 6 ohm/sq 8 Sheet Resistance (Poly) = 8 ohm/sq	
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7.29 ILD Deposition TEOS	
7.30 ILD CMP 7500A Remaining	
7.31 Contact Patterning Litho/Etch	
7.32 Glue Layer Deposition Ti/TiN	
7.33 Plug Formation Tungsten	
7.34 M1 Sputtering Ti/AlCu/TiN	
AlCu Thickness = 4000A	
7.35 M1 Patterning Litho/Etch	
7.36 IMD Deposition 1, 2, 3, 4, 5	

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7.37	Via 1, 2, 3, 4, Patterning		Litho/Etch			
7.38	Metal 2, 3, 4, 5 Deposit	on	Ti/AlCu/TiN			
			AlCu Thickness: M2 = 400	00A		
			M3 = 4000A, M4 = 4000A	L		
			M5 = 4000A			
7.39	Metal 2, 3, 4, 5 Patterni	ng	Litho/Etch		. 1	$\mathcal{M}_{\mathcal{A}}$
7.40	Top Via Patterning		Litho/Etch			1 1 1
7.41	Top Metal Deposition		Thickness = $8,000A$	\		
7.42	Top Metal Patterning		Litho/Etch			
7.43	Passivation Deposition		10,000A Oxide/6000A SiN		\mathcal{N}	\ Y
7.44	Passivation Patterning		Litho/Etch			•
7.45	Alloy		Al.			
7.46	Tape Mount (Optional)		4/,			
7.47	Backside Grinding (Opt	ional)	$A \setminus A$			
7.48	DI Megasonic Clean			V		
			All III h			
O A	ttachmant: NA	4	1 //////			
8. A	Attachment: NA					
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