Fabrication Steps	Process	Steps	Description	Tempera		Tim	e(t)	Background Concentration(Nb)	Surface Concentration(Ns)	Xj	D	Dt	No Dose(Q) Drive(Q)
	Wafer Selection		Select P-type +1111+ wafer for the fabrication of CMOS	Celcius 25	Kelvin 298	Seconds	Hours N/A	Atoms/Cm*3 1.00E+15	Atoms/Cm*3	Microns	Cm^2/Sec	Cm^2	AtomsiCm*3 AtomsiCm*2 AtomsiCm*2
Selecting Wafer			· ·										
	Crystal Orientation		Verify the wafer orientation by checking its Primary Flat	25	298	NA	NA	1.005+15					
	Wafer Testing		Apply Hot point probe test and check if the water gives a negative deflection for p-type	25	298	NA	NA	1.005+15					
Wafer Cleaning	RCA 1 Clean		1. Immense the wafer in solution of H20 - NH4OH - H202 in the ratio of 5:1:1 and Wash the wafer in the DI water for 5 min	25	298	300	0.08	1.00E+15					
Water Cleaning	RCA 2 Clean		Interviews the waster in solution of H2O - HCI- H2O2 in the ratio of 6:1:12. Wash the waster in nunning DI waster for 20 min	25	298	1,200	0.33	1.000+15					
	NOA 2 ORBIT		1. There is a see in assess of the Contract of		240	1,200	0.33	1.00213					
	Oxidation		Wafer is undergone through Wet oxidation for 3 Hours at 1100 degree Celoius temperature to give thickness of 1.2 microns	1100	1373	10,800	3.00	1.00E+15					
	Photolithography	Spin	Add Hexamethyldislazane (HMDS) primer which promotes adhesion on Silicon Wefer	25	298	NA	N/A	1.000+15					
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.00E+15					
		Adding Photoresist	Spin on Positive Photoresist(mixture of Diazonaphthoquinone and navaloc resin) on the wafer	25	298	NA	N/A	1.000+15					
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.00E+15					
		UV expose	UV rays are exposed through the mask1 on the wafer	25	298	NA	NA	1.005+15					
		Develop	The exposed wafer is then immersed into the developer solution in order to obtain the mask parters. The mask contains a copy of the pattern that will reserve on the surface of the wafer.					1.005+15					
		Develop	pattern that will remain on the surface of the water.	25	298	NA	NA	1.00E+15					
N-Well Diffusion		Hard Bake	Hardbake the deviced water for 5 minutes in order to harden the photoresist and improve adhesion to the substrate.	130	403	300	0.08	1.00E+15					
		Etching	Use etchant HF ±NNO3 H2O in the ratio of 3.2-50	25	298	N/A	N/A	1.00E+15					
		Strip Photoresist	Strip off photo resist using Solvent removers (Acetone, NMP, CMS) or some ready to use strippers.	25	298	NA	NA	1.00E+15					
		Spin on Dopant	Phosphorous	1100	1373	22,676	6.30	1.005+15	1.006+19	5.00E-04	2.99E-13	6.796-09	
		Soft Bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.005+15					
	Diffusion	Dose	For N-well dose process,use phosphorous with concentration Ns and place it in the diffusion chamber	1100	1373	22,676	6.30	1.00E+15	1.00€+19	5.00E-04	2.99E-13	6.79E-89	1.2E-21 1.1157E+17
		Drive	For N-Well Drive Process, We calculated the DI(TOT) and found the total Drive to be 2.73E+15	1100	1373	22,676	6.30	1.00E+15	1.00€+19	5.00E-04	2.990-13	6.796-09	2.735+15
		Strip Oxide	Dip the water in 40% HF solution to strip the oxide layer.	25	298	N/A	N/A	1.005+15					
	Thin Gate oxide	Oxidation	Flaid oxide growth: Wafer is undergone through wet oxidation for 6min at 900celcius temperature to give thickness of 0.025 microna	900	1173	360	0.10	1.000+15			1.47E-15	5.286-13	
	Chemical Vapour Deposition	LPCVD	Silicon is deposited in an LPCVD system using thermal decomposition of silans. Low pressure systems (25 to 100ps) use either 100% silans or 20 to 30% silans disked with intogen. A temperature of 600etclass results in deposition of polysition material at a rate of 150 Argetomatrias. Keep the substants in CVD Chember or about the to give mirrors polysition silans.	600	873	3,600	1.00	1.005+15			5.23E-21	1.886-17	
	Photolitnography	Spin	Add Hexamethyldislazane (HMDS) primer which promotes adhesion on Silicon Wefer	25	298	NA	N/A	1.000+15					
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.00E+15					
Polysilicon Gate		UV expose	UV rays are exposed through the mask2 on the wafer	25	298	NA	N/A	1.000+15					
			The connect water is then immercial into the receiver										
		Develop	The appoint water is then inversered into the developer exclusion in order to clothin the mask pattern. The mask contains a copy of the pattern but will remain on the surface of the usafer.	25	298	NA	NA	1.00E+15					
		Hard Bake	Handbake the devloped wafer for 5 minutes in order to handen the photoresist and improve adhesion to the substrate.	130	403	300	0.08	1.005+15					
		Etching					NA.						
		Etching	Use atchant HII HNO3 P2CO in the ratio of 3.2:50	25	298	NA	N/A	1.00E+15					
		Strip Photoresist	Strip off photo resist using Solvent removers (Acetone, NMP, DMS) or some ready to use strippers.	25	298	NA	NA	1.005+15					
	Oxidation		Wafer is undergone through Wet oxidation for 2 hours at 1100 Degree Celcius temperature to give thickness of 0.65 microns	1100	1373	7.200	2.00	1.005+15			2.99E-13	2 155.00	
	OARDERON .												
		Spin	Add Hexamethyldisilazane (HMDS) primer which promotes adhesion on Silicon Wafer	25	298	NA	N/A	1.00E+15					
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.005+15					
			Spin on Positive Photoresist(minture of Diazonaph/hoquinone and navaloc resin) on the water	25	298	N/A	N/A	1.00E+15					
		Adung Photoresist	Commercial and the second control of the state of the second production and distribute (1884) on the water	d	298	n/A	neA.	1.000+15					
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.000+15					
	Photolithography	UV expose	UV rays are exposed through the mask3 on the wafer	25	298	NA	NA	1.00E+15					
			The exposed wafer is then immersed into the developer										
		Develop	The exposed suffer in then interneted trick the developer sealation in order to obtain the mask plants. The mask combines as copy of the pattern that will remain on the surface of the water.	25	298	NA	NA	1.00E+15					
N+ Diffusion		Hard Bake	Mandbalke the devloped water for 5 minutes in order to handen the photoresist and improve adhesion to the substrate.	130	403	300	0.08	1.00E+15					
		Etching	Use atchant HF:HN03H2O in the ratio of 3:2:60	25	298	NA	NA	1.005+15					
				25		NA.	NA.						
	Diffusion	Strip Photoresist	Step off photo resist using Solvent removers (Acetone, NWP, DMS) or some ready to use strippers.	25	298	NA	NA	1.00E+15					
		Spin on Dopant	Phosphorous	1100	1373	7,227	2.01	1.00E+15	3.30E+19	3.00E-04	2.99E-13	2.165-09	
		Soft Bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.005+15					
		Dose	For Nº dose process,use phosphorous with concentration Ns and place it in the diffusion chamber	1100	1373	7,227	2.01	1.00E+15	3.30E+19	3.00E-04	2.99E-13	2 945 00	1.2E-21 6.238A2E+16
													MANAGA MA
		Drive	For N+ Drive Process, We calculated the D(TOT) and found the total Drive to be 7.12E+15	1100	1373	7,227	2.01	1.00E+15	3.30E+19	3.005-04	2.99E-13	2.166-09	7.125-15
		Strip Oxidation	Dip the wafer in 40% HF solution to trip the catide layer.	25	298	NA	NA	1.00E+15					
				1000	1273	2,520	0.70	1.00E+15			2.58E-14	65.00.00	
	Oxidation		Wafer is undergone through Dry oxidation for 40 Minutes at 1000 degree Celcius temperature to give thickness of 0.055 microns	1000	1273	2,520	u./0	1.000+15			2.5dE-14	6.51E-11	

		Spin	Add Hexamethyldisilazane (HMDS) primer which promotes adhesion on Silicon Wafer	25	298	NA	N/A	1.00E+15						
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.00E+15						
		Adding Photoresist	Spin on Positive Photoresist(mixture of Diazonaphthoquinone and navaloc resin) on the water	25	298	NA	NIA	1.00E+15						
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.00E+15						
	Photolithography	UV expose	UV rays are exposed through the mask4 on the wafer	25	298	NA	NA	1.00E+15						
		Develop	The exposed wafer is their increased into the developer solution in order to obtain the mask pattern. The mask contains a copy of the pattern that will prevail on the sustace of the wafer.	25	298	NA	N/A	1.000+15						
P+ Diffusion														
P+ Diffusion		Hard Bake	Handbake the devloped water for 5 minutes in order to harden the photoresist and improve adhesion to the substrate.	130	403	300	0.08	1.00E+15						
		Etching	Use etchant HFHNO3H2O in the ratio of 32:50	25	298	N/A	N/A	1.00E+15						
		Elding	Use element for Principation in the raiso of 3.2 to		290	N/A	NA.	1.000.415						
		Strip Photoresist	Strip off photo nesist using Solvent removers (Acetone, NMP, DMS) or some ready to use strippers.	25	298	NA	NA.	1.00E+15						
		Spin on Dopant	Boron	1100	1373	10,885	3.02	1.00E+15	1.006+18 3.0	1.00E-04 2.	990-13 3.	3.265-09		
		Soft Bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.00E+15						
	Diffusion	Dose	For P+ dose process,use boron with concentration Ns and place it in the diffusion chamber	1100	1373	10,885	3.02	1.00E+15	1.00€+18 3.0	100E-04 2.	990-13 3.	3.265-09	3.3E+20	2.12570+16
		Drive	For P+ Drive Process, We calculated the DI(TOT) and found the total Drive to be 1.995+14	1100	1373	10,885	3.02	1.00E+15	1,006+18 3.0	L00E-04 2.1	995-11 3	3.265,00		1.925+14
		Strip Oxidation	Dip the wafer in BOE 7:1 solution to strip the calde layer.	25	298	NA	N/A	1.00E+15						
											47E-15 5.			
	Oxidation		Field Oxide Growth: Wafer is undergone through wet oxidation for 6min at 200celcius temperature to give thickness of 0.025 microns	900	1173	360	0.10	1.00E+15		10	A/E-15 5.	5.288-13		
		Spin	Add Hexamethyldializzane (HMDS) primer which promotes adhesion on Silicon Wafer	25	298	NA	NIA	1.00E+15						
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.00E+15						
		Adding Photoresist	Spin on Positive Photoresist(mixture of Diazonaphthoquinone and navaloc resin) on the water	25	298	NA	N/A	1.00E+15						
		Soft bake	Soft bake it for 30 seconds in an Oven	75	348	30	0.01	1.00E+15						
Contact Holes		our care	SUST LINES E TO JO BELLEVIAN ET AN COVERT		~		451	1.002.13						
	Photolithography	UV expose	UV rays are exposed through the mask5 on the wafer	25	298	NA	N/A	1.00E+15						
			The exposed wafer is then immersed into the developer											
			The exposed wafer is then immersed into the developer solution in order to obtain the mask patiest. The mask contains a copy of the patient that will married on the surface of the safets.	25	298	NA	N/A	1.00E+15						
		Hard Bake	Mardbake the deviceed water for 5 minutes in order to harden the photoresist and improve adhesion to the substate.	130	403	300	0.08	1.00E+15						
		Etching	Use elchant HF:HNO3:H2O in the ratio of 3:2:60	25	298	NA	N/A	1.00E+15						
		Strip Photoresist	Strip off photo resist using Solvent removers (Acetore, NMP; DMS) or some ready to use strippers.	25	298	NA	N/A	1.00E+15						
		STO F TOURSE	and on brond uses ready durant removes a prosence, ready or some ready to use emphasis.		2.00	nan.	NA.	1.002.13						
			Use a thermal evaporator for evaporation of aluminium on to the water Keeping the source temperature at 1400K and pressure at 10^2 to	1217		2,700		1.000+15			46E-12 9.			
	Evaporation	Thermal evaporation	Like a Permit proporator for evaporation of aluminism on to the under Knaping the source temperature at 1400K and pressure a to 17-7 to 170°C for. We use for pressure to evad exaction between proporation attenued between began attenued between burger that process the mean fine parties of responsations to having asset order as the vaccount chamber dimensions, so these particles travel in straight lines from the evopuration source towards the substrate.	1217	1490	2,700	0.75	1.006+15		3.	460-12 9.	9.350-09		
Metalization	Patterning	First marking persone	Microordest printing (LCP) has been used by patient considerancy benefitive used on the market custom supported on silicon. The patient and early proposed considerancy to the considerancy and the patient and early proposed considerancy and early proposed considerancy and early of the considerancy and early proposed considerancy considerancy considerancy considerancy early early proposed considerancy and early proposed considerancy considerancy considerancy considerancy early patients are electrically considerancy considerancy early proposed considerancy considerancy early	25	298	NA	N/A	1.000+15			DUT	TOTAL)		
			water in a ratio of 16:1:12 and allows the nonputterned film to be removed selectively. The patterned AI structures resulting from etching are continuous and electrically conductive within each pattern, and separated patterns are electrically isolated.								Diji	IOIAL)		
									N-	-WELL		2.38E-	os	
										N+		1.48E	OS .	
										P+		1265	os .	
			-By Preetham Ganesh Kamisetty (U97414514)							P+		1.265	os .	
			-By Preetham Ganesh Kamisethy (U974-14514) Ravileja Tiruvojpaty (U86144764) Snehashto Barik (U48807034)							Pt		1.265	as .	
			Preefham Ganesh Kamisethy (U97414514) Rankteja Timoripaty (U88144764) Snehashis Banik (U46867634)							Pe		1,265	os	
			Presham Garenk Kornielly, (URT4 6.5%) Brainigh Through (UR14 6.47%) Sinehashis Barik (U40607634)						-	P+		1.202	os	
			Preetham Carresh Karriseshy (U874145 <sup>5</sup> M) Rantiga Tirusgashy (U874145 <sup>5</sup> M) Sentualwa Barra (U4006752)						•	P+		1200	os	
			Presham Carent Auroraty, USF44 655 Bandes Terroraty, USF44 655 Snehastis Bank (U46667834)							Pi		1.200	os	
			Precham Camenh (Mariest) (URT 4 50%) Barriega Trovogali, URI 144 5746) Snehadris Barris (U46667834)							Pe		1.200	os	
			Presham Garent Krimieth, (UZP14 55%) Raming Through (UZB14 547%) Sinehasha Banis (146667634)							P+		1200	08	
			Presham Carenth Kominsky (USP44 65%) Braning Throught (USP44 57%) Snehastris Bank (U46667834)						-	Pa		1200	03	
			Precham Cament, Komann, USTA's 63% Barrings Throught (USTA's 63%) Snehashis Barris (U46667834)							Pe		1200	OS.	
			Precham Garreth Krimieth, (UST44 SSE) Braingh Through (USH44 FAF) Sinehasha Baris (U46667834							Ps.		1205	os	
			Presham Carenth Kominsky (USP4 e SE <sup>®</sup> ) Brandes Throughel (USP4 e SE <sup>®</sup> ) Snehastris Bank (U46667634)							P		1.208	os	
			Pitesham Camento, Kurnisto, Kutha (MTRE 45%) Braming Throughough (MINES 45%) Senhadria Barik (L46667834)							P		1,268	OS	
			Pitethum Carrello Komiselly (USTA 16 SE) Barriega Trousgolly (USTA 16 SE) Sinehashis Barris (U46867834							P		1200	00	
			Pleatham Carreinth (MITHE 65%) Branking Throuseld (MISH 647Ms) Snehashis Bank (L46667634)							P		1200	OS .	
			Pitesham Camenth (M274 t SS <sup>2</sup> ) Braming Through (M2014 t AF) Significant (M46607634)							P		1206	OS .	
			Piecham Carenth Kominsky (USP4 e SE) Brandys Throught (USP4 e SE) Snehastris Bank (U45667834)							P		1206	05	
			Pleatham Carreint Morracing (USTA 6 SE) Brandas Throusing (USTA 6 SE) Srehashs Bank (U40667634)							P		1.000	OS .	
			Pitesham Camelon (M274 s 52%) Braming Through (M204 s 42%) Senhadria Blank (L46667834)									1200-0-	<b>a</b>	
			Piecham Gareko Korricolo, (UST 44 SSE) Brandes Terrocciolo, (USE 44 SSE) Snehastris Bank (U45667834)									1.505		
			Pleatham Carrein Kominsky (USPE 4 SSE) Brandga Throusing (USPE 4 SSE) Greinatris Bank (U40607634)									1305	ot	
			Piecham Carenth Kominsky (USP44 65%) Brandga Timorgani, USP44 65%) Snehastris Bank (U45667834)									1.505	GE	
			Pleatham Camelan (MUTRE 65%) Brandag Tarvouside (MUTRE 65%) Snehashis Bank (M46667834)									1200	GE	
			Pleatham Counted Konseally (USPE 4 SSE) Brandga Throuseld (USPE 4 SSE) Grathastris Bank (L46667834)									1200	08	
			Piecham Garekh Karrischy (USP4 e SE) Brandp Through(USP4 e SE) Snehadts Bank (U45607834)							~		1.200		
			Pleatham Carreint Municipal (USP4 et SPE) Brandas Throuseld (USP4 et SPE) Srehashs Bank (U46667834)									1.505	00	















