WAFER FABRICATION FLOWCHART

Vendor: Linear Technology Corporation
Product: Generic Bipolar Process
Package: All Package Types
Location of Wafer Fab: Linear Technology Corp., Milpitas, CA./ Camas, WA
Assembly: Linear Technology Corporation Penang, Malaysia, or any approved assembly
Final Test: Linear Technology Corp., Milpitas, CA., Singapore
Q.C. Test: Linear Technology Corp., Milpitas, CA., Singapore
Source Accept Test: Linear Technology Corp., Milpitas, CA., Singapore
Quality Contact: Naib Girn, LTC Milpitas, CA
(408) 432-1900 Ext. 2519

- INCOMING
- QUALITY INSPECTION AND GATE
- MANUFACTURING PROCESS
- QUALITY MONITOR / SURVEILLANCE
- REWORK

FLOW CHART	PROCESS STEP	DESCRIPTION	INSPECTION/TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	INCOMING RAW MATERIAL INSPECTION	WAFERS	VISUAL: SCRATCHES, PITS, HAZE, CRATERS, DIMPLES, CONTAMINATION	1X INSPECTION	1.0% AQL TO 2.5% AQL LEVEL 1	LOGBOOK
			OXYGEN/CARBON MEASUREMENT	INFRARED SPECTROMETER	S/S = 2, ACC = 0	
			RESISTIVITY / CONDUCTIVITY	MAGNETRON V/I METER	S/S = 2, ACC = 0	
			DIMENSIONAL	CALIPERS	2.5% AQL LEVEL 1	
			THICKNESS AND TAPER / BOW	DIAL THICKNESS GAGE	2.5% AQL LEVEL 1	
			ORIENTATION	BREAK TEST	S/S = 1, ACC = 0	
			C OF C VERIFICATION AGAINST “MPS” REQUIREMENTS		EACH BATCH	
		RETICLE	VISUAL C.D. MEASUREMENT		EACH PLATE	
		CHEMICALS	C OF C VERIFICATION AGAINST “”MPS” REQUIREMENTS		EACH BATCH	
		GASES	C OF C VERIFICATION AGAINST “”MPS” REQUIREMENTS			
		TARGETS	C OF C VERIFICATION		EACH TARGET	
	INITIAL OXIDATION	OXIDATION FURNACE	VISUAL	UV LAMP MICROSCOPE INSPECTION	2 WAFERS/RUN < 2 DEFECTS PER FIELD OF VIEW	LOGBOOK
			OXIDE THICKNESS	NANOSPEC	3 WAFERS / CYCLE	
	COLLECTOR MASK	RESIST MASK HF ETCHANT BATH	FINAL INSPECT	OPTICAL MICROSCOPE INSPECTION	“S” PATTERN SCAN OF THE WAFERS	PRODUCTION LOG
	COLLECTOR IMPLANT	IMPLANT	DOSE CHECK	THERMAWAVE	2 WAFERS/LOT	LOGBOOK
	COLLECTOR DIFFUSION	OXIDATION AND DIFFUSION	VISUAL	UV LAMP MICROSCOPE INSPECTION	2 WAFERS/RUN < 2 DEFECTS PER FIELD OF VIEW	LOGBOOK
		FURNACE	OXIDE THICKNESS	NANOSPEC	2 WAFERS / RUN	
			$R_{\square}$	4 POINT PROBE	1 TEST WAFER / RUN	
			XJ		1 TEST WAFER / CYCLE	

FLOW CHART	PROCESS STEP	DESCRIPTION	INSPECTION/TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	EPI	DEPOSIT EPI ASM	VISUAL	UV LAMP	INSPECT 2 WAFERS / RUN	
				INTERFERENCE CONTRAST MICROSCOPE		
			R□	4 POINT PROBE	2 READING/PASS	X Bar & MOVING R
			EPI THICKNESS	FTIR	1 WAFER/LOT	RUN CHART
	EPI RE-OX	OXIDATION FURNACE	VISUAL	UV LAMP	UV INSPECTION	LOGBOOK
				20X MICROSCOPE	2 WAFERS/RUN < 2 DEFECTS PER FIELD OF VIEW	
			OXIDE THICKNESS	NANOSPEC	2 WAFERS/RUN < 2 DEFECTS PER FIELD OF VIEW	
	ISOLATION MASK	RESIST MASK HF ETCHANT BATH	FINAL INSPECTION	OPTICAL MICROSCOPE 100X	“S” PATTERN SCAN OF THE WAFERS	PRODUCTION LOG
	ISOLATION PREDEPOSITION	BORON DEPOSITION FURNACE	VISUAL	UV LAMP	WAFER INSPECTION	TREND CHART
				20X MICROSCOPE	2 WAFERS/RUN <4 DEFECTS/PER FIELD OF VIEW	
			R□	4 POINT PROBE	2 TEST WAFERS/RUN	
	ISOLATION DIFFUSION	DIFFUSION FURNACE	VISUAL	UV LAMP	WAFER INSPECTION	LOGBOOK
				20X MICROSCOPE	2 WAFERS/RUN < 2 DEFECTS PER FIELD OF VIEW	
			R□	4 POINT PROBE	2 TEST WAFERS/RUN	
			TOX	NANOSPEC	2 PRODUCTION WAFERS / RUN	PRODUCTION LOG
	SINKER MASK	RESIST MASK HF ETCHANT BATH	FINAL INSPECT	OPTICAL MICROSCOPE 100X	“S” PATTERN SCAN OF THE WAFERS	
	SINKER PREDEP	DEPOSITION FURNACE	VISUAL	UV LAMP	WAFER INSPECTION	TREND CHART
			R□	4 POINT PROBE	2 TEST WAFERS/RUN	
	SINKER DIFFUSION	DIFFUSION FURNACE	VISUAL	UV LAMP	WAFER INSPECTION	LOGBOOK
				20X MICROSCOPE	<3 DEFECTS PER FIELD OF VIEW	
			R□	4 POINT PROVE	2 TEST WAFERS/RUN	
			TOX	NANOSPEC	2 TEST WAFERS/RUN	
	BASE MASK	RESIST MASK HF ETCHANT BATH	FINAL INSPECT	OPTICAL MICROSCOPE 100X	“S” PATTERN SCAN OF THE WAFERS	X BAR & R
	ISO DIODE CHECK	CURVE TRACER BVCSO	BVCSO	CURVE TRACER	2 WAFERS/RUN	LOGBOOK
	BASE PREDEP	DEPOSITION FURNACE	VISUAL	UV LAMP	2 WAFERS/RUN	X BAR & R
				20X MICROSCOPE	2 WAFERS/RUN <4 DEFECTS/PER FIELD OF VIEW	
			R□	4 POINT PROVE	2 TEST WAFERS/RUN	

FLOW CHART	PROCESS STEP	DESCRIPTION	INSPECTION/TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	BASE DIFFUSION	DIFFUSION FURNACE	VISUAL	UV LAMP	WAFER INSPECTION	TREND CHART
				20X MICROSCOPE	2 WAFERS PER RUN <4 DEFECTS PER FIELD OF VIEW	
			R□	4 POINT PROBE	2 TEST WAFERS/RUN	
			TOX	NANOSPEC	2 PRODUCTION WAFERS PER RUN	
	EMITTER MASK	RESIST MASK HF ETCHANT BATH	FINAL INSPECT	OPTICAL MICROSCOPE 100X	“S” PATTERN SCAN OF THE WAFERS	PRODUCTION LOG
	CB DIODE CHECK	CURVE TRACER	BVCBO	CURVE TRACER	2 WAFERS PER LOT	LOGBOOK
	EMITTER DIFFUSION	DEPOSITION FURNACE	R□	4 POINT PROBE	2 TEST CHIP/CYCLE	LOGBOOK
			BETA/LV	CURVE TRACER	3 SITE PER WAFER EVERY FOURTH WAFER >2 READINGS OUT OF SPEC	
	CONTACT MASK	RESIST MASK HF ETCHANT BATH	FINAL INSPECT	OPTICAL MICROSCOPE 100X	“S” PATTERN SCAN OF THE WAFERS	PRODUCTION LOG
				1000X	CRITICAL DIMENSION MEASURE. 2 WAFERS PER RUN LOT, ACCEPT ON 0 FAILURES	TREND CHART
	METAL DEPOSITION	DEPOSITION SPUTTER MACHINE	VISUAL	UV LAMP	<5 DEFECTS/WAFER 100%	X BAR & R
			R□ / THICKNESS	4 POINT PROBE	2 READINGS / PASS	
	METAL MASK	RESIST MASK ETCHANT BATH	FINAL INSPECT	OPTICAL MICROSCOPE 200X	“S” PATTERN SCAN OF THE WAFERS	PRODUCTION LOG
				1000X	CRITICAL DIMENSION MEASURE. 2 WAFERS PER RUN LOT, ACCEPT ON 0 FAILURES	CD LOGBOOK
	ALLOY	ANNEAL FURNACE	VISUAL	UV LAMP	2 WAFERS PER LOT	LOGBOOK
	ELECTRICAL TEST	TO EVALUATE ELECTRICAL PARAMETERS LOMAC			EVERY WAFER	LOGBOOK
	LPOM	PASSIVATION LPCVD FURNACE	VISUAL	UV LAMP	100%, MORE THAN 2 COLOR CHANGE IS FAIL	
				10X MICROSCOPE	3 WAFER/CYCLE <3 DEFECTS/PER FIELD OF VIEW	
			TOX	NANOSPEC	3 WAFERS/CYCLE	
			PHOSPHOROUS CONCENTRATION	10:1 HP ETCH RATE	3 WAFERS/CYCLE	
	PEN	PECVD NITRIDE DEPOSITION FURNACE	VISUAL	UV LAMP	100%, MORE THAN 2 COLOR CHANGE IS FAIL	TREND CHART
				10X MICROSCOPE	2 WAFERS/RUN <5 DEFECTS PER FIELD OF VIEW	
			THICKNESS	NANOSPEC	3 WAFERS/CYCLE	
			INDEX OF REFRACTION	ELIPSOMETER	3 WAFERS/CYCLE	

FLOW CHART	PROCESS STEP	DESCRIPTION	INSPECTION/TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	PAD MASK	RESIST MASK RF PLASMA ETCH & OXIDE WET ETHCANT BATH	FINAL INSPECT	OPTICAL MICROSCOPE 100X	"S" PATTERN SCAN OF THE WAFERS	PRODUCTION LOG
	ELECTRICAL TEST	EVALUATE ELECTRICAL PARAMETERS			100%	LOGBOOK
	BACKLAP	DISCO	N/A	N/A	N/A	LOGBOOK
	BACKSIDE METAL	BACKSIDE METALLIZATION	VISUAL	UN-AIDED EYE	100%	LOGBOOK
	SEM	STEP COVERAGE	2 PHOTOS	SCANNING ELECTRON MICROSCOPE	1 WAFER PER WEEK	LOGBOOK
		GENERAL METALLIZATION	1 PHOTO			