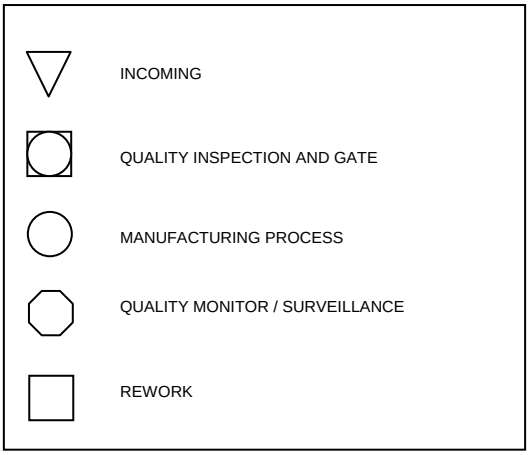
ASSEMBLY FLOWCHART
SOIC PACKAGE
Updated 08/25/08

Vendor:	Linear Technology Corporation
Package:	SOIC Package
Location of Wafer Fab:	Linear Technology Corp., Milpitas, CA. /Camas, WA.
Assembly:	Penang/Carsem/Unisem-Malaysia, UTAC Thailand
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



FLOW CHART INCOMING ASSY REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	WAFER SORT	100% DIE LEVEL ELECTRICAL TEST REJECTS ARE INKED		WAFER PROBER		
	WAFER SORT MONITOR	MONITOR PROBING AND 2ND OPTICAL QUALITY	PROBE DEFECTS 2ND OPTICAL DEFECTS	75X MICROSCOPE	MINIMUM OF 1 TIME PER SHIFT. S/S = 1, ACC = 0	LOG
	KIT FOR OVERSEAS ASSEMBLY (N/A FOR PENANG)	WAFERS ARE KITTED WITH LTC BONDING DIAGRAM AND LTC ASSEMBLY TRAVELER				
	WAFER MOUNT	PREPARATION FOR DIE SEPERATION	VISUAL INSPECTION	UNAIDED EYE	3 WAFERS/SHIFT Ø PPM TARGET	GO/NO GO INSPECTION
	WAFER MOUNT MONITOR					
	WAFER SAW	DIE SEPERATION	ALIGNMENT ACCURACY	TV ALIGNMENT MICRO AUTOMATION OR DISCO SAW 10X TO 30X MICROSCOPE	EVERY WAFER LOT / MACHINE, Ø PPM TARGET	LOG
	BACTERIA COUNT	BACTERIA CULTURE	10 COL / 100 CC	BACTERIA CULTURE	1X PER WEEK	LOG
	SET-UP CHECK	INSPECTION	PER SPEC	VISUAL	EA WAFER LOT	LOG
		BLADE LIFE	45K IN SAW LINE	COUNT USAGE	N/A	LOG
		SAW KERF	1.0 TO 2.2 MILS	TM MICROSCOPE OR EQUIVALENT	ONCE PER SHIFT 4 CUTS PER MACHINE	nP CHART
	PARAMETERS	PRESSURE, SPEED, CUT COUNT	PER SPEC	VISUAL	1X PER SHIFT	LOG
	PARAMETERS	PRESSURE, SPEED, CUT COUNT	PER SPEC	VISUAL	1X PER WEEK	LOG
	DI WATER QUALITY	RESISTIVITY	12 M OHM MIN	RESISTIVITY METER	1X PER WEEK	LOG

Revision B.

FLOW CHART INCOMING ASSY REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	DIE SORT 2ND OPT	VISUAL INSPECTION	PER SPEC	75X MICROSCOPE	YIELD TRIGGER 93.0%	LOG
	DIE SORT BUY OFF	VISUAL INSPECTION	PER SPEC	75X MICROSCOPE	32 / LOT ACC =Ø, REJ = 1	LOG
	DIE ATTACH	DIE BONDED WITH EPOXY	PER SPEC	AUTO DIE ATTACHER 20X MICROSCOPE	1 STRIP/MAG ACC = Ø, REJ = 1	LOG
	DIE PLACEMENT	VISUAL	PER SPEC	20X TO 40X MICROSCOPE	1 STRIP/WAFER LOT ACC = Ø, REJ = 1	LOG
	DIE BACK CRACK	VISUAL	PER SPEC	75X TO 200X MICROSCOPE	4 UNITS/WAFER LOT CHIPS, CRACKS	LOG
	DIE ATTACH MONITOR	VISUAL QUALITY	DIE SHEAR TESTER	30X TO 60X MICROSCOPE	3 UNITS PER OVEN LOAD	nP CHART
	RESIN BLEED	VISUAL		20X TO 40X MICROSCOPE	2 STRIPS/OVEN/DAY ZERO BLEED	LOG
	EPOXY CURE	CURE TEMP	EPOXY CURE +175°C +/-5°C	PYROMETER / TC	1X/DAY	LOG
	WIRE BOND	BALL BONDS	GOLD WIRE	AUTO THERMOSONIC BALL BONDER 20X TO 40X	10 UNITS/LOT ACC = Ø, REJ = 1	LOG
	SURVEILLANCE	VISUAL	PER SPEC	20X TO 40X MICROSCOPE	10 UNITS/MAG ACC = Ø, REJ = 1	LOG
	PARAMETERS	VISUAL	PER SPEC		1X PER LOT	LOG
	CAPILLARY LIFE	VISUAL	COUNT USAGE		EVERY 6 SHIFTS (<800K BONDS)	
	SET-UP	VISUAL		20X TO 40X MICROSCOPE	10 UNITS / LOT ACC = Ø, REJ = 1	LOG
	WIRE BOND MONITOR	WIRE PULL	5GM(1MIL), 7GM (1.3MIL), 8GM(1.5 MIL), 12GM(2MIL), 15GM(3MIL)	BOND PULL TESTER	EACH LOT / CAP CHANGE (ALL WIRES)	X BAR R CHART
	BALL SHEAR	VISUAL	35GM(1MIL), 40GM (OTHER SIZES)GND BOND 60GM(1MIL) 80GM(1.3MIL), 120GM(1.5MIL)	BALL SHEAR TESTER	EACH LOT / CAP CHANGE (5 WIRES INCLUDING GND BONDS)	X BAR R CHART
	PARAMETERS	VISUAL	(POWER, FORCE TIME, TEMP)		1X / DAY	LOG
	BOND PEEL TEST	VISUAL	>25% AU REMAINING	75X MICROSCOPE	1 WIRE/MACH/DAY	LOG
	BOND CRATER	VISUAL	NO CRATERING	75X MICROSCOPE	1X/MACH/DAY (10 UNITS)	LOG
	3RD OPTICAL INSPECTION	VISUAL INSPECTION	PER SPEC	20X TO 40X MICROSCOPE	YIELD TRIGGER 95%	LOG
	QA 3RD OPTICAL INSPECTION	CHECK FOR WORKMANSHIP QUALITY	PER SPEC	MIN 30X MICROSCOPE	12S PER LOT ACC = Ø, REJ = 1 (MRB>10%, 3 X REJ)	LOG

Revision B.

FLOW CHART INCMING ASSY REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	DIE COAT (WHERE APPLICABLE)	SETUP CHECK	PER SPEC	VISUAL	EACH LOT	LOG
		SURVEILLANCE	PER SPEC	10X TO 30X MICROSCOPE	1 STRIP / MAG	LOG
		PENETRATION	PER SPEC	PENETROMETER	EACH PREP	LOG
	DIE COAT QA BUYOFF	COAT DEFECTS	PER SPEC	10X MICROSCOPE	300 / LOT ACC = Ø, REJ = 1	LOG
	NEEDLE TEST	VISUAL	CURE TEST	CURE TESTER	CURE CONDITION	LOG
	DIE COAT OVEN	PARAMETER	+150°C, 3 HRS	OVEN	1X/SHIFT/OVEN	nP CHART
	THINCOAT HEIGHT	VISUAL	PER SPEC	TOOLMAKERS	EACH LOT	nP CHART
	MOLD - EPOXY NOVOLAC	ENCAPSULATION PARAMETERS	PER SPEC	VISUAL	1X / SHIFT	CHECKLIST
	SURVEILANCE	VISUAL	PER SPEC	MIN 3X	1 SHOT / LOT ACC = Ø, REJ = 1	CHECKLIST
	TEMPERATURE	MOLD TEMP	+175°C +/- 5°C	PYROMETER	1X/SHIFT/MACH/ MOLD CHANGE	X BAR R CHART
	SURVEILLANCE	VISUAL	PER SPEC	30X TO 40X MICROSCOPE	6 STRIPS/MACH/ SHIFT/CONVERSION	
	COMPOUND AGEING CHECK	VISUAL	AGE LIFE	VISUAL	1X / SHIFT	
	MISMATCH	OFFSET	<1.0MIL(SOIC)	TOOLMAKER'S	1X/DAY/MC 4 UNITS/SHOT	LOG
	PARAMETERS	PRESS, SPEED	PER SPEC	VISUAL	1X / MACH / DAY 1X/DAY	LOG
	MOLD QUALITY	XRAY VISUAL	SWEEP,VOIDS WIRE DEFECTS	SOFT XRAY	EVERY LOT 20 UNITS ACC = Ø, REJ = 1	LOG
	POST MOLD CURE	TEMPERATURE	+175°C +/- 5°C 6 HOURS	PYROMETER	CONTINUOUS	
	POST MOLD CURE MONITOR	TEMPERATURE	+175°C +/- 5°C 6 HOURS	PYROMETER	1X/OVEN/DAY	
	SLURRY DEFLASH VISUAL	REMOVE MOLD FLASH FROM PACKAGE	PER SPEC	UNAIDED EYE	2X/SHIFT/PKG CHANGE - 5 STRIPS ACC = Ø, REJ = 1	LOG
	DEFLASH MONITOR	PRESSURE	PER SPEC	PRESSURE GAGE	2X/SHIFT/MACH	LOG
	MARKING	VISUAL INSPECTION	PER SPEC	UNAIDED EYE	2 STRIPS/3X/SHIFT ACC = Ø, REJ = 1	LOG
	SET-UP CHECK	VISUAL	PER SPEC		1X / SHIFT	CHECKLIST
	PERMANENCY	MARK PERMANENCY	1 SOLUTION	UNAIDED EYE	1 LOT/MACH/SHIFT 11 UNITS ACC = Ø, REJ = 1	LOG
			3 SOLUTIONS	UNAIDED EYE	1X/WEEK(11 UNITS/ SOLUTION ACC = Ø, REJ = 1	
	IR, VISCOSITY	VISUAL	PER SPEC		1X / SHIFT	nP CHART

Revision B.

FLOW CHART INCMNG ASSY REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	SOLDER PLATE INSPECTION	PARAMETERS	PER SPEC	UNAIDED EYE	1X/PKG/SHIFT	LOG
		THICKNESS AND COMPOSITION	300 - 800 u INCH 85% ±10%	XRF	1X/SHIFT/MACH / CHANGE OF SOLDER BATH - MIN OF 10 READINGS	nP CHART
		SOLDERABILITY (W&WO AGING)	95% COVERAGE	20X TO 40X MICROSCOPE	1X / SHIFT 10 UNITS	LOG
		PACKAGE CLEANLINESS	1.7 µG/INCH SQUARED	IONOGRAPH	3 LOTS / SHIFT 3 TESTS / LOT	LOG
	SOLDER PLATE BUYOFF	VISUAL	SOLDER QUALITY ETC	3X TO 10X MICROSCOPE	S/S = 125 ACC = Ø, REJ = 1	LOG
	TRIM & FORM SINGULATION	SET-UP CHECK	PER SPEC	UNAIDED EYE	5 UNITS / SHIFT 2 UNITS / LOT ACC = Ø, REJ = 1	CHECKLIST
		COPLANARITY LEAD SPREAD STANDOFF	PER SPEC	COMPARATOR	1X / DAY / MACH 5 UNITS	nP CHART
		LEAD FATIGUE	PER SPEC	LEAD TESTER	1X / WK / MACH 2 LEADS	LOG
	CRACK / GAP BUYOFF	VISUAL	PER SPEC	30X TO 45X MICROSCOPE (SINGULATED)	45 / LOT / CONVERSION 200/1ST LOT OF SHIFT ACC = Ø, REJ = 1	LOG
	DELAMINATION / CRACK	VISUAL	PER SPEC	SCANNING ACOUSTIC MICROSCOPE (STRIP FORM)	MIN 2 LOTS/SHIFT/ MACHINE ACC = Ø, REJ = 1	LOG
	DEJUNK	SET-UP CHECK	PER SPEC	UNAIDED EYE	5 UNITS / SHIFT 2 UNITS / LOT ACC = Ø, REJ = 1	LOG
		VISUAL	PER SPEC	30X TO 40X MICROSCOPE	45 UNITS HOURLY / CONVERSION 100 UNITS/1ST LOT OF SHIFT ACC = Ø, REJ = 1	LOG
	FINAL VISUAL INSPECTION	VISUAL QUALITY	PER SPEC	UNAIDED EYE	100% - YIELD TRIGGER 95.0%	LOG
	QA FINAL VISUAL INSPECTION	CORRECT MARK, MARKING PERMANENCY TEST (IF INK MARKED) VISUAL: BENT LEADS MOLD FLASH, SOLDER QUALITY ETC	PER SPEC	UNAIDED EYE	S/S = 125 ACC = Ø, REJ = 1	LOG
	QA PACK & DOCUMENTATION CHECK	PACKING & PREPERATION FOR DELIVERY	PER SPEC	UNAIDED EYE	5 TUBES ACC = Ø, REJ = 1	LOG
	SHIP TO LTC	ANTISTATIC TUBES			EVERY LOT 100% BASIS	

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