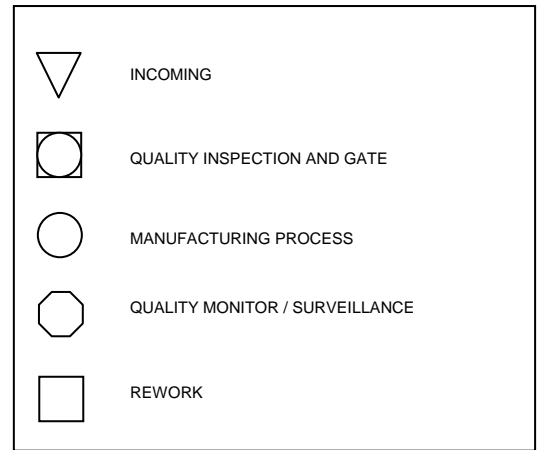


**ASSEMBLY FLOWCHART
PLASTIC DIP PACKAGE
Updated 08/25/08**

Vendor: Linear Technology Corporation
 Package: PLASTIC DIP Package
 Assembly: Penang /Carsen/Unisem-Malaysia & AAPI, & AMKOR
 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 WAFER MOUNT MONITOR	PREPARATION FOR DIE SEPERATION	VISUAL INSPECTION	UNAIDED EYE	3 WAFERS/SHIFT Ø PPM TARGET	GO/NO GO INSPECTION	
	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	

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	125 PER LOT ACC = Ø, REJ = 1 (MRB>10%, 3X REJ)	LOG

Revision A.

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FLOW CHART INCOMING ASSY REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE	
	DIE COAT (WHERE APPLICABLE)	SETUP CHECK SURVEILLANCE PENETRATION	PER SPEC PER SPEC PER SPEC	VISUAL 10X TO 30X MICROSCOPE PENETROMETER	EACH LOT 1 STRIP / MAG EACH PREP	LOG LOG LOG	
		DIE COAT QA BUYOFF NEEDLE TEST DIE COAT OVEN THINCOAT HEIGHT	COAT DEFECTS VISUAL PARAMETER VISUAL	PER SPEC CURE TEST +150°C, 3 HRS PER SPEC	10X MICROSCOPE CURE TESTER OVEN TOOLMAKERS	300 / LOT ACC = Ø, REJ = 1 CURE CONDITION 1X/SHIFT/OVEN EACH LOT	LOG LOG nP CHART nP CHART
		MOLD - EPOXY NOVOLAC	ENCAPSULATION PARAMETERS	PER SPEC	VISUAL	1X / SHIFT	CHECKLIST
SURVEILLANCE		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 3 SOLUTIONS	UNAIDED EYE UNAIDED EYE	1 LOT/MACH/SHIFT 11 UNITS ACC = Ø, REJ = 1 1X/WEEK(11 UNITS/ SOLUTION ACC = Ø, REJ = 1	LOG	
	IR, VISCOSITY	VISUAL	PER SPEC		1X / SHIFT	nP CHART	

Revision A.

FLOW CHART INCOMING ASSY REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE	
	SOLDER PLATE INSPECTION	PARAMETERS THICKNESS AND COMPOSITION SOLDERABILITY (W&WO AGING) PACKAGE CLEANLINESS	PER SPEC 300 - 800 u INCH 85% ±10% 95% COVERAGE 1.7 µG/INCH SQUARED	UNAIDED EYE XRF 20X TO 40X MICROSCOPE IONOGRAPH	1X/PKG/SHIFT 1X/SHIFT/MACH/ CHANGE OF SOLDER BATH - MIN OF 10 READINGS 1X / SHIFT 10 UNITS 3 LOTS / SHIFT 3 TESTS / LOT	LOG nP CHART LOG 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 COPLANARITY LEAD SPREAD STANDOFF LEAD FATIGUE	PER SPEC PER SPEC PER SPEC	UNAIDED EYE COMPARATOR LEAD TESTER	5 UNITS / SHIFT 2 UNITS / LOT ACC = Ø, REJ = 1 1X / DAY / MACH 5 UNITS 1X / WK / MACH 2 LEADS	CHECKLIST nP CHART LOG
			CRACK / GAP BUYOFF	VISUAL	PER SPEC	30X TO 45X MICROSCOPE (SINGULATED)	45 / LOT / CONVER- SION 200/1ST LOT OF SHIFT ACC = Ø, REJ = 1
		DELAMINATION/ CRACK	VISUAL	PER SPEC	SCANNING ACOUSTIC MICROSCOPE (STRIP FORM)	MIN 2 LOTS/SHIFT/ MACHINE ACC = Ø, REJ = 1	LOG
	DEJUNK	SET-UP CHECK VISUAL	PER SPEC PER SPEC	UNAIDED EYE 30X TO 40X MICROSCOPE	5 UNITS / SHIFT 2 UNITS / LOT ACC = Ø, REJ = 1 45 UNITS HOURLY/ CONVERSION 100 UNITS/1ST LOT OF SHIFT ACC = Ø, REJ = 1	LOG 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 & DOCUMENTA- TION 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		

Revision A.