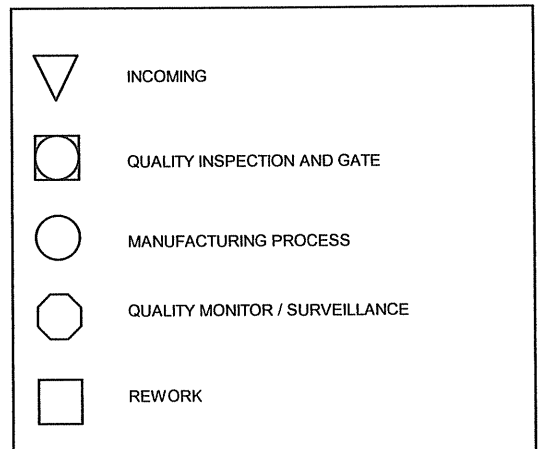

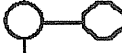




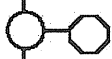


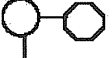
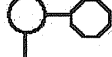


**ASSEMBLY FLOWCHART
DD PACK
Updated 08/25/08**

Vendor: Linear Technology Corporation
 Package: DD PACK
 Assembly: Penang & Carsem Malaysia
 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 Ginn, 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
	INCOMING RAW MATERIAL INSPECTION	WAFERS CHEMICALS GASES	VISUAL: SCRATCHES PITS, HAZE, CRATERS DIMPLES, CONTAMINATION OXYGEN/CARBON MEASUREMENT RESISTIVITY/ CONDUCTIVITY DIMENSIONAL THICKNESS AND TAPER/BOW ORIENTATION C of C VERIFICATION AGAINST "MPS" REQUIREMENTS PLUS YEARLY GAS ANALYSIS	1 X INSPECTION INFRARED SPECTROMETER MAGNETRON V/I METER CALIPERS DIAL THICKNESS GAUGE BREAK TEST	1.0 % AQL TO 2.5% AQL LEVEL 1 S/S = 2, ACC = Ø S/S = 2, ACC = Ø 2.5% AQL, LEVEL S1 2.5% AQL, LEVEL S1 S/S = 1, ACC = 0 EACH BATCH EACH BATCH	% LAR TREND CHART AND % DEFECTIVE TREND CHART
	WAFER SORT WAFER SORT MONITOR	100% DIE LEVEL ELECTRICAL TEST REJECTS ARE RED INKED MONITOR PROBING AND 2ND OPTICAL QUALITY	PROBE DEFECTS 2ND OPTICAL DEFECTS	WAFER PROBER 3X TO 75X MICROSCOPE	MINIMUM OF 3 TIMES PER SHIFT. S/S = 1, ACC = 0	% DEFECTIVE TREND CHART
	KIT FOR OVERSEAS ASSEMBLY	WAFERS ARE KITTED WITH LTC BONDING DIAGRAM AND LTC ASSEMBLY TRAVELER				
	INCOMING PIECE PARTS INSPECTION	LEAD FRAME	VISUAL MECHANICAL FUNCTIONAL (ASSEMBLY PROCESS SIMULATION): BOND PULL TEST DIE SHEAR TEST	10X TO 30X MICROSCOPE OPTICAL COMPARATOR, CALIPERS, X-RAY FLOURESCENCE	1% AQL, LEVEL 2	% LAR TREND CHART

Revision A.

FLOW CHART INCOMING FAB REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	WAFER SAW WAFER SAW MONITOR	DIE SEPERATION	ALIGNMENT ACCURACY SAW QUALITY SAW ACCURACY	TV ALIGNMENT MICRO AUTOMATION OR DISCO SAW 10X TO 30X MICROSCOPE 10X TO 30X MICROSCOPE	6X PER SHIFT, S/S = 1 WAFER, ACC = Ø S/S = 50 DIE, ACC = Ø	% DEFECTIVE TREND CHART nP CHART
	100% 2ND OPTICAL INSPECTION	DIE QUALITY	DIE VISUAL QUALITY	75X MICROSCOPE	EVERY LOT 100% BASIS	YIELD ANALYSIS
	QA 2ND OPTICAL INSPECTION		DIE VISUAL QUALITY	75X MICROSCOPE	LTPD = 5% S/S = 45, ACC = Ø	% LAR AND % UNIT DEFECTIVE TREND CHART
	DIE ATTACH DIE ATTACH MONITOR	DIE BONDED TO LEAD FRAME WITH Pb/Sn WIRE	VISUAL QUALITY DIE SHEAR TEST	AUTO DIE BONDER 10X TO 30X MICROSCOPE DIE SHEAR TESTER	S/S = 1 STRIP PER WAFER, PER HOUR	nP CHART % DEFECTIVE TREND CHART X BAR & R DIE SHEAR STRENGTH CHART
	WIRE BOND WIRE BOND MONITOR	BALL BONDS GOLD 2.00 MIL WIRE	DEFECTS BOND PULL STRENGTH	AUTO THERMOSONIC BALL BONDER 10X TO 30X MICROSCOPE BOND PULL TESTER	SS = 100 EVERY HOUR, ACC = Ø EVERY SET-UP AND 1 TIME PER SHIFT	nP CHART % DEF. TREND CHART. X BAR & R WIRE BOND STR. TREND CHART
	100% 3RD OPTICAL INSPECTION	CHECK FOR WORKMANSHIP QUALITY PRIOR TO MOLDING	DIE, DIE BOND, WIRE BOND VISUAL QUALITY	30X TO 60X MICROSCOPE	EVERY LOT 100% BASIS	YIELD CHART
	QA 3RD OPTICAL INSPECTION		ASSEMBLY VISUAL QUALITY	30X TO 60X MICROSCOPE	EVERY LOT LTPD = 5% S/S = 45, ACC = Ø	% LAR AND % UNIT DEFECTIVE TREND CHART

Revision A.

FLOW CHART INCOMING ASSY REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	MOLD	ENCAPSULATION WITH EPOXY NOVOLAC.		TRANSFER MOLD	5 TIMES PER SHIFT PER MOLD 1 SHOT, ACC = Ø	nP CHART
	MOLD MONITOR	MOLDING QUALITY	VISUAL: CHIP, VOID AND CRACKS; MISALIGNMENT ETC.	30X TO 60X MICROSCOPE		% LAR TREND CHART LOGBOOK.
	POST MOLD BAKE	CURE MOLDING COMPOUND		BAKE IN +175°C OVEN FOR 6 HOURS	1X PER DAY	X BAR & R
	MOLD BAKE MONITOR	PROCESS MONITOR	CHECK OVEN TEMPERATURE	MOLD CURE IN OVEN	EACH OVEN AT START AND 1 TIME PER SHIFT	% FAILED MONITOR TREND CHART
	SLURRY DEFLASH	REMOVE MOLD FLASH FROM PACKAGE	L/F & HEATSINK MUST BE FREE FROM MOLD FLASH			
	DEFLASH MONITOR	PROCESS MONITOR	VISUAL: INCOMPLETE DEFLASH, PACKAGE DAMAGE	7X TO 30X MICROSCOPE	2 STRIPS EVERY 2 HOURS, ACC = Ø	% UNIT DEFECTIVE TREND CHART
	SOLDER PLATE	LEAD FINISH			2X PER SHIFT	
	SOLDER PLATE INSPECTION	SOLDER PLATE QUALITY	COVERAGE, THICKNESS, QUALITY	UN-AIDED EYE	100%	% DEFECTIVE TREND CHART
	SOLDERABILITY TEST	SOLDER PLATE QUALITY	MINIMUM 95% COVERAGE	3X TO 10X MICROSCOPE	S/S = 11, ACC = Ø	% LAR CHART
	MARK	TRACEABILITY, DATE CODE & DEVICE MARKING		OFFSET MARKING WITH MARKEM 7224 OR LASER MARK	EVERY HALF HOUR, S/S = 15 UNITS, ACC = Ø PER MACHINE.	
	MARK MONITOR	CHECK MARKING QUALITY	VISUAL: ILLEGIBLE MARK, CORRECT MARK, MARKING PERMANENCY TEST (IF INK MARKED)	UN-AIDED EYE, 6 INCHES UNDER. NORMAL ROOM LIGHTING METHOD: 2015 MIL-STD-883	2 TIMES PER SHIFT PER MACHINE. S/S = 20, ACC = Ø	% UNIT DEFECTIVE P.A. TREND CHART
	TRIM & FORM SINGULATION	SINGULATE UNIT AND PLACE IN ANTISTATIC TUBE	VISUAL: BENT LEAD, PACKAGE DAMAGE	ASM AUTO MACHINE 7X TO 30X MICROSCOPE	2 STRIPS PER SHIFT	LOGBOOK
	FINAL VISUAL INSPECT	100% INSPECT	VISUAL: BENT LEADS MOLD FLASH, SOLDER QUALITY ETC	UN-AIDED EYE TO 10X MICROSCOPE	EVERY LOT 100% BASIS	% LAR AND % UNIT DEFECTIVE P.A. TREND CHART
	PACK	PACKING & PREPERATION FOR DELIVERY		ANTI-STATIC SHIPPING TUBE		
	SHIP TO LTC					

Revision A.