









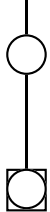
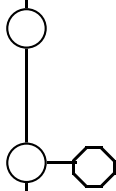
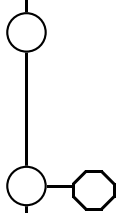
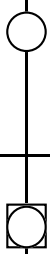
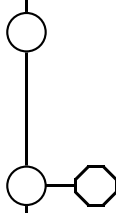


**ATTACHMENT 2.
ASSEMBLY FLOWCHART**

Vendor: Linear Technology Corporation
Product: Bipolar Process
Package: 3 Lead SOT-223
Location of Wafer Fab: Linear Technology Corp., Milpitas, CA./ Camas, WA.
Assembly: Carsem/Unisem 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: Dwight Somerset, LTC, Milpitas, CA.
 (408) 432-1900 Ext. 2427

-  **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 ASSY	REWORK						
		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 I S/S = 2, ACC = Ø S/S = 2, ACC = Ø 2.5% AQL, LEVEL 1 2.5% AQL, LEVEL 1 S/S = 1, ACC = 0 EACH BATCH EACH BATCH	% LAR TREND CHART AND % DEFECTIVE TREND CHART
 		WAFER SORT	100% DIE LEVEL ELECTRICAL TEST REJECTS ARE RED INKED		WAFER PROBER		
		WAFER SORT MONITOR	MONITOR PROBING AND 2ND OPTICAL QUALITY	PROBE DEFECTS 2ND OPTICAL DEFECTS	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 FLOURESENCE	1% AQL, LEVEL 2	% LAR TREND CHART

FLOW CHART INCOMING FAB REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	100% 2ND OPTICAL INSPECTION	DIE QUALITY	DIE VISUAL QUALITY	75X MICROSCOPE		
	QA 2ND OPTICAL INSPECTION		DIE VISUAL QUALITY	75X MICROSCOPE	EVERY LOT 100% BASIS	YIELD ANALYSIS
	DIE ATTACH	DIE BONDED TO LEAD FRAME WITH Pb/Sn PREFORM		AUTO DIE BONDER	LTPD = 5% S/S = 45, ACC = Ø	% LAR AND % UNIT DEFECTIVE TREND CHART
	DIE ATTACH MONITOR		VISUAL QUALITY DIE SHEAR TEST	10X TO 30X MICROSCOPE DIE SHEAR TESTER	S/S = 3 STRIPS PER WAFER, 2 UNITS PER OVEN LOAD, ACC = Ø PER BONDER	nP CHART % DEFECTIVE TREND CHART X BAR & R DIE SHEAR STRENGTH CHART nP CHART
	WIRE BOND	BALL BONDS GOLD 2.00 MIL WIRE	DEFECTS	AUTO THERMOSONIC BALL BONDER	SS = 30 EVERY 1/2 HOUR, ACC = Ø	
	WIRE BOND MONITOR		WIRE DRESS BOND PULL STRENGTH	10X TO 30X MICROSCOPE BOND PULL TESTER	2 TIMES PER SHIFT	% DEF. TREND CHART. X BAR & R DIE SHEAR 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
	MOLD	ENCAPSULATION WITH EPOXY NOVOLAC	VISUAL: CHIP, VOID AND CRACKS, MISALIGNMENT ETC	TRANSFER MOLD	5 TIMES PER SHIFT PER MOLD 1 SHOT, ACC = Ø	nP CHART
	MOLD MONITOR	MOLDING QUALITY		30X TO 60X MICROSCOPE		% LAR TREND CHART

FLOW CHART INCOMING ASSY REWORK	PROCESS STEP	DESCRIPTION	INSPECTION/ TEST CRITERIA	METHOD & EQUIPMENT	SAMPLING PLAN	SPC TECHNIQUE
	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
	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	X & MOVING R CHART
	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
	TRIM & FORM SINGULATION	SINGULATE UNIT AND PLACE IN ANTISTATIC TUBE	VISUAL: BENT LEADS, PACKAGE DAMAGE	HANI AUTO MACHINE 7X TO 30X MICROSCOPE	2 STRIPS PER SHIFT	LOGBOOK
	MARK	DATE CODE & DEVICE MARKING		OFFSET MARKING WITH MARKEM 7226 OR LAZER 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
	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					