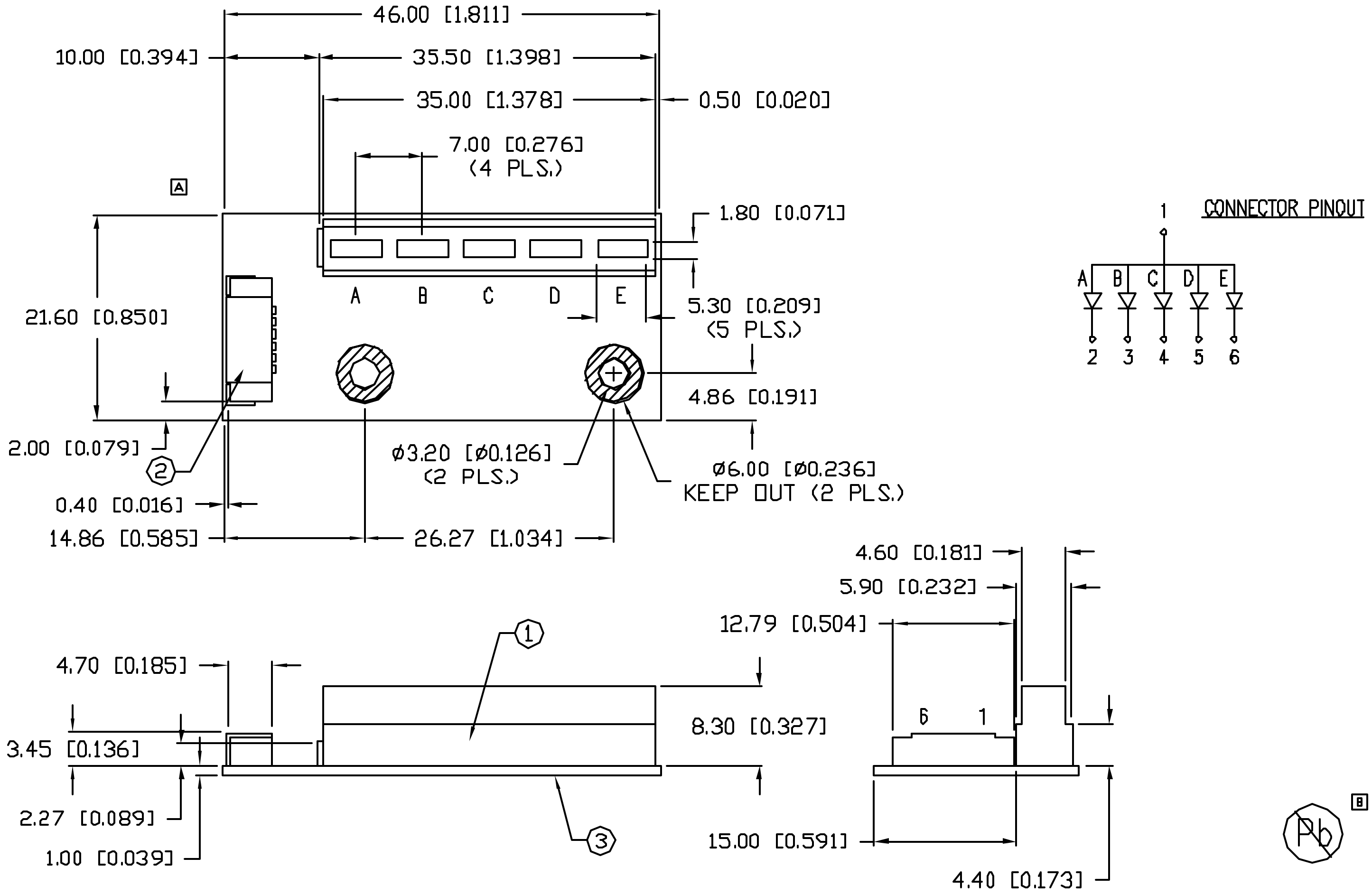
UNCONTROLLED DOCUMENT

PART NUMBER	REV.
SSA-LXB525GD-ASM	B

REV.	E.C.N. NUMBER AND REVISION COMMENTS	DATE
A	E.C.N. #11139.	6.22.04
B	E.C.N. #11357.	10.17.06



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*UNLESS OTHERWISE SPECIFIED TOLERANCES PER DECIMAL PRECISION ARE: X=±1 (±0.039), X.X=±0.5 (±0.020), X.XX=±0.25 (±0.010), X.XXX=±0.127 (±0.005). LEAD SIZE=±0.05 (±0.002), LEAD LENGTH=±0.75 (±0.030). MIN= $^{+DECIMAL\ PRECISION}_{-0.00}$ MAX.= $^{+0.00}_{-DECIMAL\ PRECISION}$

REV.	PART NUMBER
B	SSA-LXB525GD-ASM

5 UNIT LED ARRAY ASSEMBLY, 565nm GREEN LEDS, CUSTOM PCB WITH AMP CONNECTOR.

RELIABILITY NOTE
OUR MANY YEARS OF EXPERIENCE DATA ACCUMULATION INDICATE THAT SOLDER HEAT IS A MAJOR CAUSE OF EARLY AND FUTURE FAILURE. PLEASE PAY ATTENTION TO YOUR SOLDERING PROCESS.

LUMEX INC.
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A

DRAWN BY:	CHECKED BY:	APPROVED BY:	
JC			DATE: 10.17.06 PAGE: 1 OF 1 SCALE: N/A

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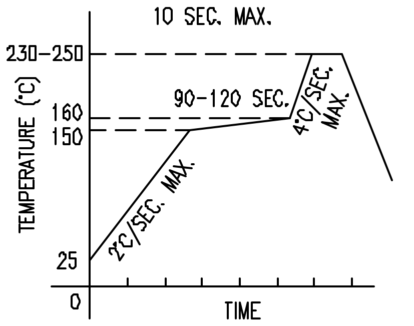
SSA-LXB525GD-ASM	B

REV.	E.C.N. NUMBER AND REVISION COMMENTS
	SEE PAGE 1.

B LEAD FREE REFLOW PROFILE

USED TO SOLDER TYCO CONNECTOR TO PCB



TOTAL TIME ABOVE 200°C IS 30 SECONDS MAX.

ELECTRO-OPTICAL CHARACTERISTICS T_A=25°C I_f= 20mA

PARAMETER	MIN	TYP	MAX	UNITS	TEST COND
PEAK WAVELENGTH		565		nm	
FORWARD VOLTAGE		2.2	2.6	V_f	
REVERSE VOLTAGE	5.0			V_r	I_r=100μA
AXIAL INTENSITY		20		mcd	I_f= 20mA
VIEWING ANGLE		60		2x theta	
EMITTED COLOR:	GREEN				
EPOXY LENS FINISH:	GREEN DIFFUSED				

LIMITS OF SAFE OPERATION AT 25°C PER LED

PARAMETER	MAX	UNITS
PEAK FORWARD CURRENT*	150	mA
STEADY CURRENT	25	mA
POWER DISSIPATION	105	mW
DERATE FROM 25°C	-1.6	mW/°C
OPERATING, STORAGE TEMP.	-40 TO +85	°C
SOLDERING TEMP.	+260	°C
2.0mm FROM BODY		3 SEC. MAX

* t<10μS

NOTES:

1. SSA-LXB525GD.
2. AMP CONNECTOR 1734261-6
3. PCB.
4. LEDS MATCHED FOR COLOR AND INTENSITY.
5. B CONNECTOR SOLDER PASTE: ASAHI ACS-LF980K2
6. INSPECT SOLDER FOR PROPER REFLOW

Pb B

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JC			

The inspection standards of sending parts to warehouse and shipping for products of system

A. Scope: Available for LED/SMD/lamp Dot matrix parts to warehouse.

B. Constructure: The parts with same P/N are finished can be treated in one lot. For the convenience of transportation, it can be packed ot be one bag or box.

C. Method of inspection:
   1. Sample standard: To decide sampling size/plan per MIL-STD-105E
   2. Same P/N: The sample size will be double if there was 2 lots rejected continuously. Except the sample quantity doubled, will need to file 'Unusual Coordinate Note' for production dept to follow to correct. And the note will be avoided only if the new coming 4 shipments have been successfully accepted/passed.

D. Supporting tools/equipment:
   1. Power Supply.
   2. Power box
   3. Caliper

E. Flow chart:
   Packing---Sampling plans---Electrical testing and visual inspection---Check quantity and P/N ---File report—Send to warehouse

F. Notes for explanation:
   1. Parts of dot matrix and tin dip parts will need to send to QA.
   2. QA does sampling testing per sample plan authorized by top supervisor(ref any notes from customer)
   3. Use power supply/power box to light up to do electrical testing and do visual inspection on outlooking.
   4. Check quantity, and count total quantity. The number from counting must match with the number in production travel sheet or +2-0 is the acceptable tolerance.
   5. File 'Send to warehouse report' when parts are OK or return back to production department.
   6. Finish QA inspection report.

G. Judgement of inspection standards:
   (1) Electrical Inspection
   1. Open circuit/short circuit/reverse polarity
      Standard: The LED should be lighted up well or no lighting.
   2. Improper chip
      Standard: The emitting color was found wrong obviously.
   3. Vf too low
      Standard: Per the spec
   4. Leakage IR
      Standard: To test all LED lamps by VR at 5V and the leakage IR must be within spec.
   5. Too dim or uneven in emitting color
      Standard: When to light up a dot matrix, the Iv of some parts are less than the 1/4 of average Iv is so called dim. Use 8x8 standard testing dot matrix module and found the uneven in brightness.(refer to the bin grading info)

   (2) Appearance Inspection
   1. Improper P/N
      Standard: All the part #s in the same lot must be exactly same.

2. Mixed parts:
   Standard: No parts with other P/N can be mixed into the lot.
3. Improper placement/missing components:
   Standard: The LED lamps are misplaced and caused the wrong emitting. Found unneeded and maybe missing components.
4. Wrong dimension:
   Standard: dimensions are out of spec.
5. Bubble
   Standard: No bubble should be seen in the bowl/cup of leadframe; one bubble can be allowed and it must be smaller than 0.06mm for LED lamp with dia 5mm or greater; and the bubble must be smaller than 0.04mm for LED lamp with dia smaller than 5mm.
6. contamination:
   Standard: No dirt/contamination should be seen/found inside of leadframe; the contamination mibe less than 0.06mmfor LED lamp with dia 5mm or greater, and the contamination must be smaller than 0.04mm for LED lamp with dia smaller than 5mm.
7. Scratch
   Standard: No scratch is allowed at top of LED dome ;and the scratch on side of emitting area must be smaller than 0.04mm on emitting area for LED lamp with dia 5mm or up and the scratch must be less than 0.02mm for LED lamp is smaller than 5mm; and the scratch in non-emitting area can be less than 0.06mm for 5mm LED lamp and 0.04mm for LED lamps with dia smaller than 5mm.

8. **Improper Soldering of LEDs's**
   Standard: Solder Fillet should appear smooth and exhibit good wetting of the solder to the lead and the land area.
   - Outline of the lead is visible
   - Fillet is concave in shape
   - There is solder present on 75% of the land area

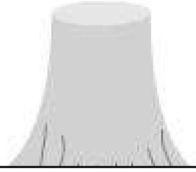


Figure 1: Solder Fillet, lead and Land Area

9. **Improper Soldering of Connector**
   Standard: The solder paste is fully reflowed and wetted the entire length of the lead. Solder should be shiny and not dull/dark in color.

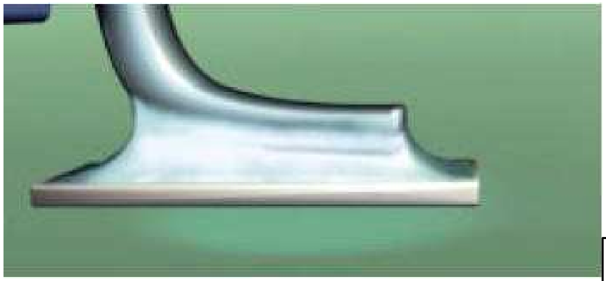


Figure 2: Acceptable Fillet

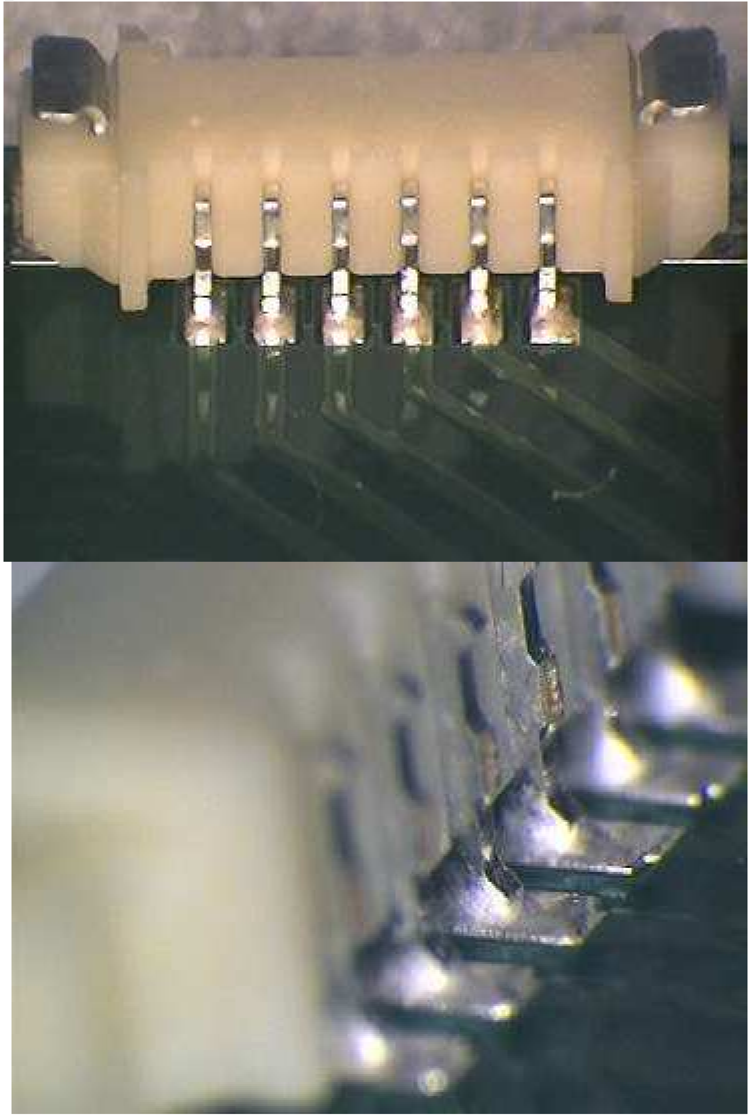
Figure 3: Unacceptable…It is not reflowed and Solder Balls are present

Unacceptable:

Solder Balls: Solder balls are not acceptable. Refer to Figure: 3

Solder Bridges: Two(2) or more leads cannot be soldered/joined together

Open Solder Joints: Leads must be soldered to the land area. Refer to Figure: 2.



Figures 4/5: Properly soldered and cleaned connector.

10. **Contamination on PCB**
    Standard: Both front and backsides of PCB must be cleaned well. No grease material or excess epoxy should be seen. No white residue should seen on the PCB and/or between the leads of the connector.

Figure 4: Unacceptable - White residue between the leads

11. Evenness on soldering ball
    Standard: The soldering ball must be even, nor too high, nor too low. It must be shiny, not dark should be seen. The color of ball should be shiny/smooth and no any shortage/weak(false) soldering/soldering jumping over status should be found.
12. Wrong label/tag
    Standard: Found no label/tag on bag/box; or wrongly in capital/small letter; or didn't follow the coding instruction from customer.
13. Wrong quantity:
    Standard: The quantity from counting must be matched with the number read from the production travel note and the number collected from outside of cartons.
14. Wrong packing
    Standard: The packing method didn't' match the spec and didn't match the requirement from BOM.
15. Harmful chemical material verification
    Standard: Offer the SGS reports which are issued by the lab/bureau verified by National Government Office(The validity is lasting for 1 year) and we can offer reports gotten by using XRF if customer requires reports.