CEL California Eastern Laboratories

MeshConnect
LED Daughter Card Demo

April 2010

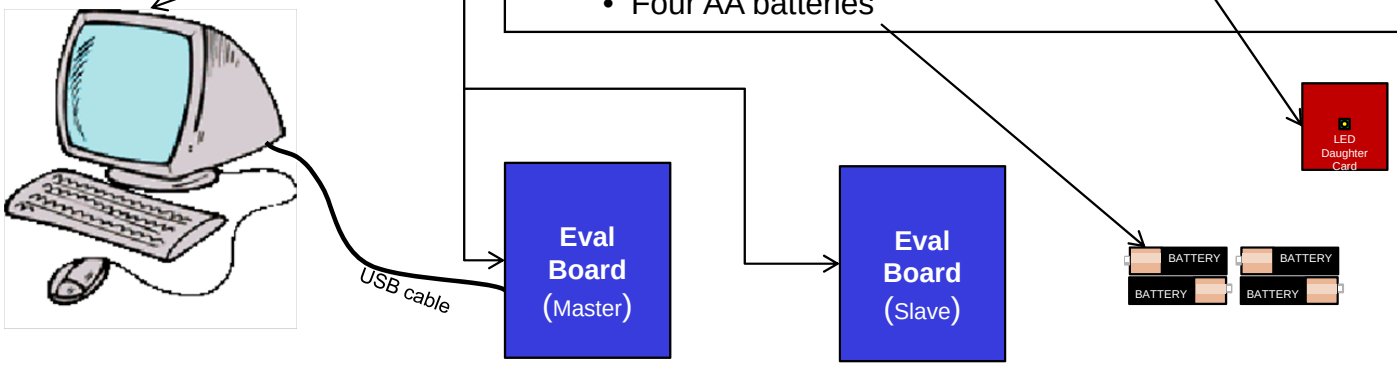
LED Daughter Card Demo

Assembly & Set-Up Sequence

Purpose of Demo: To demonstrate use of MeshConnect modules, together with Cree LED and Linear LED Driver.

Hardware Required:

- One Computer (used only for programming evaluation boards)
- USB cable
- Two Evaluation Boards (including the MeshConnect Module.)
- One MeshConnect LED Daughter Card
- Four AA batteries



Assembly & Set-Up Sequence:

1. Connect each eval board to a PC using a USB cable. The **Master Board** will be controlling the **Slave Board**, which will hold the **MeshConnect LED Daughter Card**.

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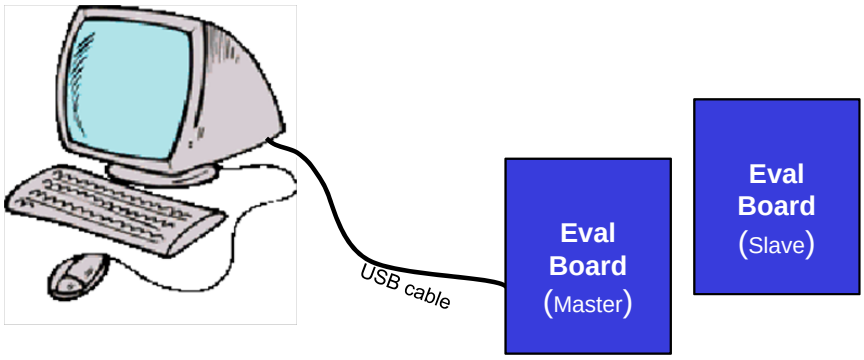

2. For first time use of evaluation boards, you will need to load the USB drivers onto your computer.

3. Program SNAP onto each eval board, making sure that each one has a unique MAC address.

Note: For instructions on how to program SNAP, see the *SNAP Quick Start Guide,* found on your kit CD or on www.CEL.com under **8012.15.4**; **Software Downloads**
(Link: http://www.cel.com/downloads.do?command=showByType&group=5)

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4. Up-load scripts onto each eval:

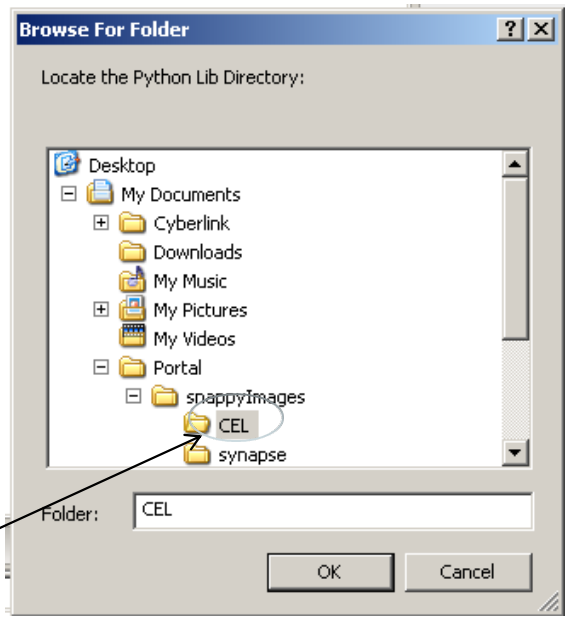
   a. The name of the script to up-load for the Master Board is "**LTC-SWITCH.py**".

   b. The name of the script to up-load for the Slave Board is "**LTC-LIGHT.py**".

   c. See the *SNAP Quick Start Guide* for step-by-step instructions on how to up-load scripts.

   d. The scripts can be downloaded from CEL's website at: http://www.cel.com/downloads.do?command=showByType&group=5

   e. The scripts will need to reside in a folder called "**CEL**", which you may need to create.



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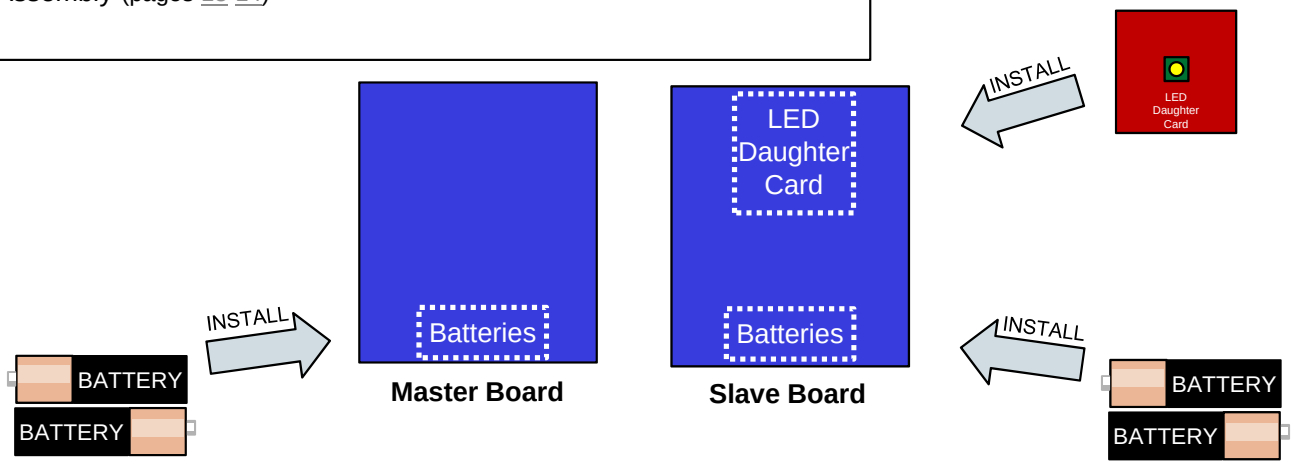
5. Disconnect the USB cables from each eval board.
6. Install two AA batteries onto each eval board.
7. Plug LED Daughter Card onto Slave Board

LED Daughter Card Technical Documents



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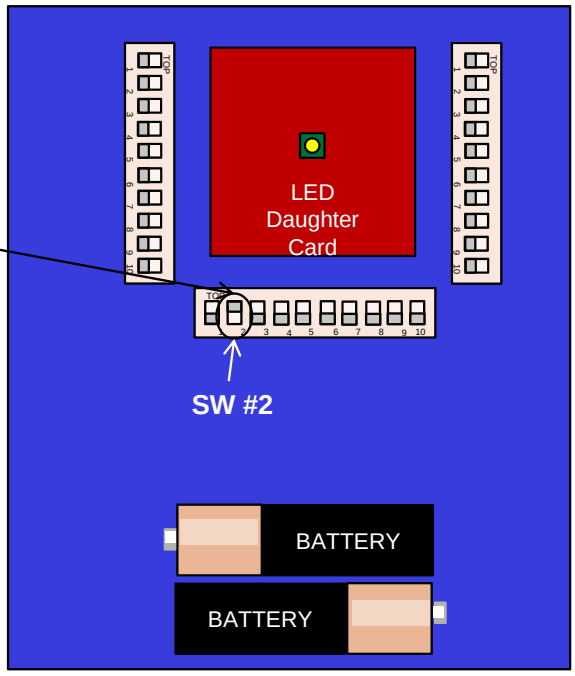
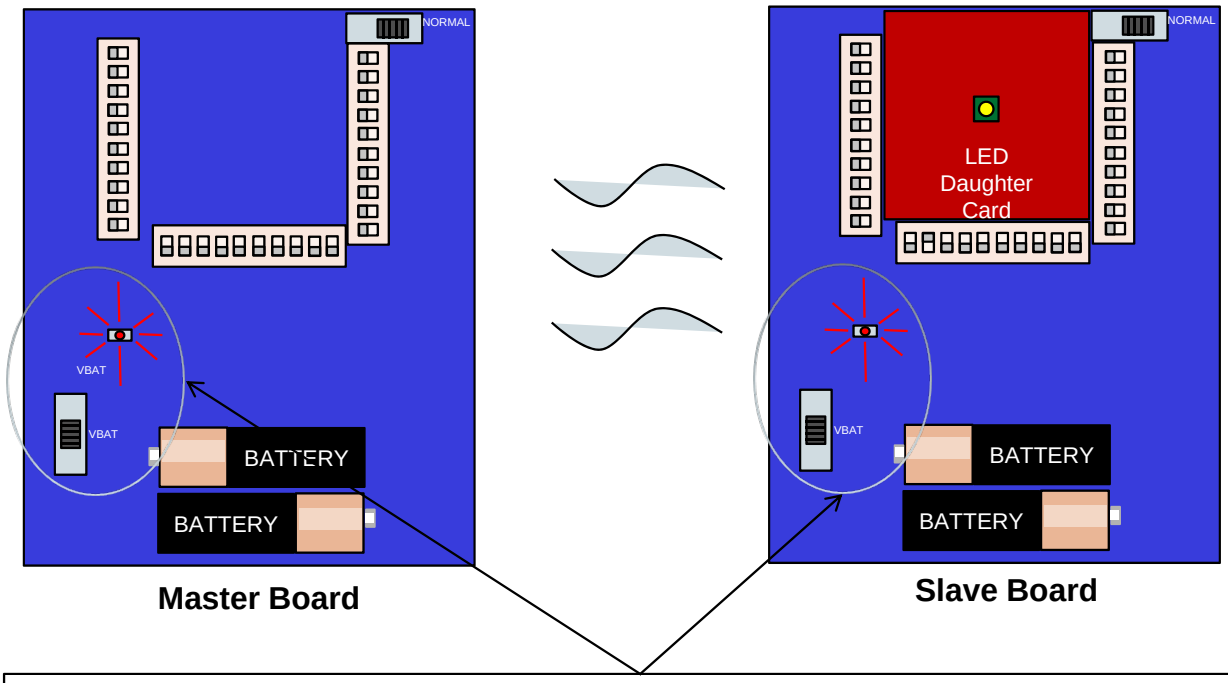
8. Make sure Switch #2 on lower switch bank is DOWN (off) on the Slave Board.



Slave Board

LED Daughter Card Demo

Operating Sequence



Operating Sequence:

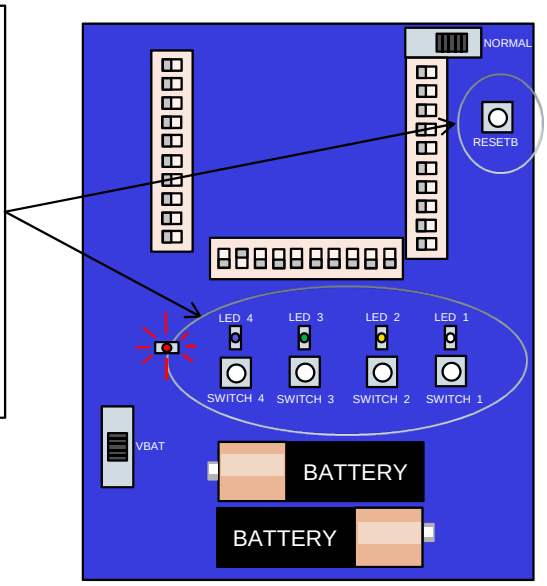
1. Turn on both eval boards by putting ON/OFF switch in center location (VBAT). Red LED will illuminate indicating power is ON.

LED Daughter Card Demo

Operating Sequence

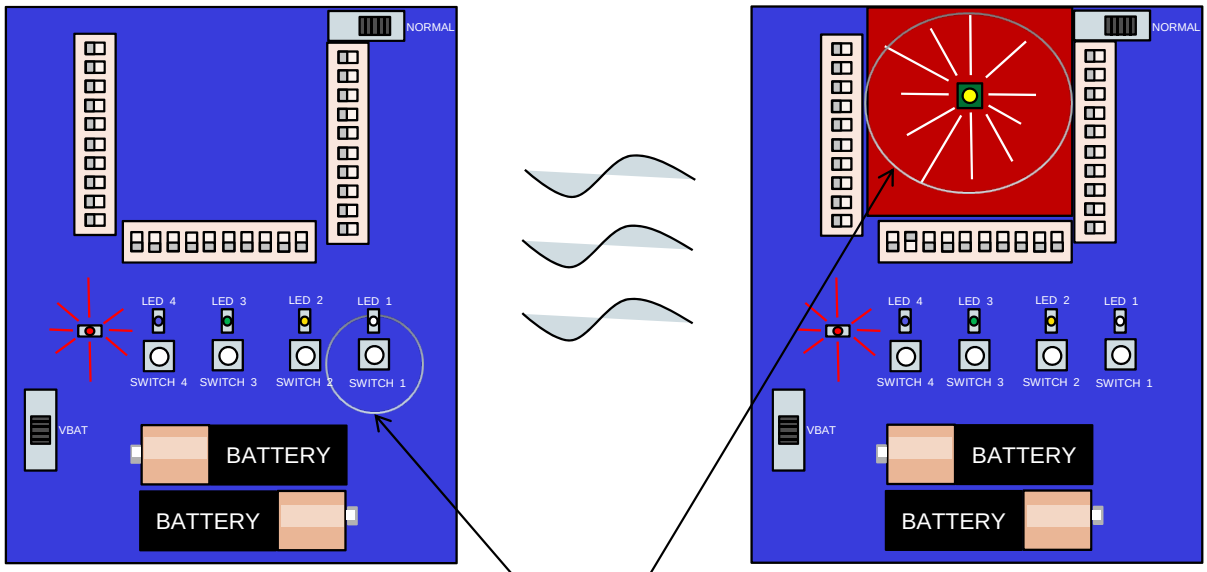
Operating Sequence:

2. Resetting each Eval Board: Hold down Switches 3 & 4, together with EITHER Switch 1 (for white LED 1) OR Switch 2 (for amber LED 2); then press and release the RESETB button. The board will reboot and five seconds later, LED 1 (white) or LED 2 (amber) will remain lit.



LED Daughter Card Demo

Operating Sequence



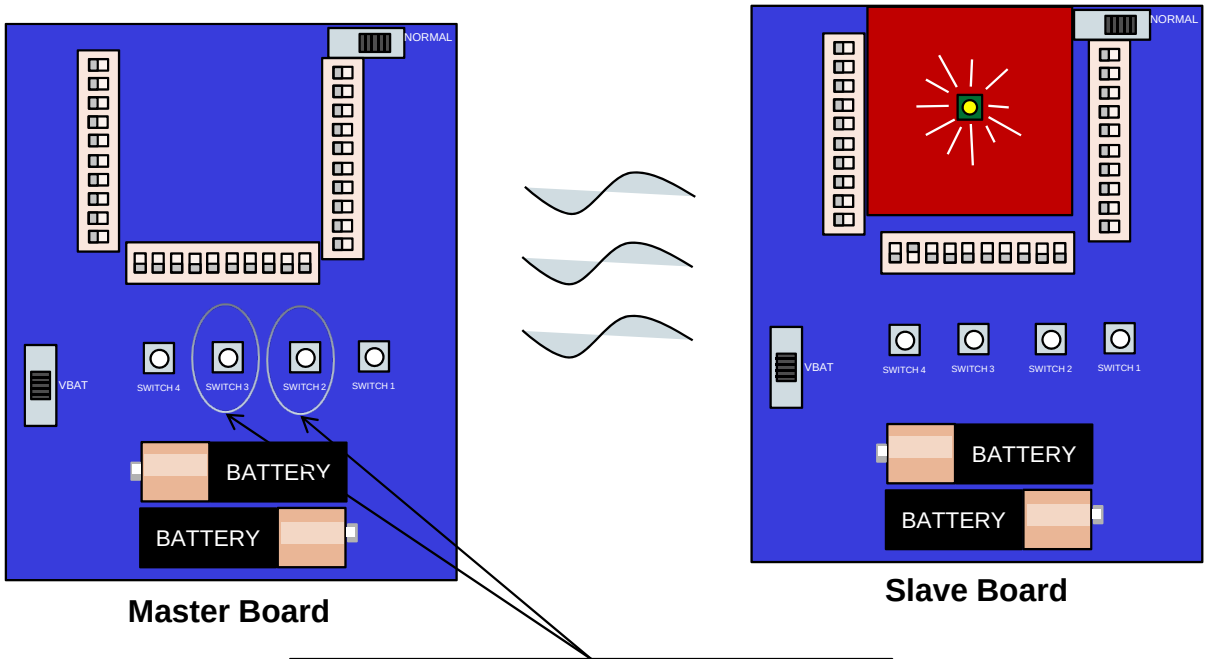
Master Board **Slave Board**

Operating Sequence:

3. Remote Operation of Cree LED: Press **Switch 1** on the Master Board, resulting in the Cree LED illuminating on the LED Daughter Card on the Slave Board.

LED Daughter Card Demo

Operating Sequence



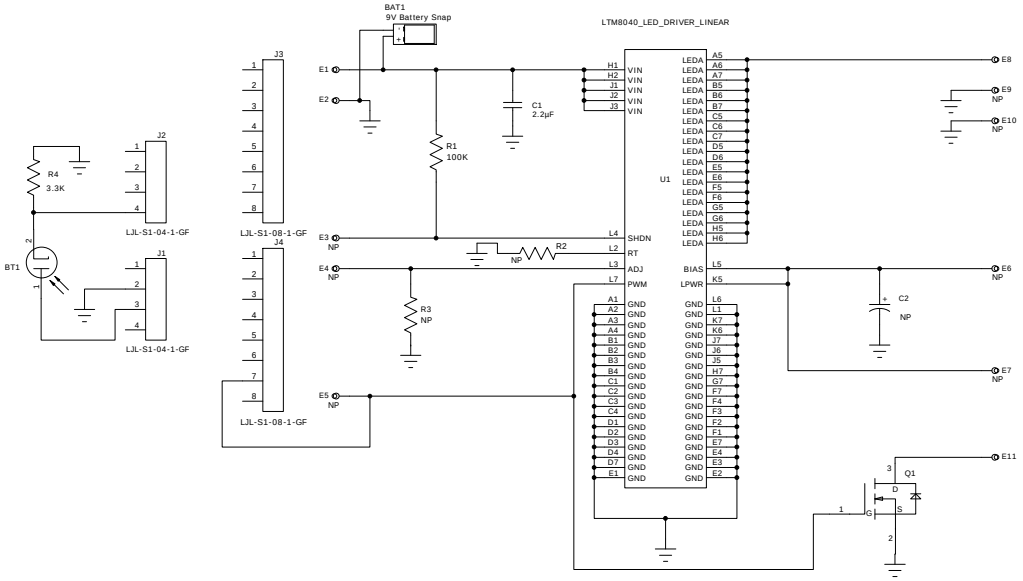
Master Board

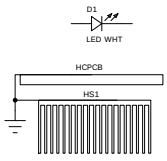
Slave Board

Operating Sequence:

4. Switch 2 brightens the Cree LED.
5. Switch 3 dims the Cree LED.

Note: Dimming features are more visible when LED is at medium brightness setting.





REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:
X0	INITIAL RELEASE		11-11-09
X1	REVISED PER SPREAD SHEET		01-05-10

CEL California Eastern Laboratories

4590 Patrick Henry Drive • Santa Clara, CA 95054-1817

Tel: (408) 919-2500 • Fax: (408) 988-0279

Website: www cel com

COMPANY:

TITLE: MESH CONNECT LED DAUGHTER CARD

DRAWN:	DATED:
CHECKED:	DATED:
QUALITY CONTROL:	DATED:
RELEASED:	DATED:

CODE:	SIZE:	DRAWING NO:	REV:
	B	0007-01-01-05-000	X1

SCALE:

SHEET: 1 OF 1

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0007-01-02-05-000 Mesh Connect LED Daughter Card BOM Issue X1

ALL ITEMS MUST BE RoHS COMPLIANT

Item	Qty	Reference	Value	Description	Manufacturer	Part Number	RoHS	POP OPT	Part Name
1	1	BAT1	9V Battery Snap	9V Batery snap connector	Keystone Electronics	84-6	YES		84-6_9V_CONN_KEYSTYONE,9V Battery Snap
2	1	BT1	4K-11K Ohm	PHOTOCELL 4K-11K OHM 4.20MM	API	PDV-P9001	By Exemption		PDV-P9001-4K-11K-OHM-4.20MM-150V-API,4K-11K Ohm
3	1	C1	2.2µF	CAP CER 2.2UF 50V X7R 10% 1210	TDK	C3225X7R1H225K	YES		CAPC_1210_2.2UF_50V_10%_TDK,2.2µF,±10%
4	1	D1	LED WHT	LED COOL WHITE 1000MA SMD	Cree Inc	XPGWHT-L1-0000-00G53	YES		XPGWHTL10000-00G53_LED_WHT_3.3V_SMD_CREE,LED WHT
5	4	E1-2 E8 E11	Terminal	TERM SOLDER TURRET .219" .109"L	Mill-Max	2501-2-00-44-00-00-07-0	YES		TURRET_.094"_MILL-MAX,Terminal
6	1	HCPCB	Thermal Clad board	HCPCB - STAR (1 LED) XPE	Bergquist	CreeXpstar101MH	YES		CREEXPSTAR101MH,Thermal Clad board
7	1	HS1	HEATSINK	HEATSINK 1.250" FOR BL-2000/4000	Thermalloy	2297BG	YES		2297BG_1.250"DIA_HS_THERMALLOY,HEATSINK
8	2	J1-2	4-Pin Header Receptacle	PCB 4 PIN HEADER RECEPTACLE	LJL	LJL-S1-04-1-GF	YES		CONN_HDR_4X1_LJL-S1-04-1-GF,4-Pin Header Receptacle
9	2	J3-4	8-Pin Header Receptacle	PCB 8 PIN HEADER RECEPTACLE	LJL	LJL-S1-08-1-GF	YES		CONN_HDR_8X1_LJL-S1-08-1-GF,8-Pin Header Receptacle
10	1	Q1	N-Channel 30V MOSFET	N-Channel 30V 55 W MOSFET Surface Mount - TO-252AA	International Rectifier	IRLR8729PbF	YES		IRLR8729PBF_RECT_CONV_D-PAK_IR,N-Channel 30V MOSFET
11	1	R1	100K	RES 100K OHM 1/16W 5% 0402 SMD	Vishay/Dale	CRCW0402100KJNED	YES		RES_0402_100K_1/16W_5%_VISH,100K,±5%
12	1	R4	3.3K	RES 3.3K OHM 1/10W 5% 0603 SMD	YAGEO	RC0603JR-073K3L	YES		RES_0603_3.3K_1/10W_5%_YAG,3.3K,5%
13	1	U1	LED DRIVER	IC LED DRVR HP CONST CURR 66-LGA	Linear Technology	LTM8040EV#PBF	YES		LTM8040_LED_DRIVER_LINEAR,LED DRIVER

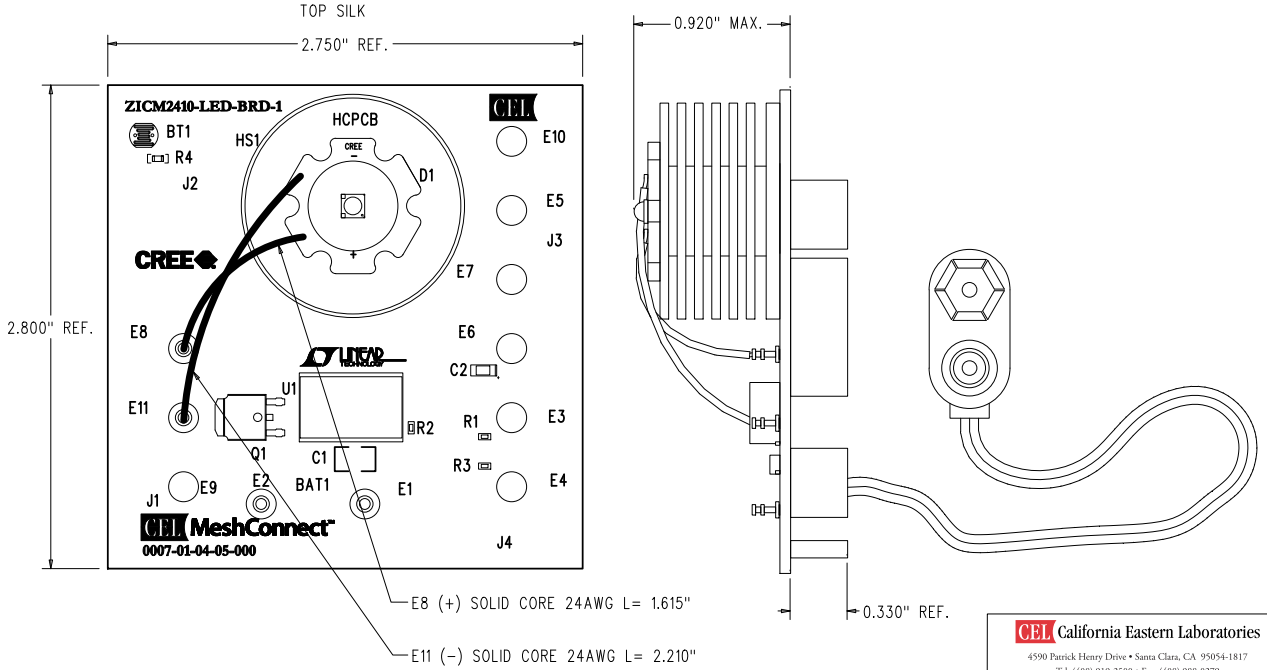
Items below are Engineering reference only and are not populated (NP).

1	1	C2	N/A	CAP TANTALUM 0805	N/A	N/A	YES	NP	CAPT_0805_N/A_N/A_N/A,N/A
2	2	R2-3	NP	0402 LAND (RES)	N/A	N/A	YES	NP	RES_0402_NA_NA_NP,NP
3	7	E3-7 E9-10	Terminal	TERM SOLDER TURRET .219" .109"L	Mill-Max	2501-2-00-44-00-00-07-0	YES	NP	TURRET_.094"_MILL-MAX,Terminal

REVISION RECORD		
ISSUE	DESCRIPTION:	DATE:
X0	PRELIMINARY	11-11-09
X1	REVISED PER SPREAD SHEET	01-05-10

NOTES: UNLESS OTHERWISE SPECIFIED.

1. ORDER OF PRECEDENCE: 1. PURCHASE ORDER, 2. CEL DRAWINGS, 3. PROCEDURES, STANDARDS/PROCESSES AS REFERENCED IN DRAWING PACKAGE
2. USE NO-CLEAN SOLDER FLUX.
3. ACCEPTABILITY OF ELECTRONIC ASSEMBLIES PER IPC-610, LATEST REVISION, CLASS 2.
4. FINAL ASSEMBLY MUST BE RoHS COMPLIANT.
5. IMPLEMENTATION OF ANY EXEMPTIONS SHALL REQUIRE PRIOR WRITTEN APPROVAL FROM CEL.



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TITLE: MESH CONNECT LED DAUGHTER CARD

SIZE:	DRAWING NO:	ISSUE
C	0007-01-03-05-000	X1
	SCALE: 1 TO 1	SHEET: 1 OF 2

REVISION RECORD		
ISSUE	DESCRIPTION:	DATE:
X0	PRELIMINARY	11-11-09
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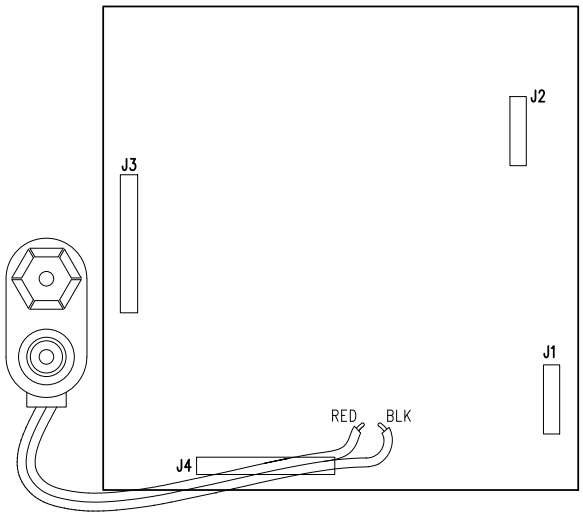

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