

Migrating from LUXEON I, III, or V to LUXEON Rebel

LUXEON Rebel Advantages:

- Deliver more usable light and higher flux density.
- Optimize applications to reduce size and cost.
- Tightly pack the LEDs for mixing.
- Engineer more robust applications.
- Utilize standard lower cost FR4 PCB technology.
- Unsurpassed reliability performance.
- Exceed ENERGY STAR® lumen maintenance requirements.
- Specified CCT & CRI combinations.
- ANSI compliant binning.
- High efficacy for sustainable design.
- Deliver 100 lm/W Performance at 350mA.
- Higher Efficiency means less Power Consumption with same performance

Light Output/LED Count:

- Lower LED count can be achieved by upgrading from LUXEON I, III or V to LUXEON Rebel, resulting in more light output at a lower cost.

<i>Results from ULT</i>	<i>LUXEON I LXHL-PW01</i>	<i>LUXEON Rebel LXML-PWC1-0100*</i>
Number of LEDs	3	1
Drive Current (mA)	350	350
Light Output (lumens)	88	97
Junction Temperature (°C)	134	57

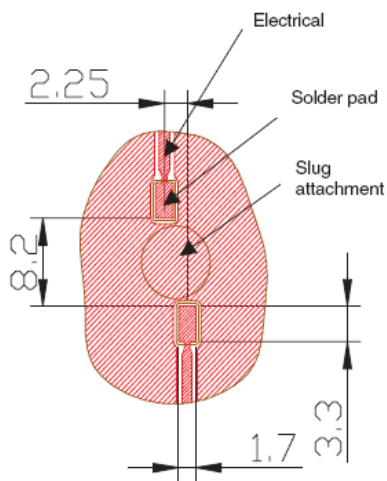
<i>Results from ULT</i>	<i>LUXEON III LXHL-PW09</i>	<i>LUXEON Rebel LXML-PWC1-0100*</i>
Number of LEDs	3	1
Drive Current (mA)	1000	1000
Light Output (lumens)	169	198
Junction Temperature (°C)	122	67

	<i>LUXEON V LXHL-PW03 (not based on ULT)</i>	<i>LUXEON Rebel LXML-PWC1-0100* (based on ULT)</i>
Number of LEDs	1	1
Drive Current (mA)	700	700
Light Output (lumens)	90	144
Junction Temperature (°C)	100	100
Power Consumption (W)	4.57	2.21

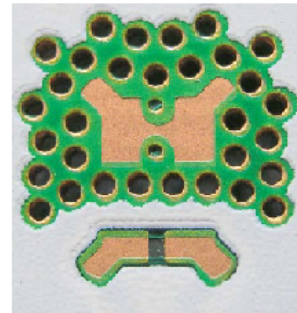
* This part number was chosen as an example. Other flux bins may be leveraged

Mechanical Characteristics:

- LUXEON Rebel has a smaller package; therefore, the board design needs to be modified to accommodate the new footprint.
- LUXEON Rebel can be supplied on a star board.
- If MCPCB was in use, it is recommended to change to the lower cost FR4 board and accordingly add thermal vias to the board as per the recommended layout.
- Refer to AB32 for more information.



Pad layout for LUXEON I



Pad layout for LUXEON Rebel

Optical Characteristics

- Optics need to be changed to correspond to the optical and mechanical properties of the LUXEON Rebel
- The smaller die size of the LUXEON Rebel LEDs, compared to 4-die LUXEON V, achieves improved optical performance when coupled to secondary optics.
- Refer to the ray-set files for optical characteristics of LUXEON Rebel.
- Suggested optics alternatives for transitioning to LUXEON Rebel include:

Beam angle	LUXEON I, III or V Optics	LUXEON Rebel Optics
Narrow	Carclo: 10003	Carclo: 10193
	Fraen: FLP-HNB3-LL01-0	Fraen: FLP-N4-RE-HRF
	Polymer: 120/12x	Polymer: 120/180
Medium	Carclo: 10003/15	Carclo: 10208
	Fraen: FHS-HMB1-LB01-0	Khatod: PL119825
Wide	Carclo: 10003/25	Carclo: 10196
	Polymer: 124/121	Polymer: 124/180
Tri-lens	Polymer: 157/160	Polymer: 181/160

Thermal Characteristics

- LUXEON Rebel has a lower thermal resistance than LUXEON I and III.
- Although LUXEON V has a lower thermal resistance than LUXEON Rebel, its impact can be offset by:
 - The higher efficiency and higher light output of LUXEON Rebel LEDs.
 - The unavailability of reliability information for LUXEON V.
- Thermal design may be modified to a smaller size/lower cost solution.
- Please refer to AB33 for more information

Power Characteristics:

- Since higher flux LEDs are more efficient than lower flux LEDs:
 - Less power consumed to provide the same light output
 - Allows for smaller lower wattage power supply solutions