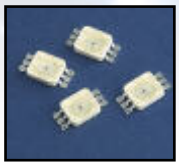
OMC The Optoelectronic Manufacturing Corporation

4W RGB High Power LED



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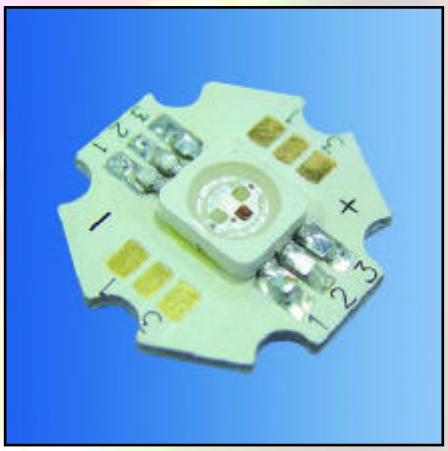
Technical Datasheet

A 4W, RGB (red, green, blue) light emitting diode device combining three individually addressable high power chips in a single compact package, facilitating the production of low spatial profile, high output full-colour-range products.

Key Features:



- 3 high power colours in one package
- Very compact RGB high power source
- Heatspreader option
- High luminous flux per source
- Low thermal resistance
- Chips individually addressable
- 6 pin device for ultimate control
- In-built electrostatic protection
- In-built reverse polarity protection
- RoHS Compliant

Typical Applications:

- Accent lights
- Up- and down-lighters
- Battery powered torches
- Automotive illumination
- Colour changing strip lights
- Mood lighting
- Wall washers
- Signalling
- Colour changing lamps
- Machinery

Part numbers:

P3RGB1H - with heatspreader
P3RGB1 - without heatspreader

Typical electro-optical characteristics at forward current = 350mA per chip and Ta=25°C

Colour	Dominant λ	Luminous Flux (typ.) lumens	Luminous Flux (max.) lumens	Forward Voltage (V)
Red chip	Red 625nm	23	30	2.3
Green chip	Green 525nm	30	40	3.6
Blue chip	Blue 465nm	10	14	3.5

Colours are for ease of reference only and do not indicate exact shade of LED output.

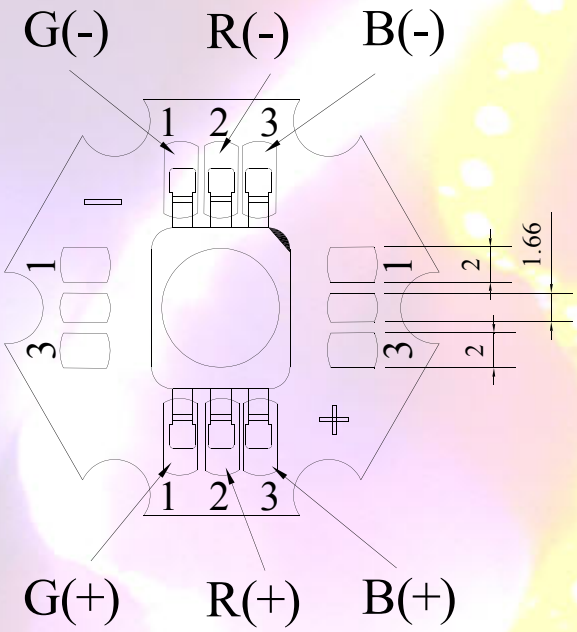
Thermal Characteristics at If = 350mA per chip, Ta=25°C

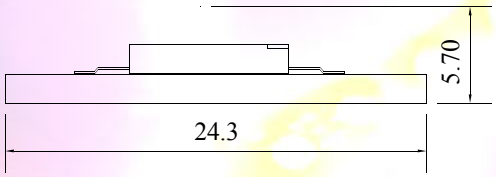
Quantity	Rating
Thermal Resistance (Semiconductor Junction to Board)	15 K/W

Absolute Maximum Ratings per Chip at Ta=25°C

Quantity	Rating
Reverse Voltage	5V
Semiconductor Junction Temperature	120°C
Operating Temperature Range	-35°C to +75°C
Temperature Range in Storage	-35°C to +100°C
Lead soldering temperature (at 2mm from LED body for max 5 sec)	260°C
Forward DC Current per Chip	350mA
Power dissipation	1.4W

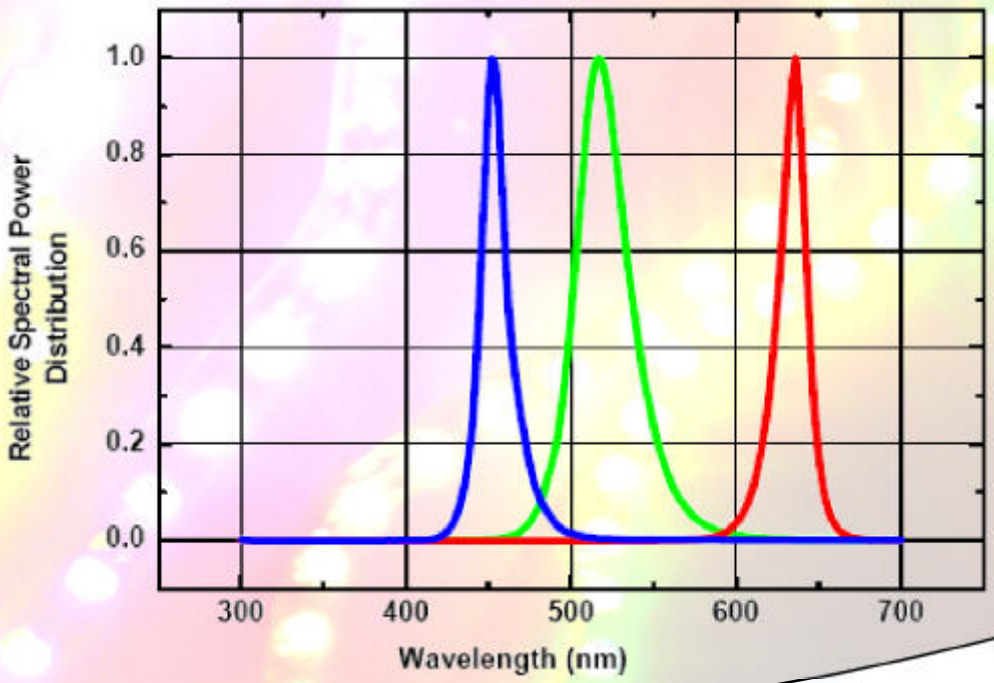
Package Dimensions



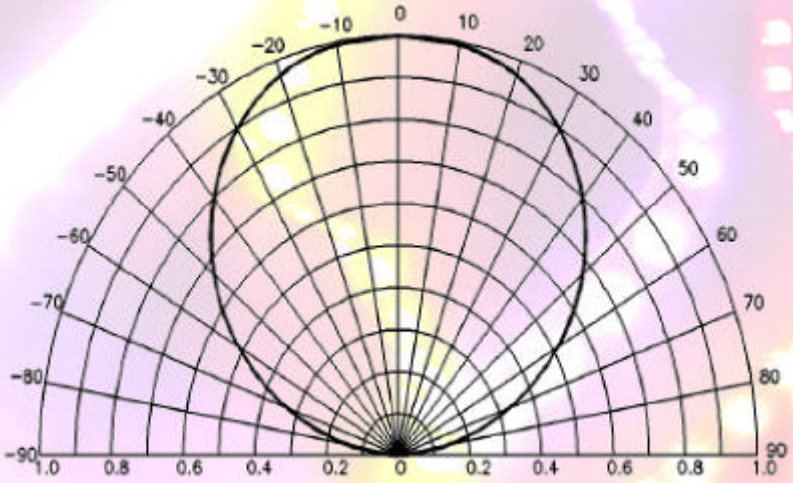


All dimensions are in mm. Tolerance ±0.5mm.

Power Spectra for Blue, Green, Amber and Red



Typical beam pattern when unlensed



Application notes

- Junction temperature should be kept below maximum by managing power dissipation.
- Current spikes should be avoided, especially during power up. It is best practice to initially connect LED to inactivated supply, then gradually ramp up supply to desired level.
- Proper management of the thermal path from the junction should be observed. Relevant thermal resistances should be used to calculate temperature increase from ambient to junction by multiplying by power dissipation, to determine maximum ambient temperature of application.
- Proper thermal conduction layers should be introduced at all interfaces to prevent insulating air gaps in the thermal path from junction to ambient.
- If the LED package has a lens fitted, do not use reflow soldering as the lens should not be taken above 110°C.
- As with all semiconductor devices, it is good practice to avoid electrostatic discharge.
- High power LEDs are best driven using constant-current power supplies.
- Do not connect to a constant voltage source without suitable current limiting measures.
- Further information regarding soldering and storage precautions may be obtained by contacting OMC's technical department.

The Optoelectronic Manufacturing Corporation (UK) Ltd.
Cardrew Industrial Estate,
Redruth,
Cornwall
TR15 1SS

Tel: 01209 215424
Fax: 01209 215197
General e-mail: omc-sales@omc-uk.com
www.omc-uk.com