

# 652 series



## features



- Ø12.7mm mounting
- Product will operate over a wide voltage range
- Black anodised aluminium housing
- Colour diffused lens with an 180° viewing angle
- Fully internally potted to resist shock and vibration
- Sealed to IP67
- True bi-polar product; AC and DC operation
- Pack Quantity = 10 Pieces

## specifications

Typical characteristics (Ta = 25°C)

Part Number	Colour	Voltage Vac/dc	Current DC (mA)	Luminous Intensity (mcd)	Wave Length (nm)	Operating Temp. (°C)	Storage Temp. (°C)	De-rating Graphs
652-105-75	Red	110 Vac	6	95	625	-40 - +85	-40 - +85	B
652-102-75	Red	110 Vac	6	500	660	-40 - +85	-40 - +85	B
652-111-75	Yellow	110 Vac	6	45	590	-40 - +85	-40 - +85	B
652-114-75	Green	110 Vac	6	45	565	-40 - +85	-40 - +85	C

- Products must be de-rated according to the de-rating information. Each de-rating graph refers to specific LEDs. Please refer to graphs on page 3.

- Luminous intensity is measured at 20mA on a discrete LED unless otherwise stated.

## to order

**to order please contact us on: t: +44 (0)1229 582 430**

**f: +44 (0)1229 585 155 e: sales@marl.co.uk w: www.leds.co.uk**

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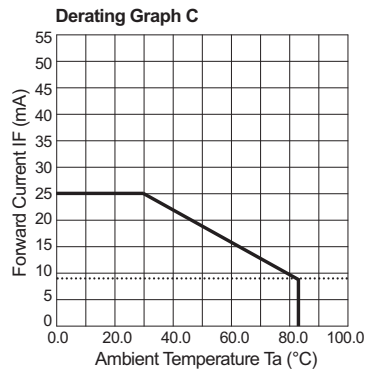
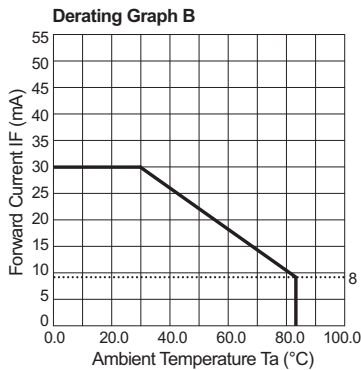
high performance panel lamps



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## de-rating information



## also available

Part numbers also available in the 652 series:

Part Number	Colour	Voltage Vopr
652-102-63	Red	12-28Vac/dc
652-105-63	Red	12-28Vac/dc
652-111-63	Yellow	12-28Vac/dc
652-114-63	Green	12-28Vac/dc

The products listed here illustrate all of the options available to order. These products may have custom modifications that alter their operation beyond the generic information contained within this datasheet. Please contact sales for further information.

\* = These products do not contain integral resistors

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## design considerations

### Electro-Static Discharge (ESD)

Build up of electro-static discharge occurs in many situations involving people moving and handling products. The range of possible situations is very diverse but voltage levels as high as several thousand volts can and do arise in many individual situations. When an operator charged up to these levels handles a static sensitive device, there is a very probable likelihood that the device will be irreversibly damaged. It is essential that precautions are taken at all stages during manufacture and assembly of these products. Although LEDs were never considered to be static sensitive devices, changes in manufacturing technology and materials used to produce higher intensity products over a large range of the wavelength spectrum have changed this. Marl has an approved system of ESD control from goods in, through production and into final packing and despatch. Marl recommend all users of LED based products follow the guidelines of BS 100015.

### Power De-Rating

The forward voltage/ current value of an LED is dependant upon the ambient temperature of the environment in which it is operated. Therefore, care must be taken to operate the LED at the correct voltage/ current values, depending upon the ambient temperature. Consequently, a recommendation regarding operating voltages and currents is given in order to address these temperature effects. This recommendation is termed 'de-rating'. It is usual for forward voltages and currents to be specified for ambient temperature of 25°C. However, because the values of these qualities vary with temperature, please refer to the de-rating graphs for correct operation. Marl accept no liability for any product that is operated higher than the stated voltage.

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