



### FEATURES

- Ø5.0mm mounting
- Nickel plated brass housing
- Sealed to IP67 - weatherproof
- Wide viewing angle - flat smoked lens
- Internal potting
- 150mm flying leads as standard
- Range of LED colour options
- Range of voltage options

### BENEFITS

- Our smallest mounting size in a metallic housing
- Suitable for industrial applications
- Suitable for external applications
- Smoked lens gives good on/off contrast ratio
- Suitable for high vibration applications
- Rapid installation
- Suitable for status panel indication
- Manufactured with internal resistor
- Outstanding reliability
- Vandal resistant

Marl Part Number	LED Colour	Typical Voltage DC Vopr	Typical Current DC Iopr	Typical LED Luminous Intensity	Typical LED Wavelength λp	Operating Temp Topr *	Storage Temp Tstg
604-301-04	Red	1.85 **	20	33	640	-40 to +75	-40 to +100
604-325-04	Yellow	2.0 **	20	401	590	-40 to +75	-40 to +100
604-324-04	Green	3.2 **	20	1010	525	-40 to +75	-40 to +100
604-934-04	Blue	3.2 **	20	225	471	-40 to +75	-40 to +100
604-998-04	Cool White	3.2 **	20	1194	See Below	-40 to +75	-40 to +100
604-301-20	Red	5-6	20	33	640	-40 to +75	-40 to +100
604-325-20	Yellow	5-6	20	401	590	-40 to +75	-40 to +100
604-324-20	Green	5-6	20	1010	525	-40 to +75	-40 to +100
604-934-20	Blue	5-6	20	225	471	-40 to +75	-40 to +100
604-998-20	Cool White	5-6	20	1194	See Below	-40 to +75	-40 to +100
604-301-21	Red	12	20	33	640	-40 to +75	-40 to +100
604-325-21	Yellow	12	20	401	590	-40 to +75	-40 to +100
604-324-21	Green	12	20	1010	525	-40 to +75	-40 to +100
604-934-21	Blue	12	20	225	471	-40 to +75	-40 to +100
604-998-21	Cool White	12	20	1194	See Below	-40 to +75	-40 to +100
604-301-23	Red	24-28	15	27	640	-40 to +75	-40 to +100
604-325-23	Yellow	24-28	15	308	590	-40 to +75	-40 to +100
604-324-23	Green	24-28	15	830	525	-40 to +75	-40 to +100
604-934-23	Blue	24-28	15	175	471	-40 to +75	-40 to +100
604-998-23	Cool White	24-28	15	932	See Below	-40 to +75	-40 to +100
604-301-24	Red	48	12	18	640	-40 to +75	-40 to +100
604-325-24	Yellow	48	12	208	590	-40 to +75	-40 to +100
604-324-24	Green	48	12	615	525	-40 to +75	-40 to +100
604-934-24	Blue	48	12	125	471	-40 to +75	-40 to +100
604-998-24	Cool White	48	12	648	See Below	-40 to +75	-40 to +100
		Vdc	mA	mcd	nm	°C	°C

### Typical Emission Colours Cool White LED

X	0.292	0.285	0.330	0.330
Y	0.286	0.300	0.350	0.329

### NOTES

Intensities (Iv) and colour shades of white (X-Y co-ordinates) may vary between LEDs within a batch. Additional LED Colours, Voltage Options and Flying Lead lengths available for semi-custom projects. Please contact our Sales Team. All LED components are supplied in anti-static packaging.

\* For operating temperature derating graphs, please refer to sheet 2.

\*\* These are Current models and the voltage shown is Vf at 20mA, not Vopr.

To order please contact us on +44 (0) 1229 582 430

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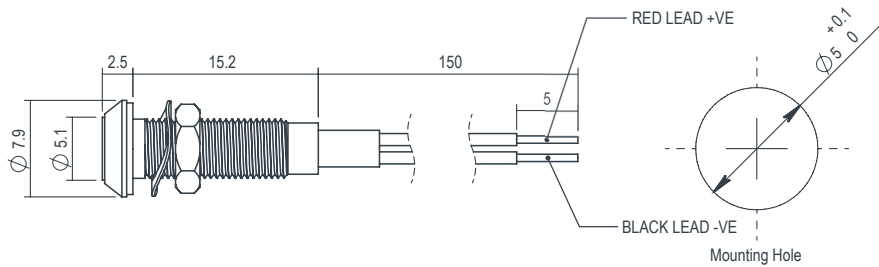
### TECHNICAL CHARACTERISTICS

Series	Max. Power Dissipation	Max. Reverse Voltage	Panel Cutout	Nut Mounting Torque	Min. Mounting Centres	Min - Max. Panel Thickness
604	425	5	5.0	0.35	10.0	1.5 - 8.0
	mW	Vdc	mm	Nm	mm	mm

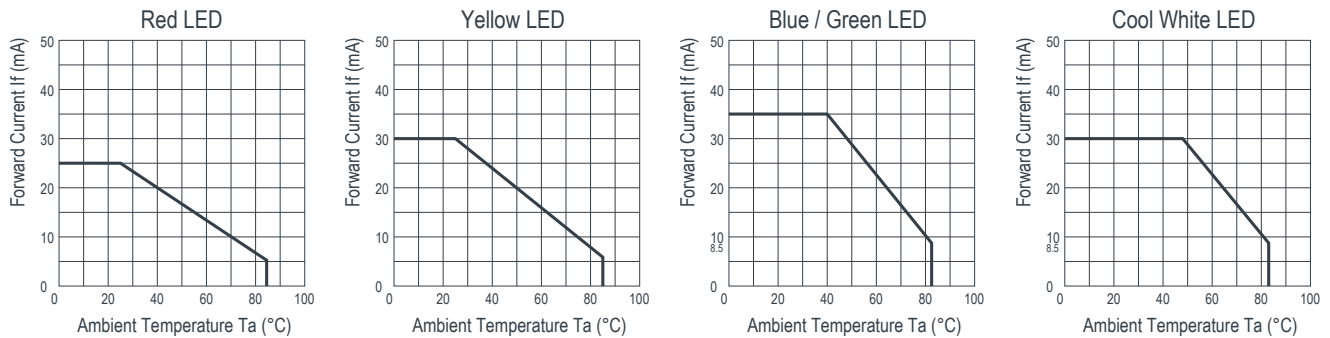
### TECHNICAL DRAWING

Weight (g): 4.9

Dimensions in mm (typical). Not to scale. Mounting hole to be clean and burr free. Anode termination indicated by red flying lead.



### DE-RATING GRAPHS



### MATERIALS

<b>Body</b>	Bright Nickel Plated Brass
<b>Nut</b>	Bright Nickel Plated Brass
<b>Panel Seal</b>	Viton
<b>Fresnel Lens</b>	Polycarbonate
<b>Encapsulation</b>	Black Polyurethane
<b>Lock Washer</b>	Beryllium Copper
<b>Termination</b>	Defence Standard 61/12, Part 18 chemical & flame retardant 150mm colour coded flying leads

### 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.

#### Voltage, Current and Temperature

The forward voltage / current value of an LED is dependent 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.

Marl should be contacted if the device is to be operated outside the temperature range specified. Marl accept no liability for any product that is operated outside the stated voltage or temperature range.

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