

POWERLED® L1/3 MODULE



POWERLED® L1/3 is a lighting module having 15x10x 4 mm in size, where one broad-angled ($2\theta_{1/2}=120^\circ$) multichip “long life” diode LED of average power (250 mW^*) is installed. A very good value of the module electrical efficiency factor (above 80% for blue, green and white light; above 50% for red colour) and high light efficiency of the diode (more than 60 lm/W^*), allow achieving huge flux of light from the small-dimension source. These small dimensions enable lighting of “difficult shapes”, such as narrow slits or sharp corners etc.

Module L1/3 is used for small light advertisements, artistic and decorative lighting, traffic lights, cars etc.

* parameters are given for the module with diodes LED “long life” type emitting white cold light.

TECHNICAL PARAMETERS		OPTICAL PARAMETERS ¹					
		¹ based on diode LED producer catalogue data					
Physical dimensions	15mm x 10mm x 3mm length/width/height	Available colours	Symbol	Flux of light and angle of light			$2\theta_{1/2}=120^\circ$ (for a single diode LED)
Module weight	less than 1 g	white cold (ok. 6000K)	L1/3-WH-12-IS	typ. 13 lm	new!		
Way of fixing	silicon glue, sticky tape	white warm (ok. 3400K)	L1/3-WW-12-IS	typ. 9 lm			
		blue	L1/3-BL-12-IH	typ. 6 lm	new!		
		green	L1/3-GR-12-IS	typ. 13 lm			
		red	L1/3-RD-12-IH	typ. 7 lm	new!		
ELECTRICAL PARAMETERS							
Module type	Supply voltage U_Z [V]	Current input I_Z [mA]	Power input P [W]	Electrical efficiency factor ² η [%]	Current change I_Z vs. voltage change U_Z factor ³ I_U	Current change I_Z vs. temperature change T factor ⁴ I_T [%/K]	PWM modulation possibility
L1/3-WH-12-IS	12 VDC +20% -10%	ca. 22 mA	ca. 0,27W	min. 80 %	max. 1	typ. $-0,3 \frac{\%}{K}$	yes $f_{\text{clock}} \leq 4 \text{ kHz}$
L1/3-WW-12-IS							
L1/3-BL-12-IH							
L1/3-GR-12-IS							
L1/3-RD-12-IH	12 VDC +10% -35%	ca. 24 mA	ca. 0,3W	min. 50 %			

Explanatory note:

- The electrical efficiency factor (η) is assigned as, expressed in percentage, the proportion of power provided for diodes LED to total power consumed by a module (the higher rate of this factor the better; max. value is 100%).
- Current change I_Z vs. voltage change U_Z factor (I_U) represents the relation of module LED current relative change as a result of supply voltage relative value change (the lower value the better; in good solutions the value of this factor does not exceed 1).
- Current change I_Z vs. temperature change T factor (I_T) represents module LED current relative change (given in percentage) at the increase of temperature of 1 degree (the value of this factor should be very low; negative value proves the use of the power negative thermal compensation extending diodes LED life time).

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