LED MODULES

LUGA SHOP TW GEN. 2
1900 LM TO 3500 LM

LUGA SHOP TW GEN. 2 – TUNEABLE WHITE LED MODULES

TW2820

The Tuneable White LED modules LUGA Shop TW with colour temperature dynamic enable seamlessly dynamic light control from 2500 K to 7000 K.

Typical Applications

Built-in luminaires/general illumination

- Residential lighting
- Furniture lighting
- Retail lighting
- Downlights

LUGA Shop TW Gen. 2

- **LONG SERVICE LIFETIME**
- **NARROW COLOUR TOLERANCES: 4 STEP MacAdam**
- **TUNEABLE WHITE: FROM 2500 K TO 7000 K**
- **CONSTANT LUMEN PACKAGES: UP TO3500 LM OVER ALL CCTs**

LIGHTING SOLUTIONS

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LUGA Shop TW Gen. 2

Technical Notes

- LED module for integration into luminaires
- Dimensions / Light emitting surface (LES):
  TW2820: 28x28 mm / Ø 20 mm
- Beam angle: 120°
- Typ. CRI R_a: 80
- Use of external LED constant current driver

Electrical Characteristics

at t_p = 65 °C

Type	Typ. voltage DC					Typ. power consumption				
	500 mA	700 mA	900 mA	1050 mA	1400 mA	500 mA	700 mA	900 mA	1050 mA	1400 mA
	V	V	V	V	V	W	W	W	W	W
TW28200608*J (CH1) +/-	29.1	30.2	31.2	31.9	–	14.5	21.1	28.1	33.5	–
TW28200608*J (CH2) ++/- -	28.6	29.6	30.5	31.2	32.7	14.3	20.7	27.5	32.8	45.8

Voltage and power tolerance: ±10 %

Maximum Ratings

Exceeding the maximum ratings can lead to reduction of service life or destruction of the modules.

Type	Operation temperature range at LES*		Storage temperature range		Max. allowed repetitive peak current (mA)	Max. allowed output voltage of drivers (V)
	°C min.	°C max.	°C min.	°C max.		
TW28200608*J (CH1) +/-	-40	+140	-40	+100	1200	60
TW28200608*J (CH2) ++/- -		+180			1600	

* measured with infrared camera

Max. operating temperature at t_c/t_p point per channel per operating current
(when ideal thermal interface material (TIM) is used)

		TW28200608*J					
Channel 1 (CW)	1050 mA	+110	+100	+100	+95	+95	+85
	900 mA	+115	+105	+105	+100	+100	+85
	700 mA	+125	+110	+110	+105	+100	+90
	500 mA	+125	+115	+115	+110	+105	+95
	0 mA		+125	+125	+115	+110	+100
	Operating current	0 mA	500 mA	700 mA	900 mA	1050 mA	1400 mA
		Channel 2 (WW)					

Operating Life

at t_p = 65 °C
in hours at measured temperature at t_p point
(when ideal thermal interface material (TIM) is used)

Lumen maintenance	TW28200608*J - CH1 (single-channel operation)				TW28200608*J - CH2 (single-channel operation)				
	I_f 500 mA	I_f 700 mA	I_f 900 mA	I_f 1050 mA	I_f 500 mA	I_f 700 mA	I_f 900 mA	I_f 1050 mA	I_f 1400 mA
L90/B10	94,000	88,000	82,000	77,000	96,000	90,000	84,000	79,000	67,000
L80/B10	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000
L70/B10	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000	> 100,000

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Optical Characteristics

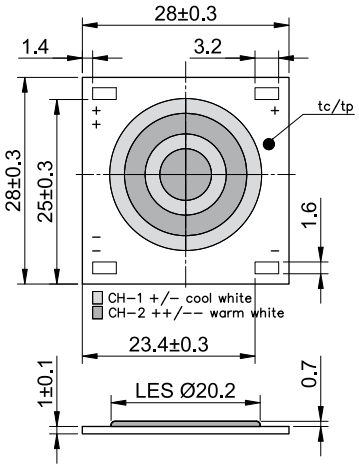
at t_p = 65 °C

Type	Ref. No.	Colour	Correlated colour temp.*	Typ. luminous flux** and efficiency at										Photo-metric code
				500 mA		700 mA		900 mA		1050 mA		1400 mA		
			K	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	lm	lm/W	
TW28200608*J (CH2) ++/- -	**569733**	warm white	2450	1850	130	2495	121	3085	112	3490	107	4325	94	824/349
TW28200608*J (CH1) +/-		cool white	7000	1900	131	2550	121	3140	112	3545	106	–	–	870/349

* Colour tolerance: 4 MacAdam | ** Production tolerance of luminous flux and efficiency: ± 15 % | Min. CRI R_a: > 75

Mechanical Dimensions

TW2820

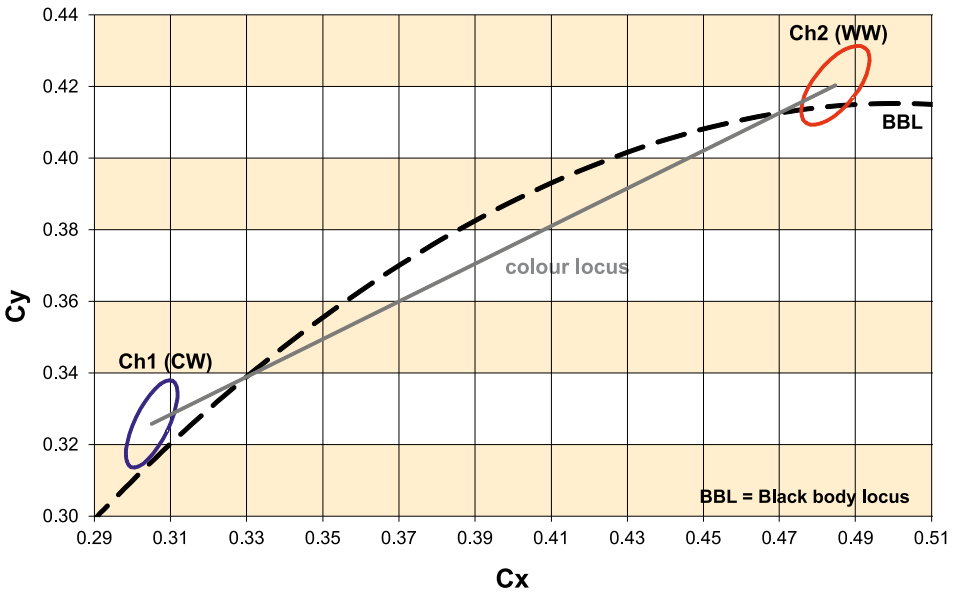


The clearance and creepage distances are designed for working voltages up to:

Type	Basic insulation	Reinforced insulation
TW2820	330 V DC	175 V DC

Thickness of PCB is included in calculation.

Bins



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LUGA Shop TW

Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. The LED modules are designed for operation within a casing or luminaire. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advice must be observed; non-observance can result in the destruction of the LED assembly modules, fire and/or other hazards.

- ESD (electrostatic discharge) protection measures must be observed when handling and installing the LED modules. See VS's application notes on ESD protection.
- LED assembly modules must not be subjected to any undue mechanical stress, e. g.:
  - do not treat as bulk cargo
  - avoid shear and compressive forces during handling and installation
  - do not damage circuit paths
  - do not touch the yellow phosphorus layer
- The module must be fixed onto a thermally conductive surface.
- Safe operation only possible by the use of external constant current sources ($I_{max.}$ see table "Electrical Characteristics").
- Operation only with power supply units that feature the following protection:
  - Short-circuit protection
  - Overload protection
  - Overheating protection
  - SELV (Safety Extra Low Voltage); $U_{max.} \leq 60$ V
  - $I_{max.}$ (see table "Maximum Ratings") must not be exceeded.
- When operating devices will be selected care has been taken to ensure that the maximum values (see table "Maximum Ratings") will not be exceeded.
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- Safety regulations acc. to EN 60598 (or further standards) has to be observed if the maximum output voltage exceed the permitted touchable value.
- Measurement tolerances:
  - luminous flux: ± 7 %
  - voltage: ± 3 %
  - CRI: ± 1 %
- Maximum allowed number of switching cycles: 15,000
- A parallel connection of the modules is not allowed.
- To ensure problem-free operation, the specified maximum temperature at the t_c point (see "Operating Life") must be observed (and measured in accordance with EN 60598-1). To satisfy this point, it may be necessary to put measures in place to ensure any heat is dissipated from the PCB to the environment.
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED assembly modules against humidity, splashes and jets of water. Any corrosion damage resulting from humidity or contact with condensation will not be recognised as a defect or manufacturing fault. LED assembly modules are not specially protected against foreign bodies or dust. Depending on the type of application, further protection must be ensured to prevent dust and foreign bodies from entering.
- Operating LED modules in the presence of certain chemical substances or in chemically enriched (aggressive) environments can impair module functionality or even cause total module failure. Detailed information can be found in our "Chemical Incompatibility" PDF on our website www.vossloh-schwabe.com
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471: risk group 1

Product Guarantee

- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com).
  We will be happy to send you these conditions upon request.

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Reflectors:
- ACL-Lichttechnik GmbH
  www.reflektor.com
- Jordan Luxar GmbH & Co. KG
  www.jordan-luxar.de
- JORDAN REFLEKTOREN GmbH & Co. KG
  www.jordan-reflektoren.de
- LEDIL
  www.ledil.com

Heat sinks with active cooling:
- AVC
  www.avc-europa.de
- Nuventix, Inc.
  www.nuventix.com
- Sunon
  www.sunon.com
- MechaTronix
  www.led-heatsink.com
- Colliance, Inc.
  www.cooliance.eu

Heat sinks with passive cooling:
- AVC
  www.avc-europa.de
- Fischer Elektronik GmbH & Co. KG
  www.fischerelektronik.de
- Frigo Dynamics
  www.frigodynamics.com
- MechaTronix
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LED Constant Current Drivers

Please visit our homepage for details for suitable
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