

LED BUILT-IN MODULES

LUGA SHOP 2014 FOOD
3000 lm



LUGA SHOP 2014 FOOD - LED MODULES COB FOR RETAIL ENVIRONMENTS

WU-M-486 Food

Typical Applications

- Integration in reflector luminaires
- Shop lighting
especially for fresh food
(bread, fruits, vegetables, meat)

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- **LONG SERVICE LIFETIME: 50,000 HOURS (L90; B10)**
- **ZHAGA-SHAPE**
- **SPECIAL SPECTRUM WITH WIDE COLOUR GAMUT (HiGa)**
- **NARROW COLOUR TOLERANCES:**
3 STEP MACADAM (INITIAL)
4 STEP MACADAM SHIFT (AFTER 50,000 HRS)
- **INTEGRATED THERMAL PROTECTION**
- **VDE APPROVED (ACC. TO EN 62031)**



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Technical Notes

- LED built-in module for integration into luminaires 
- Dimensions: Ø 50 mm
- Use of external LED constant current driver
- Temperature fail-safe circuit (activation temperature: $t_c \approx 105^\circ\text{C}$)
- On-board push-in connector



Electrical Characteristics

at $t_p = 65^\circ\text{C}$

Type	Ref. No.	Typ. voltage DC		Temperature coefficient	Typ. power consumption	
		700 mA	1050 mA		700 mA	1050 mA
		V	V	mV/K	W	W
WU-M-486	All types	44.4	47.0	-30	31.1	49.4

Voltage and power tolerance: $\pm 10\%$

Maximum Ratings

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

Type	Operating current mA	Operation temperature range range at t_c -point		Ambient temperature range		Storage temperature range		Max. allowed repetitive peak current (mA)	Max. permitted output voltage of operating device
		$^\circ\text{C min.}$	$^\circ\text{C max.}$	$^\circ\text{C min.}$	$^\circ\text{C max.}$	$^\circ\text{C min.}$	$^\circ\text{C max.}$		V
WU-M-486	≤ 700	-25	+85	-25	+40	-40	+85	1440	60
WU-M-486	> 700	-25	+75	-25	+40	-40	+85	1440	60

Optical Characteristics

at $t_p = 65^\circ\text{C}$

Type	Ref. No.	Colour	Correlated colour temperature*	Typ. luminous flux** and efficiency at				Typ. beam angle ($^\circ$)	Typ. CRI R_a	Zhaga LES Cat.	Photo- metric code
			K	700 mA lm	700 mA lm/W	1050 mA lm	1050 mA lm/W				
WU-M-486-Ga30	554489	warm white	3000	2420	78	3210	65	120	85 (special spectrum: HiGa)	23	830/349
WU-M-486-Ga40	554492	neutral white	4000	2530	81	3355	68	120	85 (special spectrum: HiGa)	23	840/349
WU-M-486-Meat	554496	"white effect"	4000	2200	71	2915	59	120	70 (special spectrum: HiGa)	23	740/349
WU-M-486-SMeat	554494	"pink effect"	2000	1885	61	2500	51	120	82	23	820/349

* Colour tolerance: 3 MacAdam | ** Production tolerance of luminous flux and efficiency: $\pm 10\%$

ZHAGA Flux Category: WU-M-486-Ga30/Ga40/Meat at 1050 mA: C30, WU-M-486-SMeat at 1050 mA: C25

Minimum order quantity: 20 pcs.

Typical Applications

WU-M-486-Ga30 554489	WU-M-486-Ga40 554492	WU-M-486-Meat 554496 "white effect"	WU-M-486-SMeat 554494 "pink effect"
• Bread & Bakery • Fruits • Vegetables • Cheese	• Fish • Drugstore • Drapery	• Meat	• Meat

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

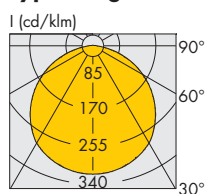
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Operating Life

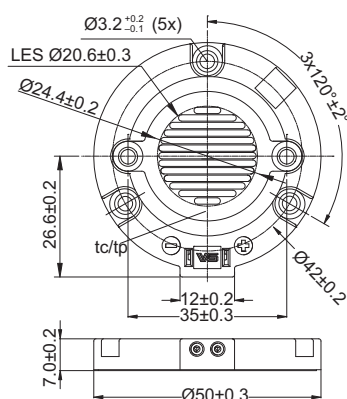
at $T_p = 65^\circ\text{C}$

Lumen maintenance	WU-M-486	
	I_F 700 mA	I_F 1050 mA
L90/B10	46,000 hrs.	30,000 hrs.
L80/B10	57,000 hrs.	44,000 hrs.
L70/B10	65,000 hrs.	52,000 hrs.

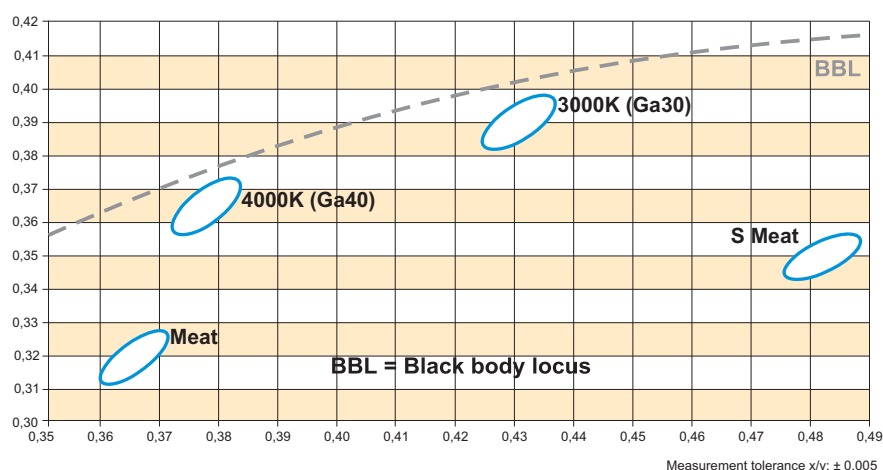
Typical Light Distribution Curve



Mechanical Dimensions



Bins



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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 with three M3 screws. A torque of 0.35 ± 0.1 Nm is required.
- 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.
- The LED modules are connected via two on-board push-in connectors for rigid or tinned conductors.

Conductor section:

 - tinned: $0.25 - 0.8$ mm²
 - rigid: $0.5 - 0.75$ mm²

Strip length: $6.5 - 8.0$ mm

The contacts can be released with a flat-headed screwdriver with a width of 3 mm.
- 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 %
- A parallel or serial 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. For optimized thermal heat transfer, a thermal conductive graphite foil is available (Ref. No.: 549501).
- 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/en/home/products/led-lighting-technology/notes-on-led-technology.html
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471: 2008.
 - general lighting
exempt group:
WU-M-486
 - other applications
risk group 1:
WU-M-486
- Zhaga standard (Book 3) is applied for specific parameters (mechanical dimensions, LES, flux category). The LED modules are not Zhaga certified.

Applied Standards

EN 62031

LED modules for general lighting – Safety specifications

EN 62471

Photobiological safety of lamps and lamp systems

Approval Marks



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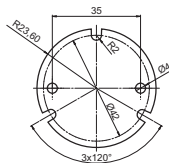
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Thermal conductive graphite tape

Type: Thermal tape Ø 47.2 mm Graphite

Thermal resistance: $R_{th} \leq 0.04 \text{ K/W}$

Ref. No.: 549501



Reflectors:

- ACL-Lichttechnik GmbH
www.reflektor.com
- Alux-Luxar GmbH & Co. KG
www.alux.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
www.led-heatsink.com

LED Constant Current Drivers

Please visit our homepage for details for suitable

LED constant current drivers:

www.vossloh-schwabe.com/en/home/products/components-for-led-lighting-technology/led-control-gears/constant-current.html

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