

LUGA COB HORTICULTURE GEN. 7

BLOOM & LEAF



LUGA COB HORTICULTURE GEN. 7 LED MODULES FOR PLANT BREEDING

DMS128*W1, DMS12C***W1, DMS18B***W1**

Typical Applications


- Greenhouse
- Research facilities
- Toplighting
- Spotlight Systems
- Replacement for HPS / MH

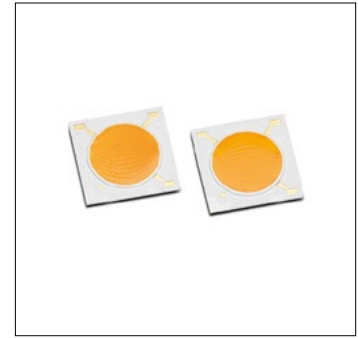
LUGA COB Horticulture Gen. 7

- **HIGH-EFFICIENT COB TECHNOLOGY**
- **SPECTRA OPTIMIZED FOR VEGETATIVE (LEAF) & GENERATIVE (BLOOM) GROWTH**
- **VERY LONG SERVICE LIFETIME AND CHEMICAL RESISTANCE**
- **HIGH PHOTON FLUX: UP TO 177 $\mu\text{mol/s}$**
- **HIGH PHOTON EFFICACY: UP TO 2.7 $\mu\text{mol/J}$**

LUGA COB Horticulture Gen. 7

Technical Notes

- LED built-in module for integration into luminaires 
- Dimensions DMS12C/ DMS18B: 28x28 mm
- Dimensions DMS128: 19x19 mm
- Max. Operating current: DMS128: 1050 mA, DMS12C: 2100 mA, DMS18B: 1700 mA
- Beam angle: 120°



Spectrum "Leaf"

Recommendation for plants and vegetables which should have an optimized vegetative growth. Due increased spectral emission in the infrared (> 700 nm), as well as in the green (500–560 nm) spectral range, the growth of the plants or the vegetables can be positively influenced. The slightly pink-coloured full spectrum light (white light with a colour rendering > 80) also shows an improved compatibility for the employees in the vicinity of the illumination solution.

Spectrum "Bloom"

"Bloom" shows an optimized effect on ornamental plants and young seedlings, which need support in the flowering or in the initial growth stage. The spectrum is characterized by its focus on the blue and red spectral range, which provides maximum efficiency in photosynthesis.

Electrical Characteristics

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

Type	Typ. voltage DC						
	350 mA	500 mA	700 mA	1050 mA	1400 mA	1700 mA	2100 mA
	V	V	V	V	V	V	V
DMS128***W1	32.5	33.1	34.3	35.6	N/A	N/A	N/A
DMS12C***W1	31.8	32.3	33.1	34.1	35.0	35.7	36.4
DMS18B***W1	47.8	48.6	49.3	51.0	52.4	53.3	N/A

Voltage tolerance: $\pm 10\%$

Type	Typ. power consumption						
	350 mA	500 mA	700 mA	1050 mA	1400 mA	1700 mA	2100 mA
	W	W	W	W	W	W	W
DMS128***W1	11.4	16.6	24.0	37.4	N/A	N/A	N/A
DMS12C***W1	11.1	16.2	23.2	35.8	49.0	60.7	76.4
DMS18B***W1	16.7	24.3	34.5	53.6	73.4	90.6	N/A

Voltage tolerance: $\pm 10\%$

Maximum Ratings

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

Type	Operating current mA	Operation temperature range at t_c -Point			Storage temperature range		Max. allowed repetitive peak current mA
		$^\circ\text{C}$ min.	$^\circ\text{C}$ max.	at LES $^\circ\text{C}$ max.	$^\circ\text{C}$ min.	$^\circ\text{C}$ max.	
DMS128***W1	< 500	-40	+120	+180	-40	+105	1600
	700		+115				
	1050		+110				
DMS12C***W1	< 700	-40	+120	+180	-40	+105	2500
	1050		+115				
	1400		+110				
	1700		+105				
	2100		+100				
DMS18B***W1	< 700	-40	+115	+180	-40	+105	2400
	1050		+110				
	1400		+100				
	1700		+75				

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

LUGA COB Horticulture Gen. 7

Optical Characteristics

at $t_p = 65\text{ °C}$

Type	Ref. No.	Colour	Correlated colour temp.* (K)	Operating current	Photon flux and efficiency in PAR range**		Photon flux and efficiency in PBAR range**		Luminous flux and efficiency**		Typ. beam angle (°)	Typ. CRI R_a	Photometric code
					typ. $\mu\text{mol/s}$	$\mu\text{mol/J}$	typ. $\mu\text{mol/s}$	$\mu\text{mol/J}$	typ. lm	lm/W			
DMS128HAWW1 (Bloom)	568912	pink	1900	350	26.1	2.3	27.7	2.4	1240	109	120	55	519
				500	36.4	2.2	38.6	2.3	1728	104			
				700	49.1	2.0	52.1	2.2	2340	97			
				1050	69.2	1.9	73.4	2.0	3300	88			
DMS128HAJW1 (Leaf)	568913	pinkish white	2700	350	23.0	2.0	26.9	2.4	1096	96	120	85	827
				500	32.1	1.9	37.5	2.3	1533	93			
				700	43.5	1.8	50.8	2.1	2080	87			
				1050	61.6	1.6	71.9	1.9	2957	79			
DMS12CHAWW1 (Bloom)	568914	pink	1900	350	28.4	2.6	29.9	2.7	1340	120	120	55	519
				500	39.8	2.5	42.1	2.6	1890	117			
				700	54.5	2.4	57.8	2.5	2590	112			
				1050	78.6	2.2	83.4	2.3	3745	105			
				1400	100.9	2.1	107.0	2.2	4810	98			
				1700	118.5	2.0	125.7	2.1	5660	93			
DMS12CHAJW1 (Leaf)	568915	pinkish white	2700	350	25.4	2.3	29.7	2.7	1205	108	120	85	827
				500	35.6	2.2	41.7	2.6	1700	105			
				700	48.8	2.1	57.0	2.5	2325	100			
				1050	70.4	2.0	82.2	2.3	3365	94			
				1400	90.3	1.8	105.4	2.2	4320	88			
				1700	106.2	1.7	123.9	2.0	5090	84			
DMS18BHAWW1 (Bloom)	568916	pink	1900	350	42.0	2.5	44.5	2.7	1995	119	120	55	519
				500	59.0	2.4	62.5	2.6	2805	115			
				700	80.5	2.3	85.4	2.5	3830	111			
				1050	115.5	2.2	122.5	2.3	5505	103			
				1400	146.9	2.0	155.8	2.1	7015	96			
				1700	171.3	1.9	181.8	2.0	8200	90			
DMS18BHAJW1 (Leaf)	568917	pinkish white	2700	350	37.3	2.2	43.7	2.6	1775	106	120	85	827
				500	52.3	2.2	61.2	2.5	2490	102			
				700	71.4	2.1	83.5	2.4	3410	99			
				1050	102.4	1.9	119.6	2.2	4900	92			
				1400	130.6	1.8	152.5	2.1	6270	85			
				1700	152.3	1.7	177.7	2.0	7330	81			

* Colour tolerance: 3 MacAdam | ** Production tolerance of photon flux, luminous flux and efficiency: $\pm 10\%$ | PAR: 400–700 nm; PBAR: 280–800 nm

Minimum order quantity: DMS128: 60 pcs., DMS12C and 18B:36 pcs.

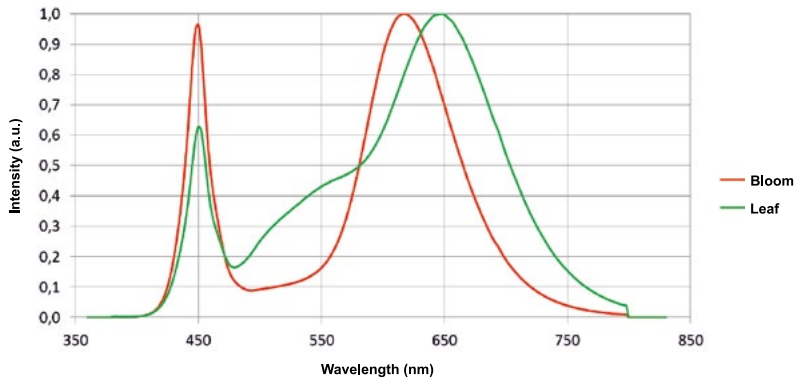
The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

LUGA COB Horticulture Gen. 7

Spectral Characteristics

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

Type	Spectral distribution related to $\mu\text{mol/s}$				Ratios		
	400–500 nm (blue)	500–600 nm (green)	600–700 nm (red)	> 700 nm (far red)	blue – red	blue – green	red – far red
Bloom	16.5 %	22.1%	56.0%	5.4%	1 – 3.4	1 – 1.3	1 – 0.1
Leaf	10.1 %	23.3%	52.8%	13.8%	1 – 5.3	1 – 2.3	1 – 0.3



* All characteristics shown are for reference only and will not be guaranteed

Operating Life

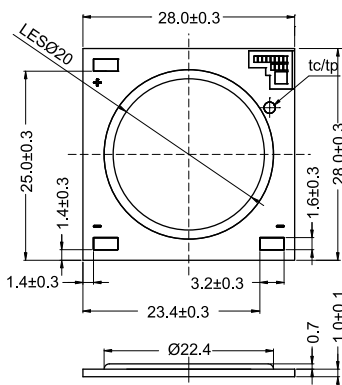
at $t_p = 65\text{ }^\circ\text{C}$

Lumen maintenance	DMS128***W1 (at It)				DMS18B***W1 (at It)			
	300 mA	500 mA	700 mA	1050 mA	< 700 mA	1050 mA	1400 mA	1700mA
L90/B10	95,000 hrs.	90,000 hrs.	83,000 hrs.	72,000 hrs.	87,000 hrs.	81,000 hrs.	73,000 hrs.	67,000 hrs.
L80/B10	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.
L70/B10	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.

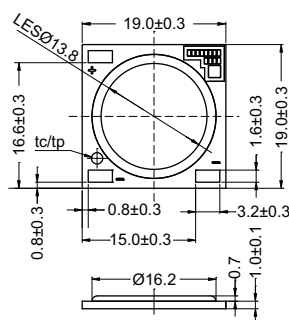
Lumen maintenance	DMS12C***W1 (at It)				
	< 700 mA	1050 mA	1400 mA	1700mA	2100 mA
L90/B10	94,000 hrs.	89,000 hrs.	83,000 hrs.	78,000 hrs.	72,000 hrs.
L80/B10	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.
L70/B10	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.	> 100,000 hrs.

Dimensions

DMS12C/18B



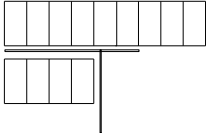
DMS128



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

LUGA COB Horticulture Gen. 7

Production Code



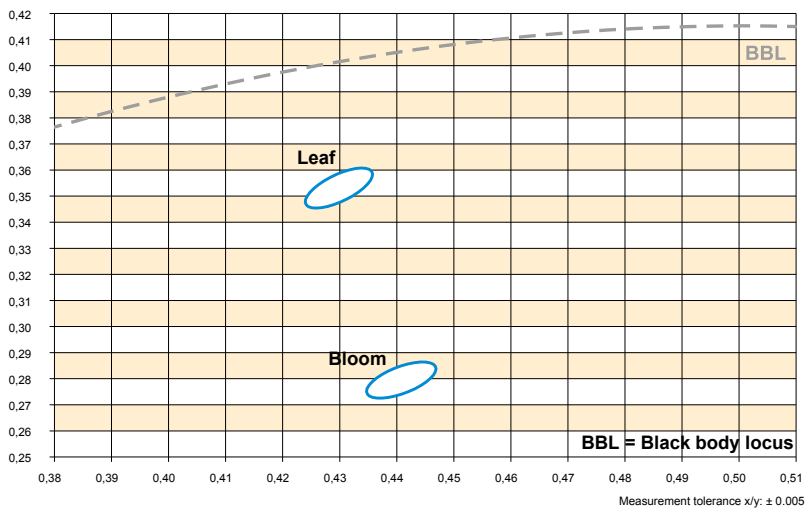
Product	Product Code
DMS128HAWW1 (Bloom)	28HAWW
DMS128HAJW1 (Leaf)	28HAJW
DMS12CHAWW1 (Bloom)	2CHAWW
DMS12CHAJW1 (Leaf)	2CHAJW
DMS18BHAWW1 (Bloom)	8BHAWW
DMS18BHAJW1 (Leaf)	8BHAJW

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

Type	Basic insulation	Reinforced insulation
DMS128	235 V DC	60 V DC
DMS12C/18B	330 V DC	175 V DC

Thickness of PCB is included in calculation.

Bins



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

LUGA COB Horticulture Gen. 7

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); $U_{max.} \leq 60\text{ V}$
 - $I_{max.}$ (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: $\pm 7\%$
 - voltage: $\pm 3\%$
 - CRI: $\pm 1\%$
- 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.

Type	Risk group 1	Risk group 2
DMS128HAWW1 (Bloom)	$\leq 840\text{ mA}$	$> 840\text{ mA}$
DMS128HAJW1 (Leaf)	$\leq 1050\text{ mA}$	–
DMS12CHAWW1 (Bloom)	$\leq 1365\text{ mA}$	$> 1365\text{ mA}$
DMS12CHAJW1 (Leaf)	$\leq 2100\text{ mA}$	–
DMS18BHAWW1 (Bloom)	$\leq 1260\text{ mA}$	$> 1260\text{ mA}$
DMS18BHJW1 (Leaf)	$\leq 1700\text{ mA}$	

Applied Standards

EN 62031
LED modules for general lighting – Safety specifications
EN 62471
Photobiological safety of lamps and lamp systems

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.

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

Accessories

COB Silicone-Optic SYM II



www.vossloh-schwabe.com/en/products/optics/compact-optics/compact-optics-for-cob/

Holder Easy and Reflectors for LUGA modules



Holders:
www.vossloh-schwabe.com/en/products/accessories/holders/pcbs-holders-easy/

Reflectors:
www.vossloh-schwabe.com/en/products/accessories/reflectors/reflectors-oe-50-mm/

PCB holders for LUGA modules



www.vossloh-schwabe.com/en/products/accessories/holders/two-piece-pcb-holders/

LED Constant Current Driver

Please visit our homepage for details for suitable LED constant current drivers: www.vossloh-schwabe.com

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