



A New Lighting Experience



- long service lifetime due to optimal thermal management
- very high lumen output
- highly efficient (up to 52 lm/W)
- available in different colours
- easy connections due to pre-assembled leads
- attachment for lenses with different radiation angles
- lead-free soldered
- resistant against shock and vibrations

## PowerEmitter 3 Watt

### VS-PowerEmitter-XR

#### Typical Applications

- Integration in luminaires
- Architectural illumination
- Marking of paths, stairs, etc.
- Furniture lighting
- Light advertising
- Entertainment, shop design

#### Vossloh-Schwabe Deutschland GmbH

Hohe Steinert 8 · 58509 Lüdenscheid, Germany · Phone: +49 (0) 23 51/101-0  
Fax: +49 (0) 23 51/101-217 + -384 · [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)

# PowerEmitter 3 Watt

## Technical Notes

- PCB diameter: 30 mm
- Pre-assembled with 2 leads
- FR4-PCB with thermal vias for optimum thermal management
- ESD protection class 2

The PowerEmitter modules are also available without leads.

The special reference numbers for these versions are available on request.

## Electrical Characteristics

at ambient temperature  $t_a = 25\text{ °C}$

Type	Ref. No.	Colour	Max. current mA	Max. voltage DC V	Max. power consumption W
VS-PowerEmitter-XR-SO	<b>533332</b>	Red	700	3.0	2.1
VS-PowerEmitter-XR-SG	<b>533333</b>	Green	700	4.3	3.0
VS-PowerEmitter-XR-SB	<b>533334</b>	Blue	700	4.3	3.0
VS-PowerEmitter-XR-W	<b>533335</b>	White	700	4.3	3.0

**Use of external LED constant current driver with max. 700 mA required.**

## Maximum Ratings

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

Type	Operation temperature range at $t_c$ -point		Storage temperature range		Reverse voltage V
	°C min.	°C max.	°C min.	°C max.	
All types	-20	+80	-20	+85	5

## Optical Characteristics

at junction temperature  $t_j = 25\text{ °C}$

Type	Ref. No.	Colour	Dom. wavelength nm	Correlated colour temperature (K)	Luminous flux at 350 mA <sup>1</sup>		Radiation angle* °
					min. (lm)	typ. (lm)	
VS-PowerEmitter-XR-SO	<b>533332</b>	Red	620–635		23	40	100
VS-PowerEmitter-XR-SG	<b>533333</b>	Green	520–535		39	52	100
VS-PowerEmitter-XR-SB	<b>533334</b>	Blue	465–475		10	19	100
VS-PowerEmitter-XR-W	<b>533335</b>	White		5700...7000	39	52	100

<sup>1</sup> Luminous flux at 700 mA: White, Blue and Green: +70%; Red: +50%

\* On account of the complex manufacturing process of the modules the above values only represent statistical variables.

The values do not necessarily correspond exactly to the actual parameters of every single product which can vary from the typical specification.

## Thermal Characteristics

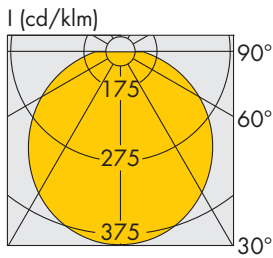
Type	Thermal resistance, p-n junction to $t_c$ point K/W	Thermal resistance, p-n-junction to bottom of PCB K/W
White, Blue, Green	8	17.7
Red	15	24.7

VS recommends an additional cooling element for improved thermal management.

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification. Please find further detailed information at [www.vs-optoelectronic.com](http://www.vs-optoelectronic.com).

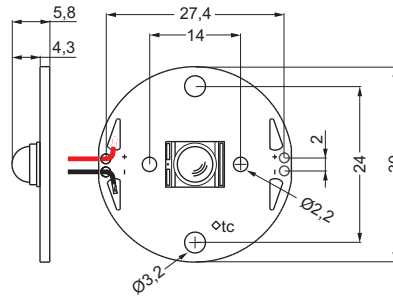
# PowerEmitter 3 Watt

## Light Distribution Curve



Attachment optics with various radiation characteristics are available at VS Optoelectronic. Please find further information at [www.vs-optoelectronic.com](http://www.vs-optoelectronic.com).

## Mechanical Dimensions



The PCB is pre-assembled with 2 leads of 200 mm in length:  
 red: anode (+); 22AWG/0.34 mm<sup>2</sup>  
 black: cathode (-); 22AWG/0.34 mm<sup>2</sup>

## Assembly and Safety Information

- LED modules and all PCB components must not be subjected to undue mechanical stress:
    - LED modules must not be handled as bulk cargo
    - Shear and pressure stress must be avoided on LEDs during assembly and handling
  - The circuit path must not be damaged or interrupted.
  - Fixing holes are integrated in the PCB for easy assembly. Please use only plastic bolts for assembly to avoid short circuits or damage.
  - Safe operation is only possible with an external constant current source (max. 700 mA).
  - Operation is dependent on constant current drivers that should provide the following protective measures:
    - short-circuit protection
    - overload protection
    - overheating protection
    - SELV equiv. (Safety Extra Low Voltage)
  - PowerEmitter 3 Watt modules are pre-assembled with two leads (22AWG) with a length of 200 mm. The connecting strands can be passed through two holes to the rear.
  - Safe operation is dependent on ensuring that the p-n junction temperature of 145 °C is not exceeded. Depending on the ambient temperature and type of application, additional cooling surfaces and heat-conductive paste or tape (Ref. No. 529158) must be used to avoid heat accumulation in the module.
  - Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
  - The maximum output of the power supply must be observed.
  - Please ensure standard ESD (electrostatic discharge) protection measures are employed when handling and installing LED modules. Electrostatic discharge can damage LEDs.
  - The modules are not protected against dust or moisture. When LED modules are operated in unduly moist or dusty environments, care must be taken to ensure each module is built into a protective casing in compliance with the correct IP classification or provided with corrosion protection. Damage caused by moisture and/or corrosion will not be recognised as a material or manufacturing defect.
  - Tests have shown the following chemicals to be harmful to LEDs used on the modules. It is recommended not to use the under-mentioned chemicals anywhere in an LED system. The fumes from even small amounts of these chemicals may damage the LEDs.
    - Chemicals that might outgas aromatic hydrocarbons (e.g., toluene, benzene, xylene)
    - Methyl acetate or ethyl acetate (i.e., nail polish remover)
    - Cyanoacrylates (i.e., "Superglue")
    - Glycol ethers (including Radio Shack®, Precision Electronics Cleaner – dipropylene glycol monomethyl ether)
    - Formaldehyde or butadiene (including Ashland PLIOBOND® adhesive)
    - Dymax 984-LVUF conformal coating
    - Loctite Sumo glue
    - Gorilla glue
    - Clorox bleach
    - Clorox Clean-Up cleaner spray
    - Loctite 384 adhesive
    - Loctite 7387 activator
    - Loctite 242 threadlocker
- Detailed information of handling of Cree LEDs can be found on [www.cree.com](http://www.cree.com).

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification. Please find further detailed information at [www.vs-optoelectronic.com](http://www.vs-optoelectronic.com).