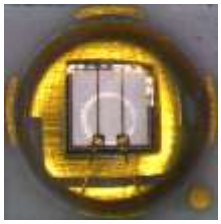
ROSCHWEGE GmbH

Germany

D a t a s h e e t

High Power UV-LED Emitter



RSW-P01-385-2.pdf

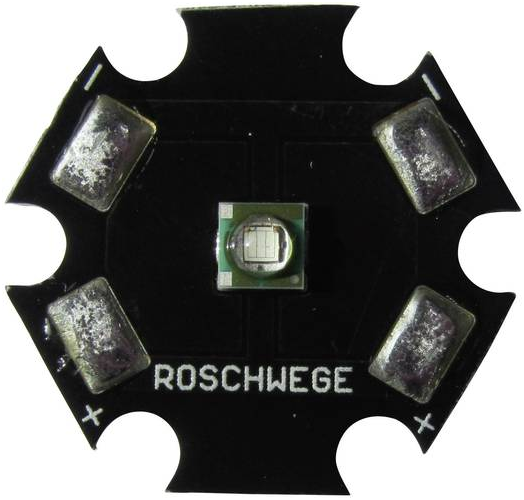
Conrad Art. Nr.: 491115 / STAR-UV385-01-00-00

Key Features

- Super high power output
- Designed for highcurrent operation
- Low thermal resistance
- SMT solderable
- Lead Free product
- RoHS complient

Typical Applications

- UV Curing
- Printing
- Coating
- Adhesive
- Counterfeit Detection/Security
- UV Torch
- Fluorescence Photography
- Dental Curing
- Crime Inspection
- Oil leak Detection



Description

The RSW-P01-385-2 High power UV LED series are designed for high current operation and high power output applications. It incorporates state of the art SMD design and low thermal resistant material. Z5 NUV LED is ideal UV light source for curing, printing, and detecting applications.

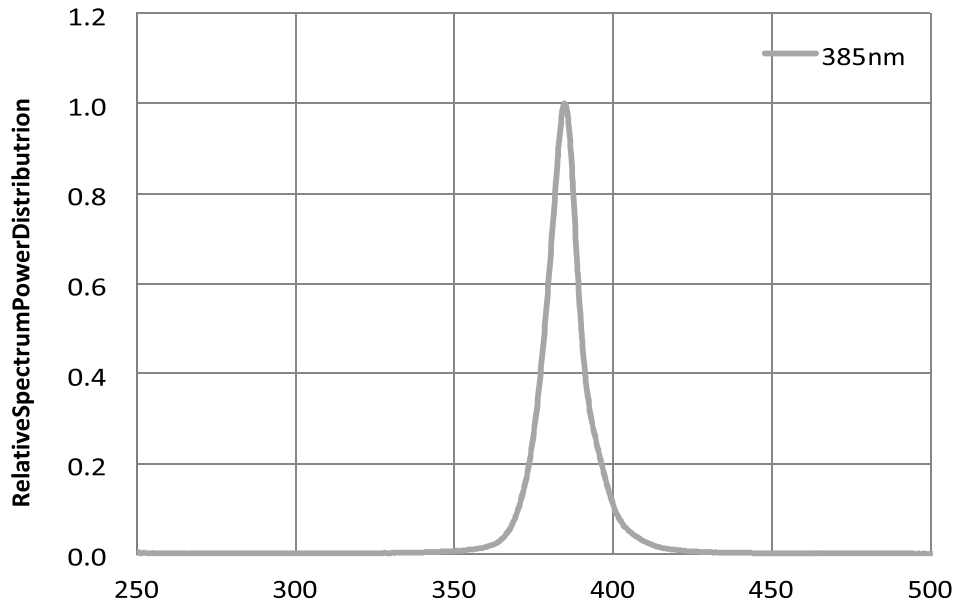
Characteristics

Parameter	Symbol	Value	Unit
Peak wavelength	λ_p	385	nm
Radiant Flux	Φ_e[3]	1100	mW
Forward Voltage	V_F	3.6	V
Spectrum Half Width	$\Delta\lambda$	12	nm
View Angle	2Θ1/2	120	deg.
Thermal resistance	RθJ-s[5]	7.8	ºC /W

Absolute Maximum Ratings

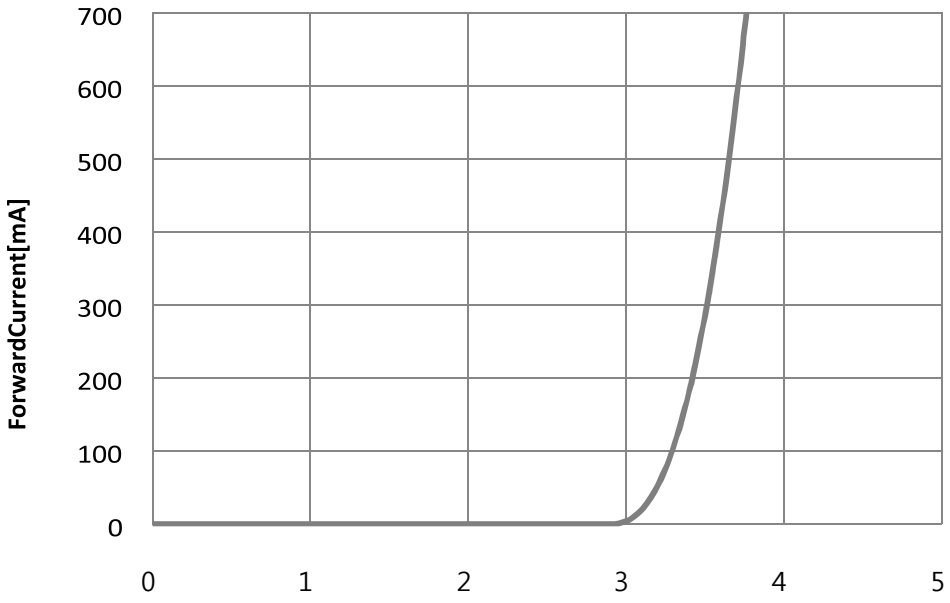
Parameter	Symbol	Value	Unit
Forward Current	I_F	700	mA
Junction Temperature	T_j	125	ºC
Operating Temperature	T_{opr}	-10 ~ +85	ºC
Storage Temperature	T_{stg}	-40 ~ +100	ºC

Relative Spectral Power Distribution



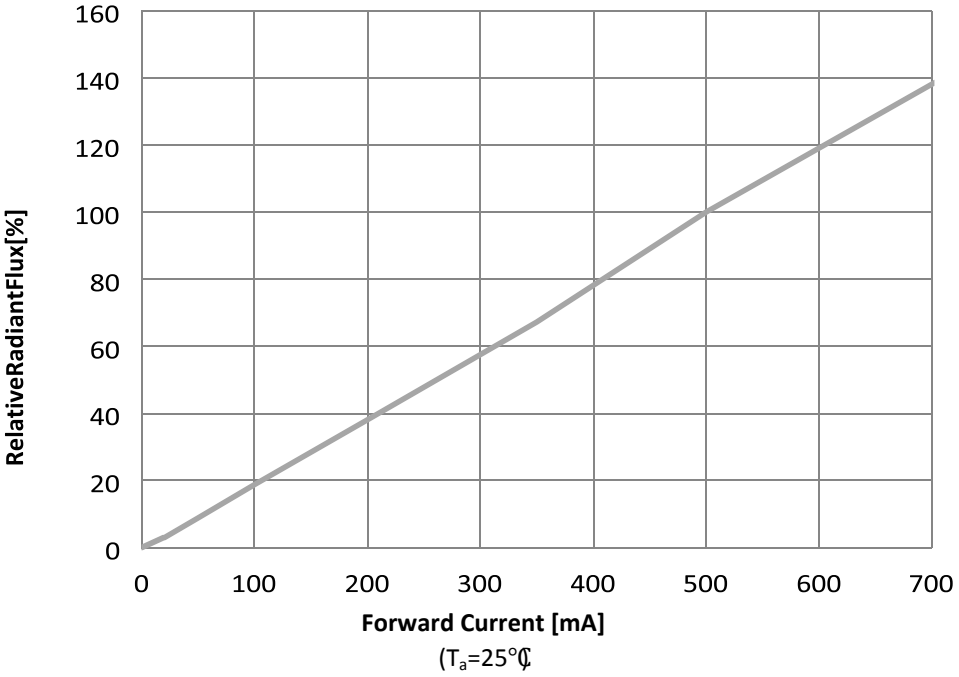
(I_F=500 mA, T_a=25℃, RH=30%)

Forward Current VS Forward Voltage



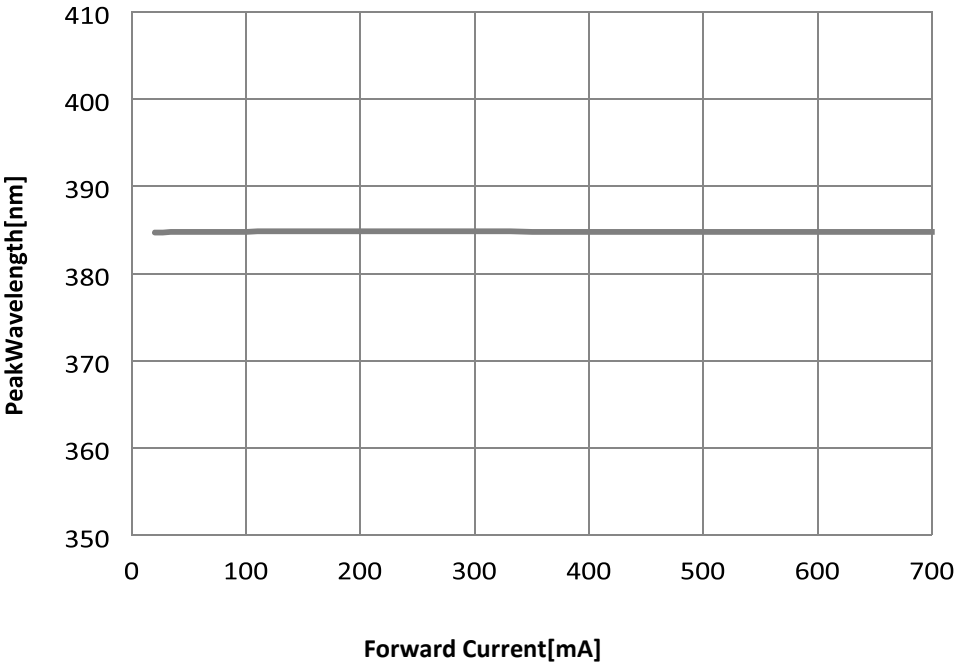
(T_a=25℃)

Relative Radiant Flux VS Forward Current



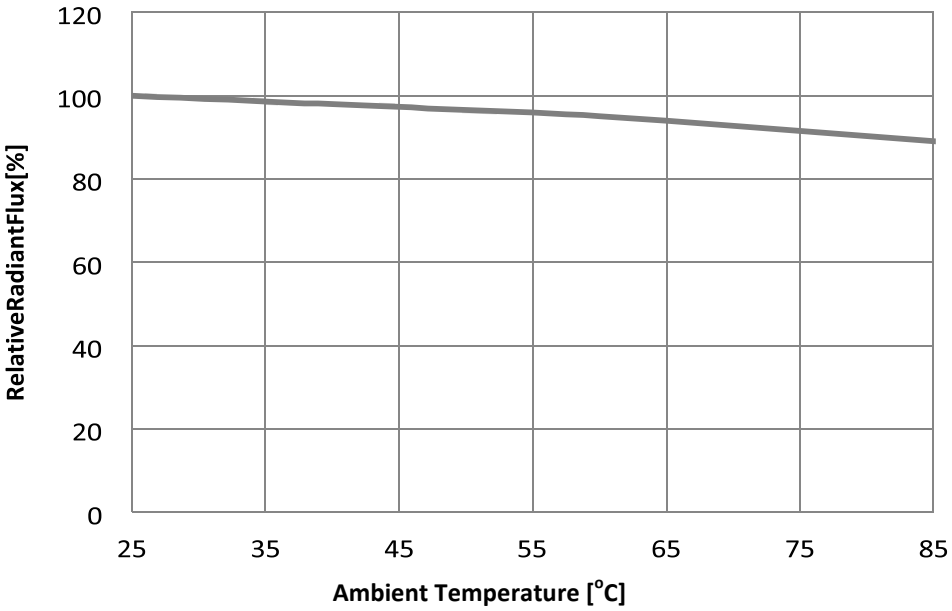
(T_a=25℃)

Peak Wavelength VS Forward Current



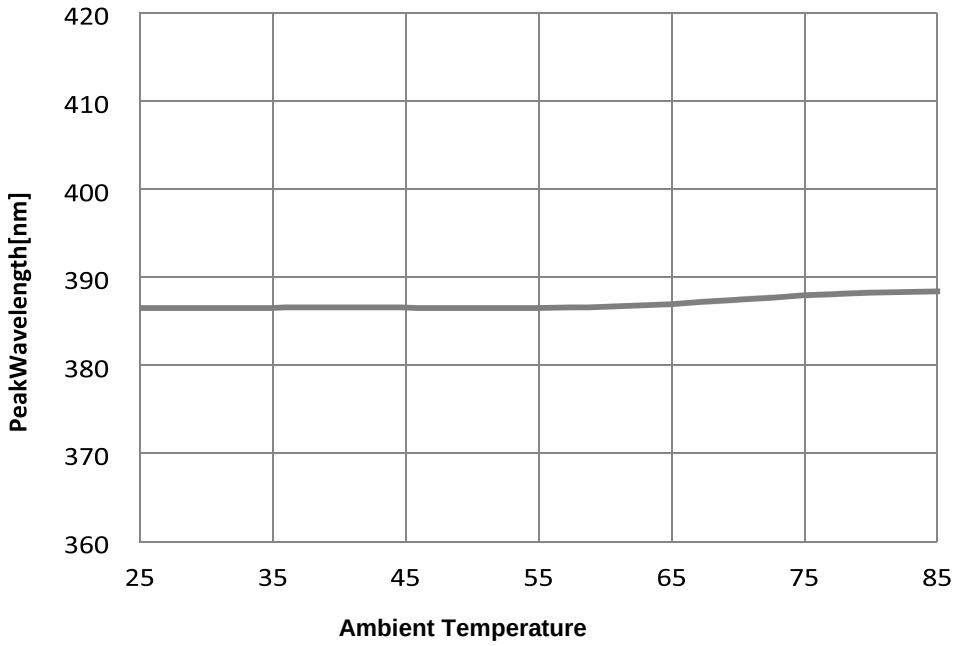
(T_a=25℃)

Relative Radiant Flux VS Ambient Temperature



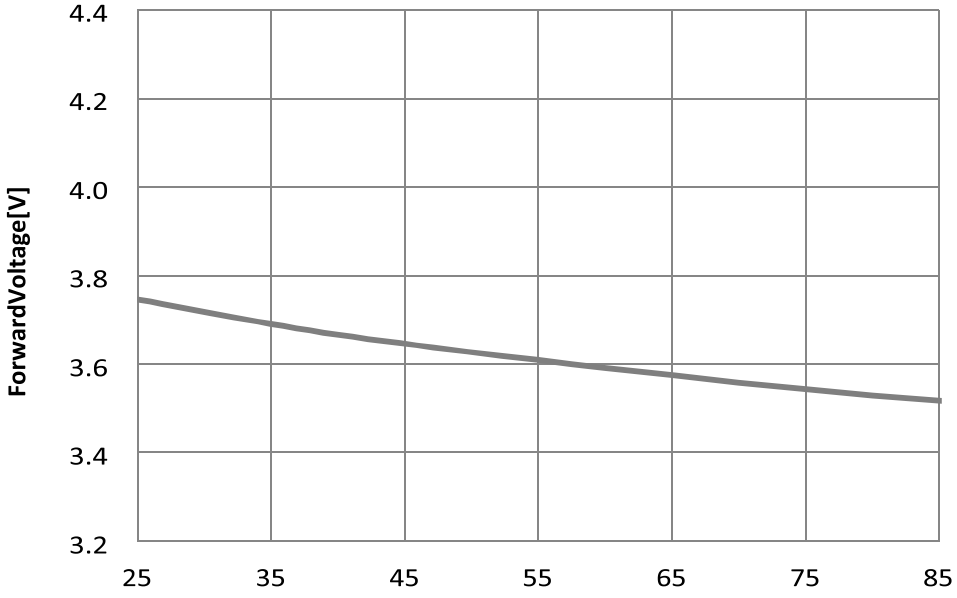
(I_F=500mA)

Peak Wavelength VS Ambient Temperature



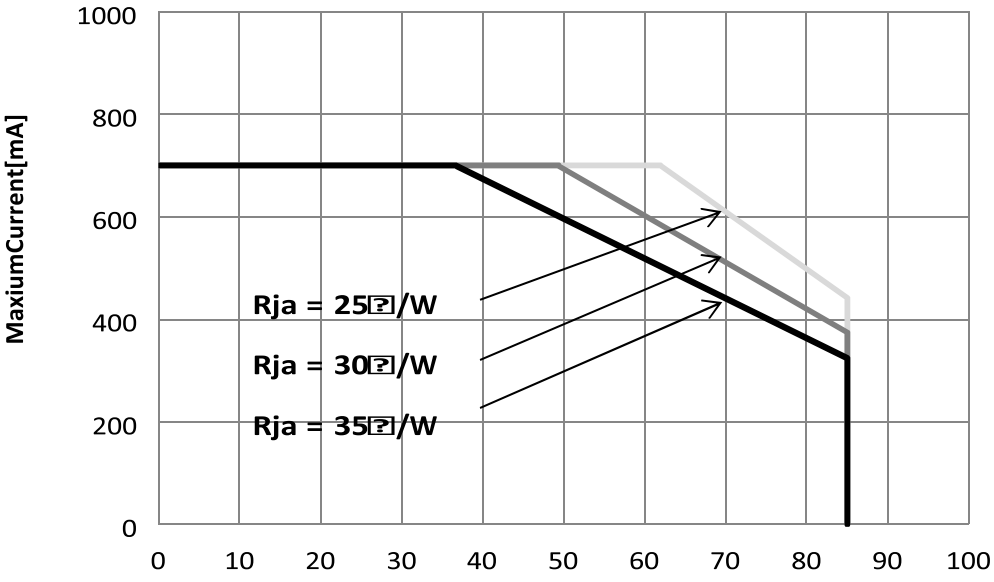
(I_F=500mA)

Forward Voltage VS Ambient Temperature

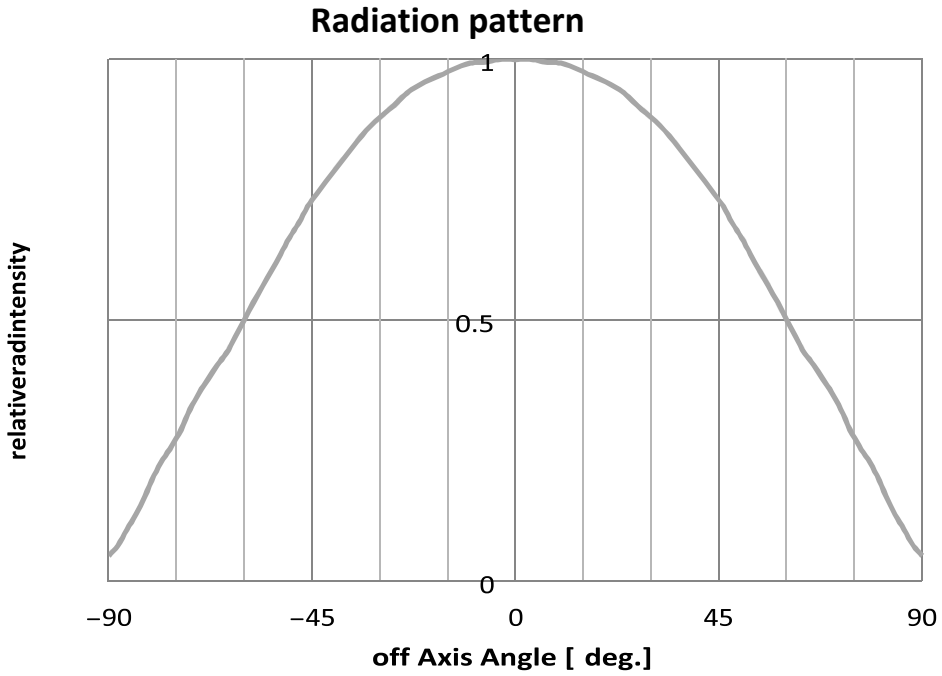


(I_F=500mA)

Allowable Forward Current VS Ambient Temperature



(T_{jmax} = 125°C,I_F=700mA).



(I_F=500mA)

Reliability

Test Item	Test Condition	Note	Failed/Testet
High Temp. Operational Life	Ta=85℃, IF=500mA	1000hrs	0/5
Room Temp. Operational Life	Ta=25℃, IF=500mA	1000hrs	0/5
Thermal shock	Ta max=120℃, Ta min=-40℃ 30min dwell/transfer time : 10sec, 1 cycle=1hr	200 cycles	0/22
Resistance to Soldering	Temp=260±5℃, Time : 10±1 sec	1 time	0/10
Solderability	Temp=260±5℃, 95% Coverage	1 time	0/10
ESD	R=1.5kΩ, C=100pF Voltage level=2kV	3 times Negative /positive	0/22

Failure Criteria

Parameter	Symbol	Test Conditions	Max. or Min. allowable shift value
Forward Voltage	V_F	IF=350mA	Max. Initial measurement x 1.2
Radiant Flux	Φ_e	IF=350mA	Min. Initial measurement x 0.7

Precaution for use

1) Storage

- To avoid moisture penetration, we recommend storing UV LEDs in a dry box with a desiccant. The recommended temperature and Relative humidity are between 5℃ and 30℃ and below 50% respectively.
- LEDs must be stored properly to maintain the device. If the LEDs are stored for 3 months or more after being shipped from SVC, a sealed container with a nitrogen atmosphere should be used for storage.
- Replace the remained LEDs into the moisture-proof bag and reseal the bag after work to avoid those LEDs being exposed to moisture. Prolonged exposure to moisture can adversely affect the proper functioning of the LEDs.
- If the package has been opened more than 4 eek(MSL_2a) or the color of the desiccant changes, components should be dried for 10-12hr at 60±5℃
- The conditions of resealing are as follows
  - Temperature is 5 to 40℃ and Relative humidity is less than 30%

2) Handling Precautions

- VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures can penetrate silicone encapsulants of LEDs and discolor them when exposed to heat and photonic energy. The result can be a significant loss of light output from the fixture. Knowledge of the properties of the materials selected to be used in the construction of fixtures can help prevent these issues.
- In case of attaching LEDs, do not use adhesives that outgas organic vapor.
- Soldering should be done as soon as possible after opening the moisture-proof bag.
- Do not rapidly cool device after soldering.
- Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering.
- Components should not be mounted on warped (non coplanar) portion of PCB.
- The UV LED is encapsulated with a silicone resin for the highest flux efficiency. So it needs to be handled carefully as below
  - Avoid touching silicone resin parts especially with sharp tools such as pincettes(Tweezers) – Avoid leaving fingerprints on silicone resin parts.
  - Silicone resin will attract dust so use covered containers for storage.
  - When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that excessive mechanical pressure on the surface of the resin must be prevented.
  - It is not recommend to cover the silicone resin of the LEDs with other resin (epoxy, urethane, etc).

3) Safety for eyes and skin

- The Products emit high intensity ultraviolet light which can make your eyes and skin harmful, So do not look directly into the UV light and wear protective equipment during operation.

4) Cleaning

- This device is not allowed to be used in any type of fluid such as water, oil, organic solvent , etc.

5) Others

- The appearance and specifications of the product may be modified for improvement without notice.
- When the LEDs are in operation the maximum current should be decided after measuring the package temperature.
- The driving circuit must be designed to allow forward voltage only when it is ON or OFF. If the reverse voltage is applied to LED, migration can be generated resulting in LED damage.

Do not handle this product with acid or sulfur material in sealed space

ROSCHWEGE GmbH

Technical LED-Solutions

Technical modifications and errors reserved