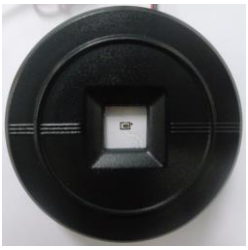
UV Module Solution

**Pre-specification**

**CMW-FCC-CO1A**



RoHS

# Product Brief

## Description

CMW-FCC-CO1A is a waterproof module with peak emission wavelengths from 270 to 280nm.

The LED is sealed behind a UV-transparent window to protect it from liquid and dust. The module also features a threaded body and mounting nut for hassle-free attachment into a 36mm diameter hole.

CMW-FCC-CO1A is suitably designed for water and surface sterilization.

## Features and Benefits

- Waterproof
- Deep ultraviolet LED
- Compact footprint
- RoHS compliant

## Key Applications

- Disinfection
- Fluorescent spectroscopy
- Chemical and biological analysis

**Table 1. Product**

| Model | Color | IP Grade | $I_F$ [mA] | Wp [nm] | | Remark |
|---|---|---|---|---|---|---|
| | | | | Min | Max | |
| CMW-FCC-CO1A | Black | IPX8 | 100 | 270 | 280 | Constant Current Drive |

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# Performance Characteristics

**Table 2. Electro - Optical characteristic at 100mA**

($T_a$=25℃, RH=30%)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Wavelength [1] | $\lambda_p$ | 275 | nm |
| Forward Voltage | $V_F$ | 6.5 | V |
| Radiant Flux[2] | $\Phi_e$[3] | 7 | mW |
| Power Consumption | P | 0.65 | W |
| Spectrum Half Width | $\Delta\lambda$ | 10 | nm |
| View Angle | $2\Theta_{1/2}$ | 125 | deg. |
| Weight | m | 16 | g |

**Table 3. Absolute Maximum Rating**

| Parameter | Symbol | Value | | | Unit |
|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | |
| Input Current | $I_F$ | | | 100 | mA |
| Operating Temperature [7] | $T_{opr}$ | - 20 | | 60 | ºC |
| Storage Temperature [7] | $T_{stg}$ | - 40 | | 85 | ºC |

Notes :

1. Peak wavelength measurement tolerance: ± 3 nm
2. Radiant Flux measurement tolerance: ± 10%
3. $\Phi_e$ is the Optical Output Power as measured with an integrated sphere
4. Forward voltage measurement tolerance: ± 3%

# Characteristics Graph

**Fig 1. Spectrum, Ta=25℃**

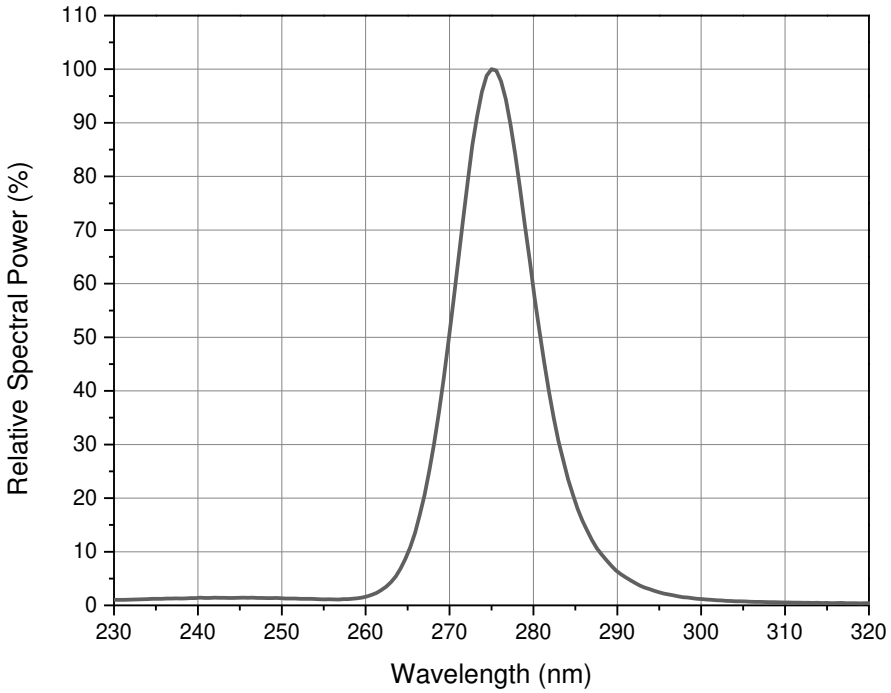
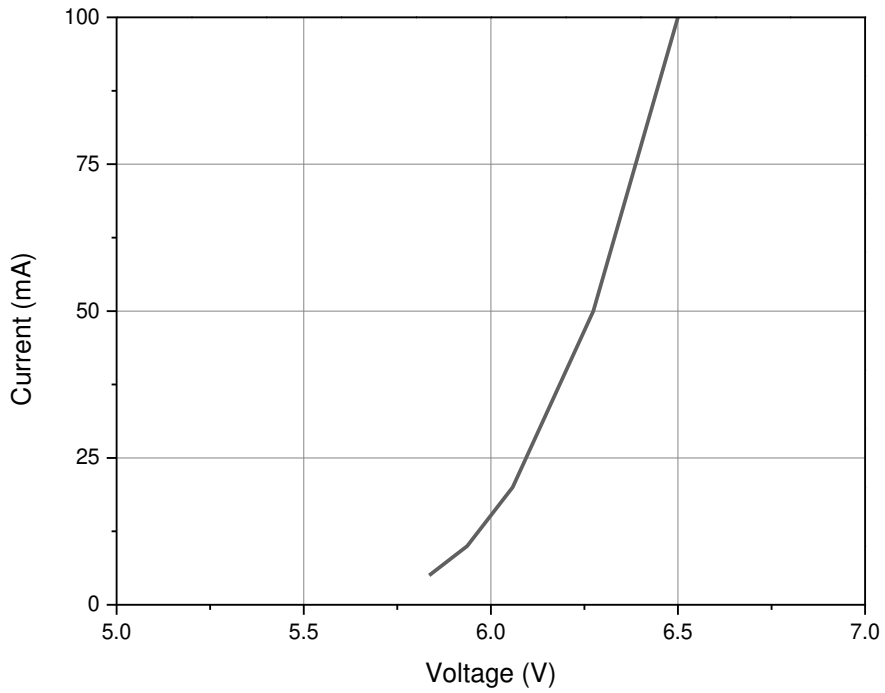



**Fig 2. Forward Current vs. Forward Voltage, Ta=25℃**



# Characteristics Graph

**Fig 3. Relative Optical Output Power vs. Forward Current, $T_a$=25℃**

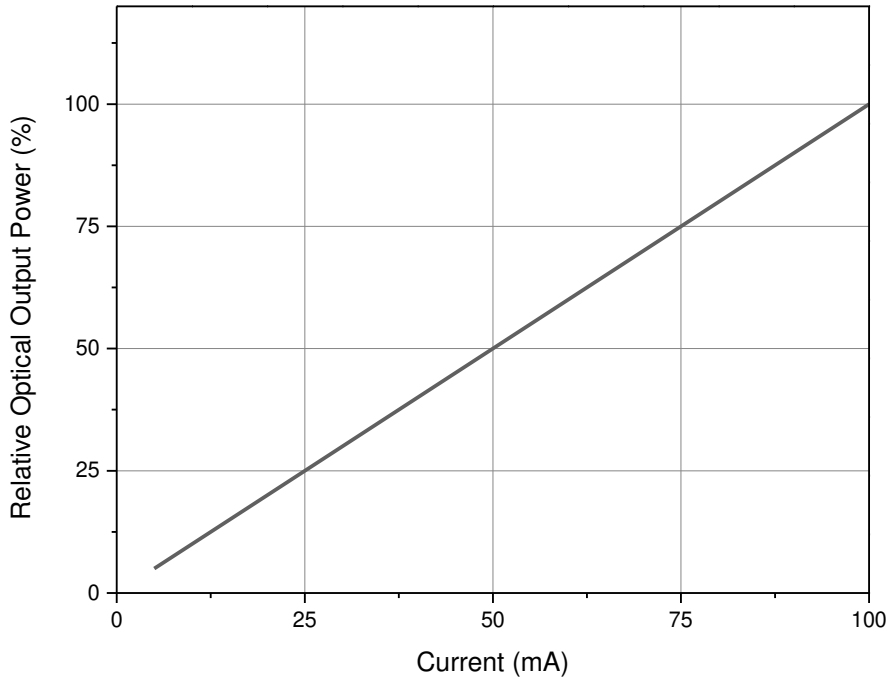
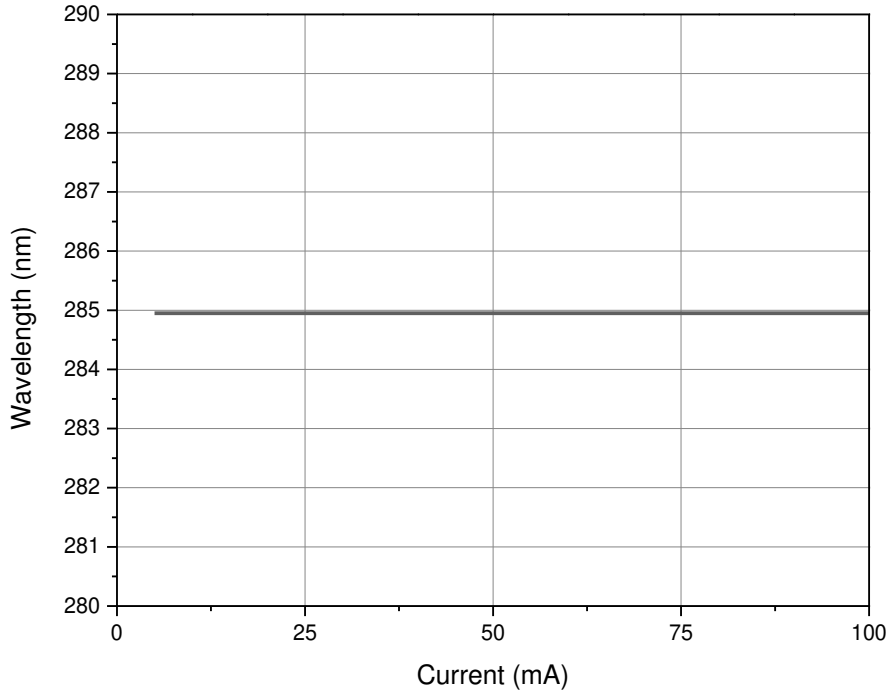



**Fig 4. Peak Wavelength vs. Forward Current, $T_a$=25℃**



# Characteristics Graph

**Fig 5. Relative Radiant Flux vs. Ambient Temperature, $I_F$=100mA**

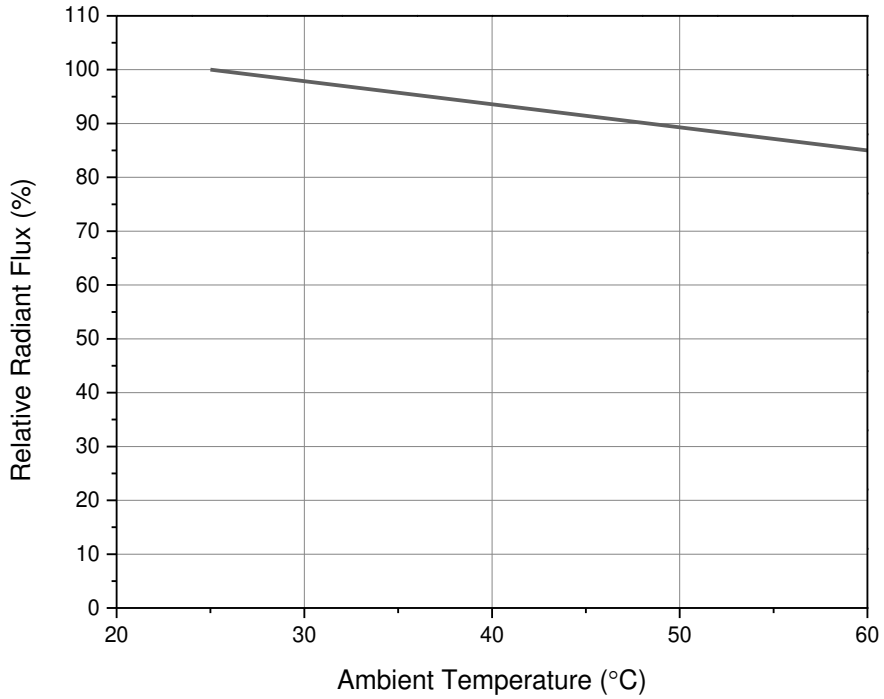
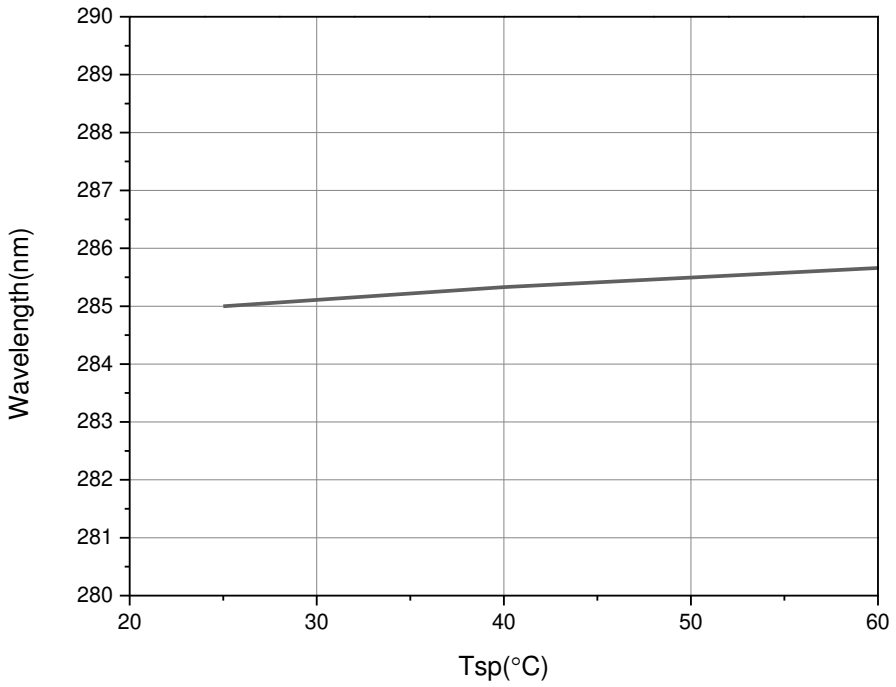



**Fig 6. Peak Wavelength vs. Solder Point Temperature, $I_F$=100mA**



# Characteristics Graph

**Fig 7. Forward Voltage vs Solder Point Temperature, $I_F$=100mA**

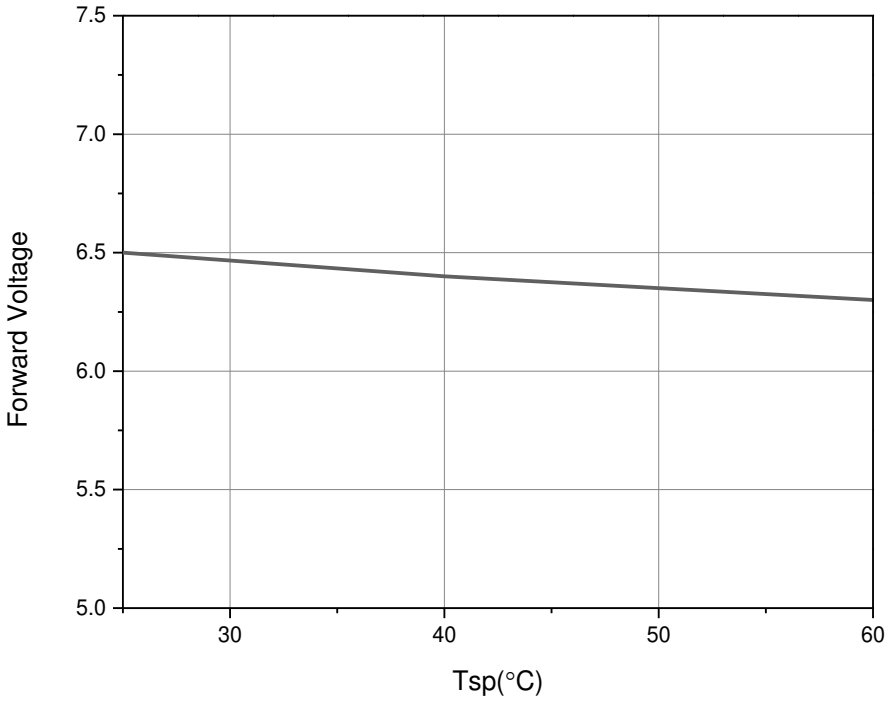
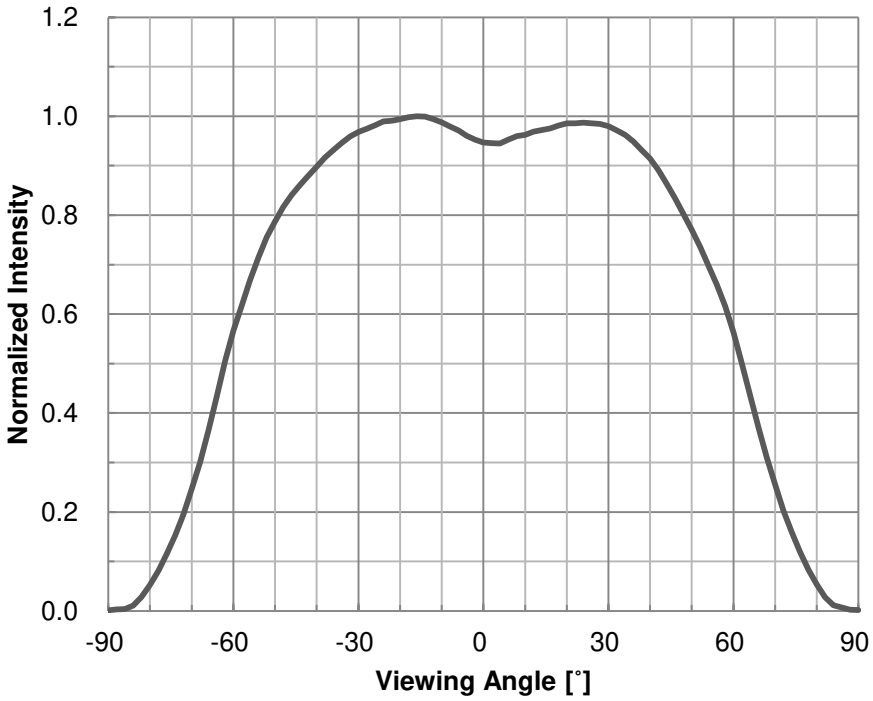
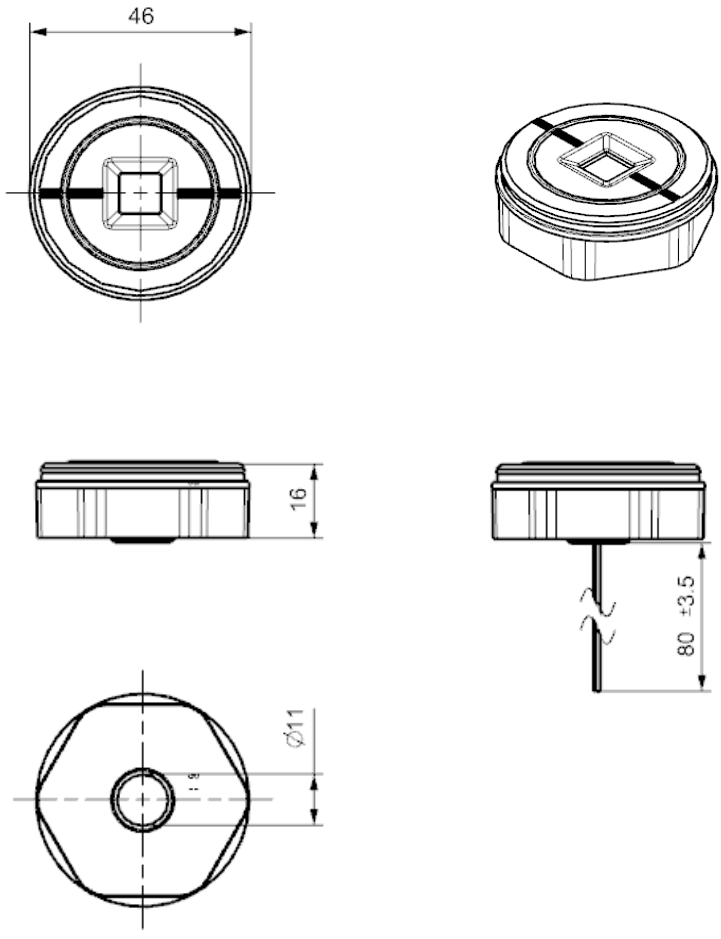



**Fig 8. Typical Spatial Distribution, $I_F$=100mA**

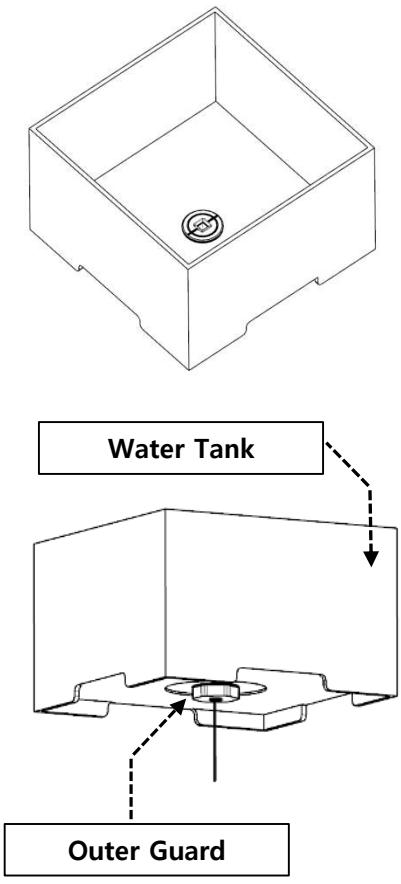


# Mechanical Dimensions

Unit : mm




"UV Module" Assembly Guide




**Notes :**

**- During assembly, the optimal torque on the "Outer Holder" component varies depending on the material properties and wall thickness of the system utilizing the module. Test and optimize it to suit your system.**

**SVC does not warranty assembly failure for the "Outer Holder" component.**

**- Dimensions indicate a nominal value with a tolerance of ±0.5 mm.**

# Precaution for Use

A. UV Light

- These devices are ultraviolet LEDs. During operation, the LED emits high intensity ultraviolet (UV) light, which is harmful to skin and eyes. Do not look directly into the UV light and wear protective equipment during operation.
- UV light is hazardous to skin and may cause cancer. Avoid exposure to UV light when LED is operational.
- Precautions must be taken to avoid looking directly at the UV light without the use of UV light protective glasses. Do not look directly at the front of the LED or at the LED's lens when LED is operational.
- **Attach the following warning labels on products/systems that use UV LEDs.**


B. Static Electricity

- Electrostatic discharge (ESD) is the defined as the release of static electricity when two objects come into contact. While most ESD events are considered harmless, it can be an expensive problem in many industrial environments during production and storage. The damage from ESD to an LEDs may cause the product to demonstrate unusual characteristics such as:

  - Increase in reverse leakage current lowered turn-on voltage

  - Abnormal emissions from the LED at low current

- The following recommendations are suggested to help minimize the potential for an ESD event.
- One or more recommended work area suggestions:

  - Ionizing fan setup

  - ESD table/shelf mat made of conductive materials

  - ESD safe storage containers

- One or more personnel suggestion options:

  - Antistatic wrist-strap

  - Antistatic material shoes

  - Antistatic clothes

- Environmental controls:

  - Humidity control (ESD gets worse in a dry environment)

# Precaution for Use

C. Handling Precautions

- Do not use flammable material near the modules.
- Do not touch the modules with wet hands
- Do not attempt to repair or disassemble the module.
- Do not drop or subject the module to strong impacts.
- Avoid touching quartz glass parts especially with sharp tools such as Tweezers
- Avoid leaving fingerprints on the quartz lens.
- Use covered containers for storage to prevent dust buildup.

D) Other

- Do not connect the module to a powered-on system/circuit.
  - When connecting the module to an already powered circuit, the LED can be damaged by the inrush voltage / current.
- Epoxy Molding
  - Bubbles may form during curing after epoxy molding.
  - Bubbles are not problematic in function of product and may burst during handling.
  - SVC manages bubbles to within 2mm.