ROITHNER LASERTECHNIK GmbH
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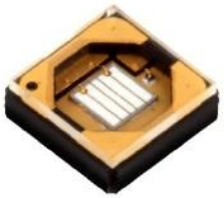
UVTOP340H-FW-SMD

- **Ultraviolet Light Emission Source**
- **345 nm, 40 mW**
- **3535 Ceramic SMD Package**
- **Low Thermal Resistance**
- **ESD Protection**

→ **Phototherapy and Blood Analysis**



RoHS COMPLIANT Pb Pb-Free

Description

UVTOP340H-FW-SMD is a deep ultraviolet light emission source, based on **AlGaN** quantum structures, typically emitting at **345 nm** with an optical output power of **40 mW @ 250 mA**. It comes in hermetically sealed ceramic SMD package with flat glass window, protective **Zener diode**, and **low thermal resistance**. **UVTOP340H-FW-SMD** is widely used for biological and chemical analysis, disinfection, optical sensing, and fluorescent spectroscopy applications.

Maximum Rating (T_{CASE} = 25°C)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation, DC	P_D		1.68	W
Forward Current*	I_F		350	mA
Junction Temperature*	T_{OPR}		+ 95	°C
Storage Temperature	T_{STG}	- 40	+ 100	°C

*** Operation close to the absolute maximum ratings may affect device reliability**

Electro-Optical Characteristics (T_{CASE} = 25°C, I_F = 250 mA)

Parameter	Symbol	Values			Unit
		Min.	Typ.	Max.	
Peak Wavelength*1	λ_P	340	345	350	nm
Spectral Width (FWHM)	$\Delta\lambda$		10		nm
Forward Voltage*2	V_F		4.1		V
Radiated Power*3	PO		40		mW
Beam Angle	$2\Theta_{1/2}$		115		deg.
Thermal Resistance	R_{th}		8.5		°C/W

*1wavelength measurement tolerance: ± 3 nm

*2forward voltage measurement tolerance: ± 3 %

*3output power measurement tolerance: ± 10 %

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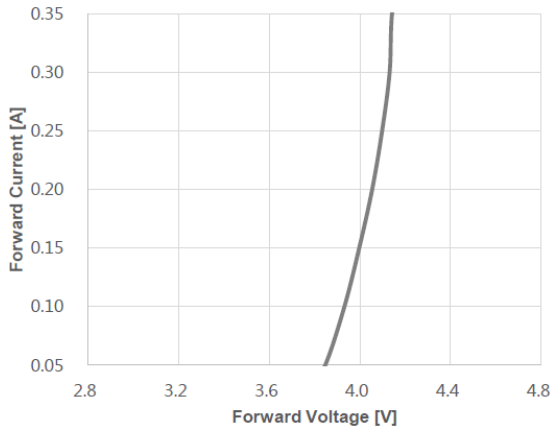
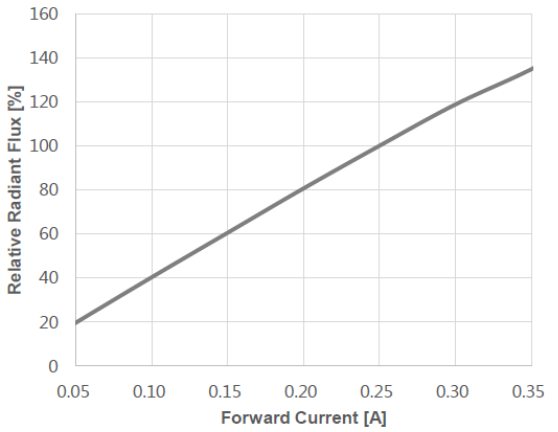
Performance Characteristics

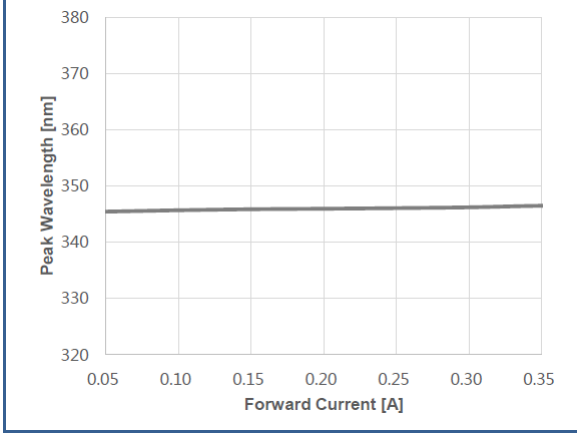
Forward Current vs. Forward Voltage



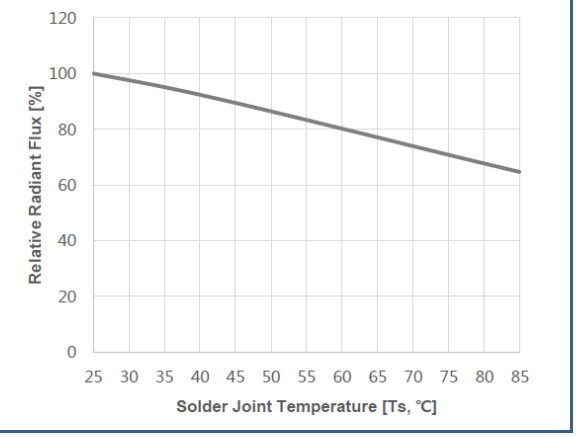
Rel. Optical Power vs. Forward Current



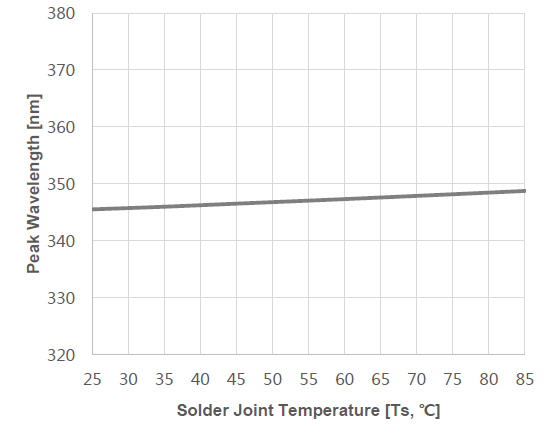
Peak Wavelength vs. Forward Current



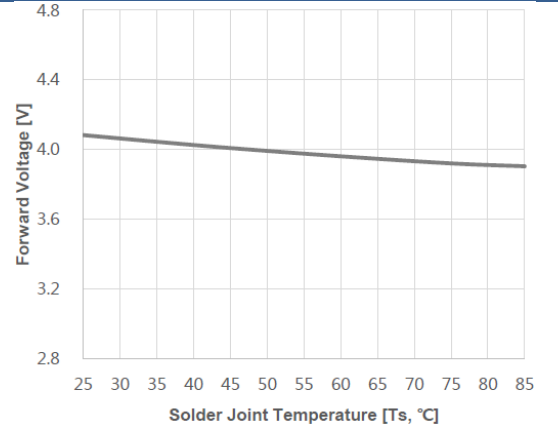
Rel. Optical Power vs. Case Temperature*



Peak Wavelength vs. Case Temperature*



Forward Voltage vs. Case Temperature*



temperature at the solder joint

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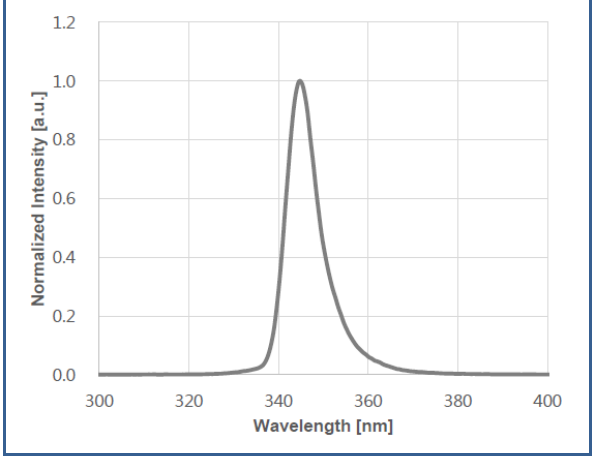
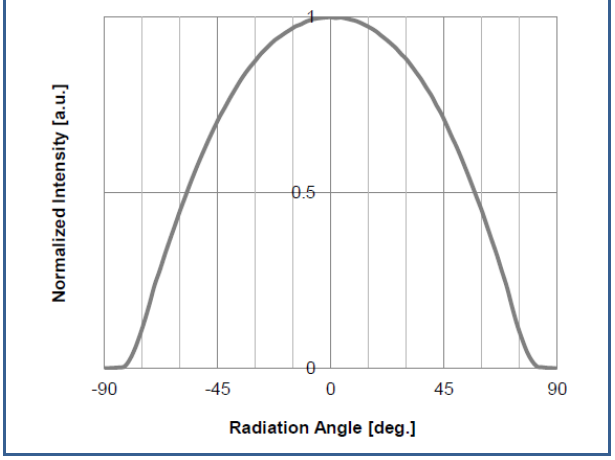
Performance Characteristics

Spectrum

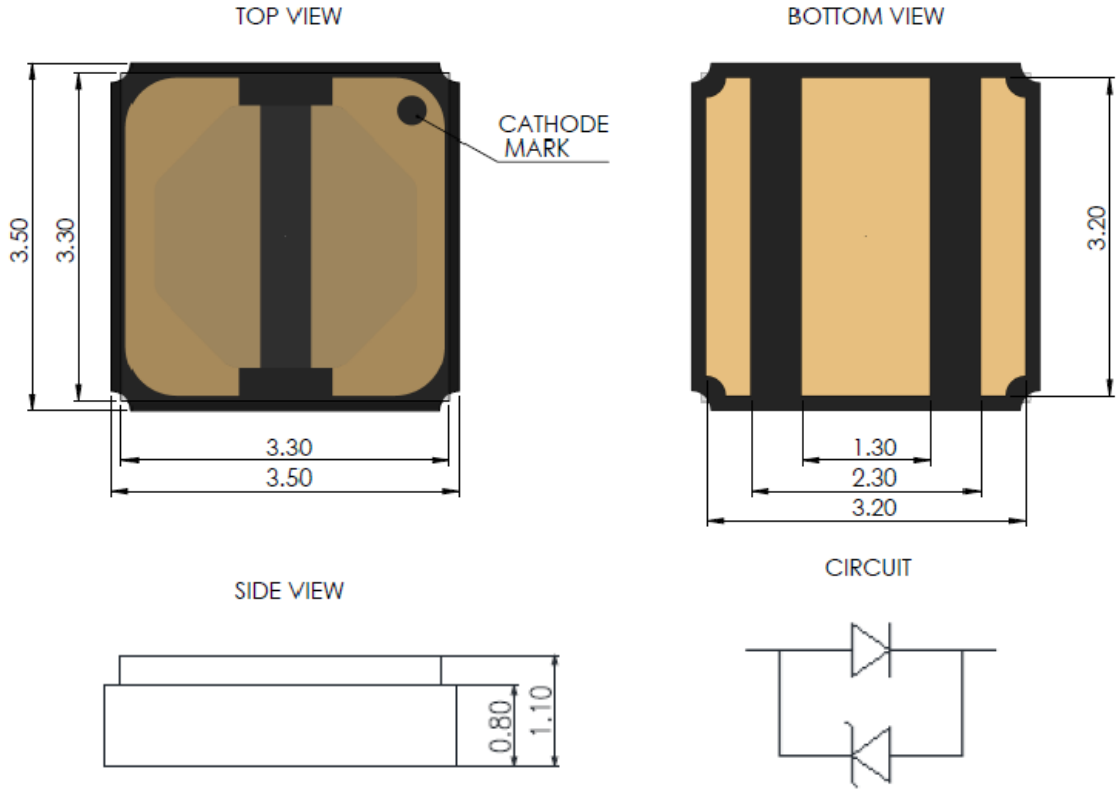


Angular Diagram



Outline Dimensions

3535 SMD package



All dimensions in mm

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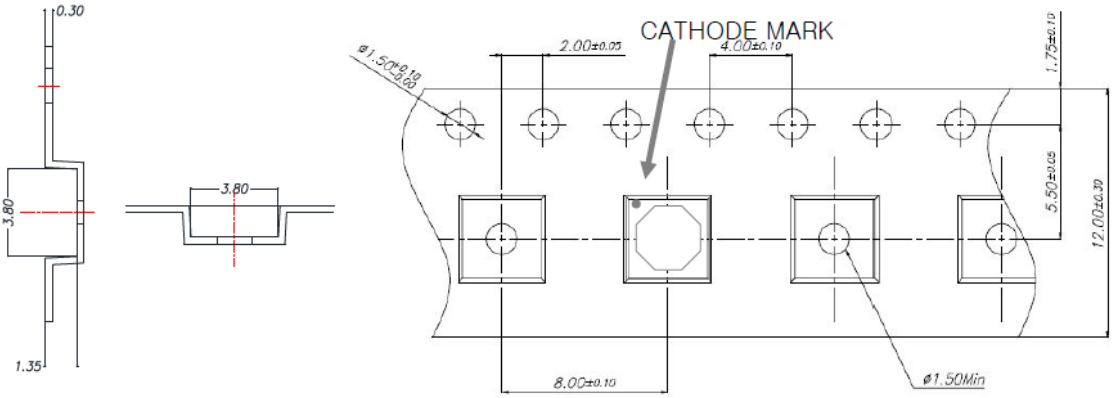
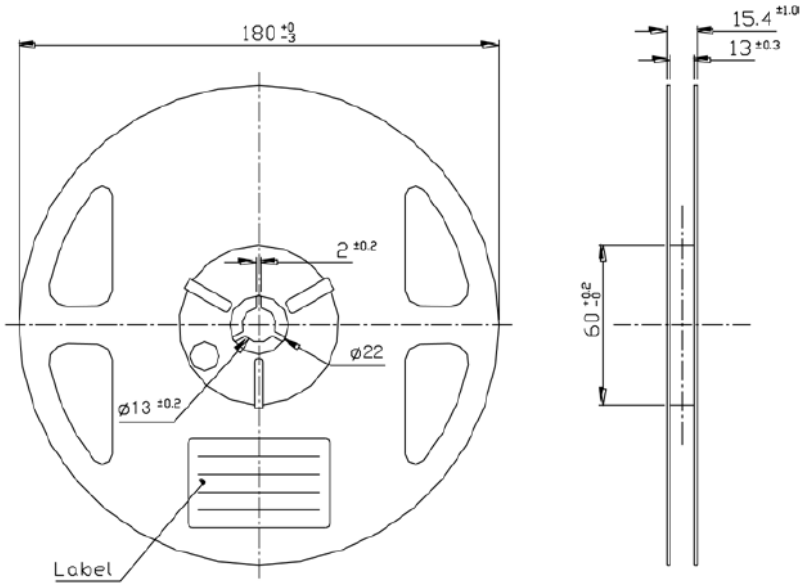
Packaging Information

All carrier tapes conform to EIA-481, Automated Component Handling Systems standard





- all dimensions in mm
- 500 pcs / reel

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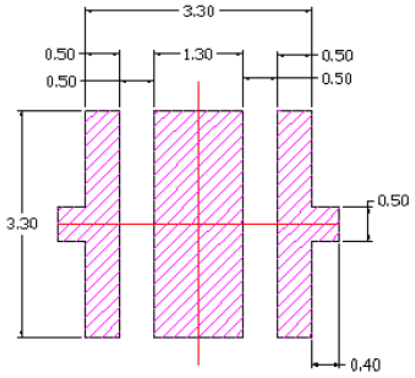
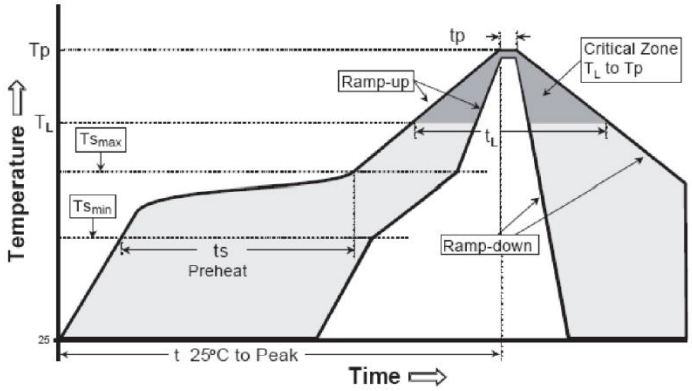
Soldering Information

Recommended Solder Pad Layout



- all dimensions in mm
- drawing not to scale

Recommended Reflow Soldering Profile



- IPC/JDEC J-STD-020C

Profile Parameters	Lead-based Solder	Lead-free Solder
Average Ramp-Up Rate (T_{SMAX} to T_P)	< 3 °C/s	< 3 °C/s
Minimum Preheat Temperature (T_{SMIN})	100 °C	150 °C
Maximum Preheat Temperature (T_{SMAX})	150 °C	200 °C
Preheat Time (T_{SMIN} to T_{SMAX})	60-120 s	60-180 s
Time Maintained Above: Temperature (TL)	183 °C	217 °C
Time Maintained Above: Time (tL)	60-150 s	60-150 s
Peak Temperature (T_P)	215 °C	260 °C
Time within 5 °C of Actual Peak Temp. (tp)	10-30 s	20-40s
Ramp-Down Rate	< 6 °C/s	< 6 °C/s
Time 25 °C to Peak Temperature	< 6 min.	< 8 min.

Reflow Information:

- UVTOP SMD reflow characteristics are compatible with JEDEC J-STD-020C
- **It is recommended to follow the solder profile of the solder paste manufacturer**
- It is recommended to evaluate the soldering process through several test PCB's and subsequent X-ray or shear testing of the devices
- The solder should show minimum indication of voids or solder grains.
- A "no clean" solder paste is recommended
- For consistent results a solder pencil printer or automated dispense system is suggested
- For cleaning after reflow, isopropyl alcohol or water is recommended
- Do not use ultrasonic cleaning

Do not wave solder or hand solder UVTOP SMD LEDs

Precautions for Use

Cleaning:

Cleaning with isopropyl alcohol or water recommended
DO NOT USE ultrasonic cleaners

Static Electricity:

UVTOP are sensitive to electrostatic discharge (ESD). Precautions against ESD must be taken when handling or operating these LEDs. Surge voltage or electrostatic discharge can result in complete failure of the device.

UV-Radiation:

During operation these LEDs do emit **high intensity ultraviolet light**, which is hazardous to skin and eyes, and may cause cancer. Do avoid exposure to the emitted UV light. **Protective glasses are recommended**. It is further advised to attach a warning label on products/systems that do utilize UV-LEDs:

Operation:

- **Do only operate UVTOP LEDs with a current source.**
  Current of a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory.
- Compliance to the maximum electrical specifications is paramount.
- Do never exceed the absolute maximum rating of the product.
- These LEDs are not designed to be used under negative bias.
- These LEDs are not designed to be used in any type of fluid (water, oil, organic solvent,…)
- These LEDs are susceptible to heat generation. Use care to design an end product with adequate thermal management to ensure LEDs do not exceed maximum recommended temperatures.

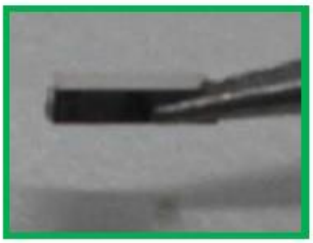
ANY ATTEMPT TO DRIVE THESE LEDS WITH A VOLTAGE SOURCE WILL CAUSE DAMAGE AND POSSIBLE COMPLETE FAILURE OF THE PRODUCT

Storage:

- It is recommended to store UVTOP LEDs in a moisture proof bag with a desiccant, and to reseal the bag after opening.
- If the LEDs are stored for more then 3 months, a sealed container with nitrogen athmosphere should be used
- **Recommended storage temperature: 5-30 °C**
- **Recommended storage relative humidity: < 50 %**
- Prolonged exposure to moisture can adversely affect the performance of the LEDs
- If the bag has been opened for more then 168 hours, and the color of the desiccant changes, the LEDs should be dried for 10-12 hours at 55-65 °C
- The conditions for resealing are as follows: Temperature 5-40 °C, relative humidity < 30 %

Handling:

- Do not rapidly cool the device after soldering
- Do not apply mechanical stress or excess vibration during the cooling process
- LEDs should not be mounted on warped areas of the PCB
- **Do not touch the glass lens with any sharp tools such as tweezers**



- Avoid leaving fingerpints on the glass lens
- Do avoid any excessive mechanical pressure on the LEDs surface
- Do not handle this product with acid or sulfur material in sealed space