



# ROITHNER LASERTECHNIK GmbH

WIEDNER HAUPTSTRASSE 76  
TEL. +43 1 586 52 43 -O, FAX. -44

1040 VIENNA AUSTRIA  
OFFICE@ROITHNER-LASER.COM



## DUV-FW5

- Deep Ultraviolet Light Emission Source
- 265, 280, 310, 325, 340 nm
- TO5 metal can
- Flat SiO<sub>2</sub> window
- Beam angle 114 deg.



### Description

**DUV-FW5** is a series of **AlGaIn** based single emitter DEEP-UV LEDs in a hermetically sealed TO5 package, utilizing a flat quartz glass window with a beam angle of 114 degree. **DUV-FW5** is available from 265 nm up to 340 nm peak wavelength with an optical output power of typically 0.8 mW.

### Maximum Rating ( $T_{CASE} = 25^{\circ}\text{C}$ )

Parameter	Symbol	Values		Unit
		Min.	Max.	
Forward Current ( $T_A=25^{\circ}\text{C}$ )	$I_F$		40	mA
Operating Temperature	$T_{OPR}$	- 20	+ 80	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	- 40	+ 100	$^{\circ}\text{C}$
Soldering Temperature (max. 5s)	$T_{SOL}$		+ 300	$^{\circ}\text{C}$

### Electro-Optical Characteristics ( $T_{CASE} = 25^{\circ}\text{C}$ , $I_F = 20\text{ mA}$ )

Parameter	Symbol	DUV265 -FW5	DUV280 -FW5	DUV310 -FW5	DUV325 -FW5	DUV340 -FW5	Unit
Peak Wavelength	$\lambda_P$	265 $\pm$ 5	280 $\pm$ 5	310 $\pm$ 5	325 $\pm$ 5	340 $\pm$ 5	nm
<b>Radiated Power</b>	<b><math>P_O</math></b>	<b>1.0</b>	<b>1.5</b>	<b>0.8</b>	<b>1.2</b>	<b>1.3</b>	<b>mW</b>
Spectral Width (FWHM)	$\Delta\lambda$	13	12	15	11	9	nm
Forward Voltage	$V_F$	7.0	6.5	6.0	4.5	4.0	V
Reverse Voltage ( $I_R=10\mu\text{A}$ )	$V_R$	> 4	> 2	> 10	> 10	> 10	V
Reverse Current ( $V_R=5\text{V}$ )	$I_R$	< 50	< 1	< 1	< 1	< 1	$\mu\text{A}$
<b>Viewing Angle</b>	<b><math>2\theta_{1/2}</math></b>	<b>114</b>					<b>deg.</b>
Thermal resistance	$R\theta_{J-REF}$	~250					$^{\circ}\text{C/W}$
Rise time*	$t_R$	/	/	16	20	12	ns
Fall time*	$t_F$	/	/	8	9	8	ns

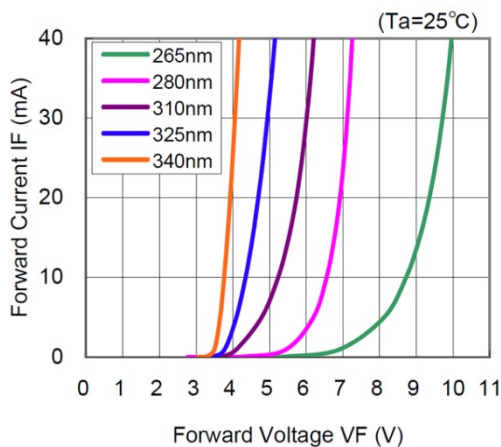
\* frequency=100kHz, duty cycle=1%,  $I_{FP}=200\text{mA}$

\*1 based on calculations

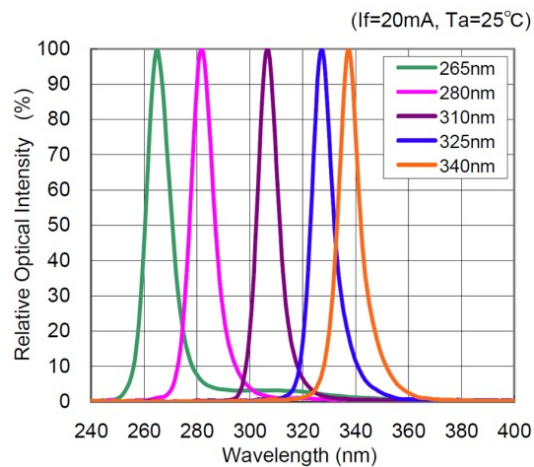


## Performance Characteristics

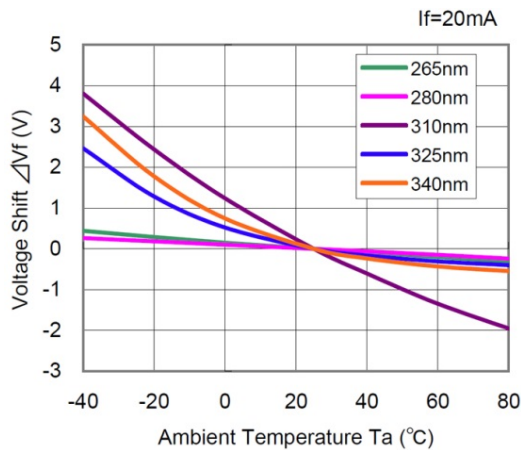
Forward Current vs. Forward Voltage



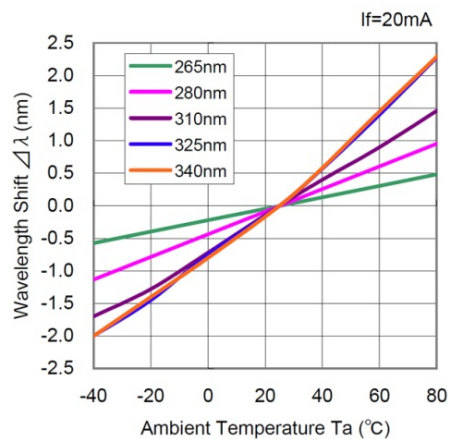
Spectrum



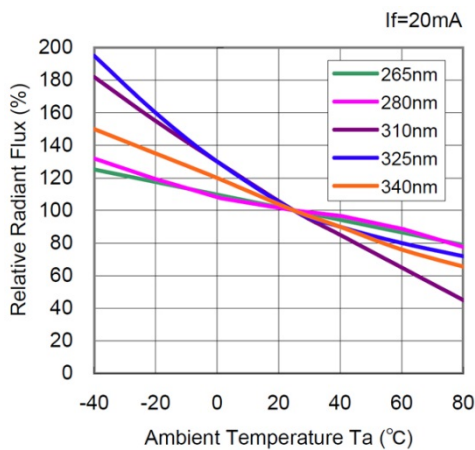
Forward Voltage vs. Ambient Temp.



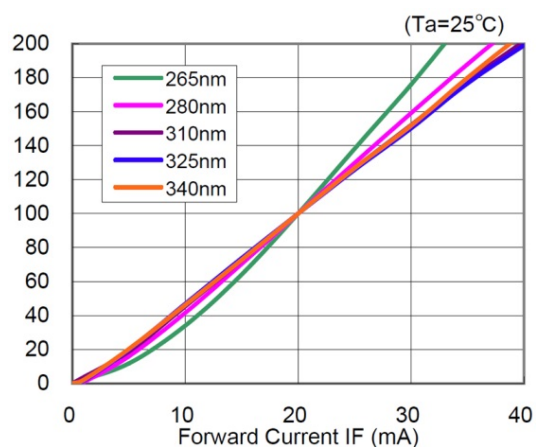
Wavelength Shift vs. Ambient Temp.



Radiant Flux vs. Ambient Temp.



Forward Current vs. Relative Radiant Flux [%]





# ROITHNER LASERTECHNIK GmbH

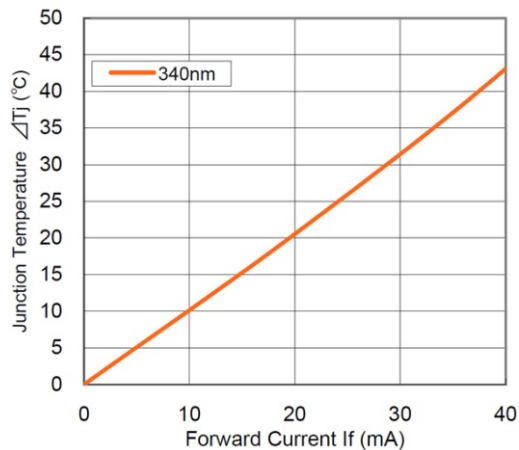
WIEDNER HAUPTSTRASSE 76  
TEL. +43 1 586 52 43 -0, FAX. -44

1040 VIENNA AUSTRIA  
OFFICE@ROITHNER-LASER.COM

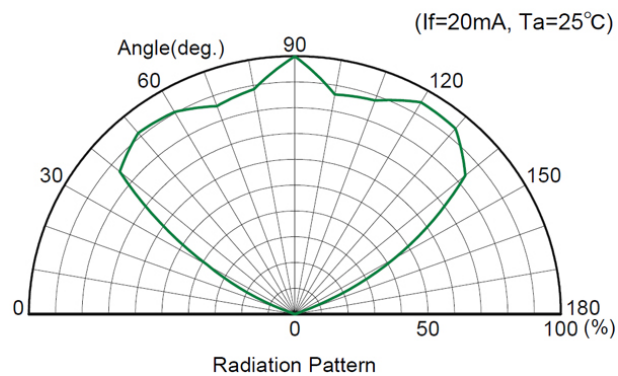


## Performance Characteristics

Junction Temp. vs. Forward Current

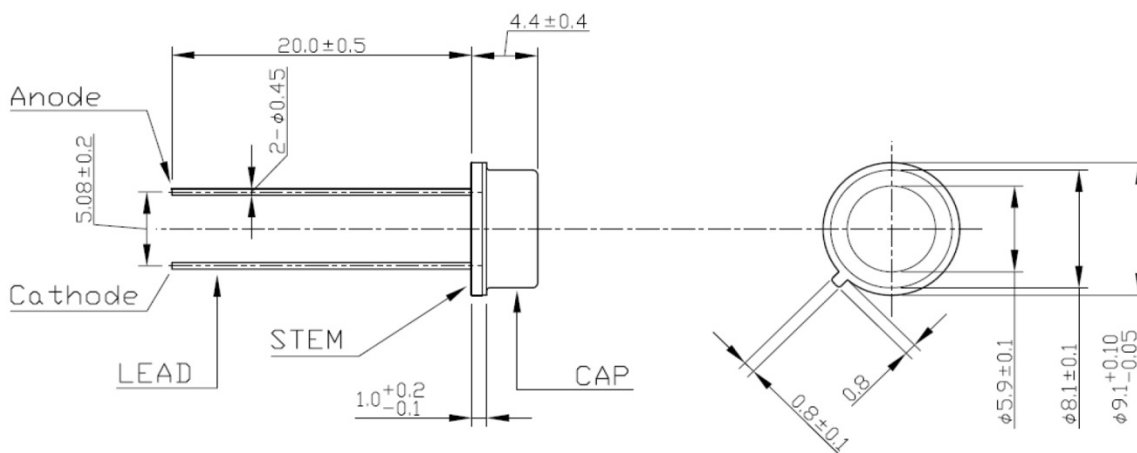


Radiation Pattern



## Outline Dimensions

T05



all dimensions in mm

## Device Materials

Pin #	Material
Lens	SiO <sub>2</sub>
Cap	Fe-Ni alloy, Ni plating
Stem	SPCE, Au plating
Leads	Fe-Ni alloy, Au plating





## Precautions

### Soldering:

- Do avoid overheating of the LED
- Do avoid electrostatic discharge (ESD)
- Do avoid mechanical stress, shock, and vibration
- Do only use non-corrosive flux.
- Do only solder the leads. Soldering of header or cap will damage the LED
- Do only cut the leads at room temperature with an ESD protected tool
- Do not solder closer than 3 mm from base of the header
- Do form leads prior to soldering
- Do not impose mechanical stress on the header when forming the leads
- Do not apply current to the LED until it has cooled down to room temperature after soldering

### Static Electricity:

LEDs 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 LEDs with a current source.**

Running these LEDs from a voltage source *will* result in complete failure of the device.

Current of a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory

