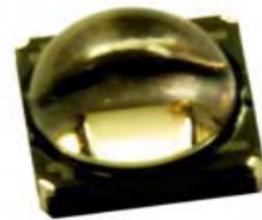


# Datasheet

## High Efficacy UV LED Emitter 400nm / 5W

### RSW-P05-400-0



- f*High Efficacy 5W UV LED
- f*Ultra-small foot print – 4.4mm x 4.4mm x 3.2mm
- f*Surface mount ceramic package with integrated glass lens
- f*Very low Thermal Resistance (5.5°C/W)
- f*Very high Radiant Flux density
- f*New industry standard for Radiometric Power Maintenance (>90% at 100,000 Hours)
- f*Autoclave complaint (JEDEC JESD22-A102-C)
- f*JEDEC Level 2 for Moisture Sensitivity Level
- f*Lead (Pb) free and RoHS compliant
- f*Reflow solderable (up to 6 cycles)
- f*Emitter available on MCPCB (optional)

The **RSW-P05-400-0** UV LED emitter provides superior radiometric power in the wavelength range specifically required for sterilization, dental curing lights, and numerous medical applications. With a 4.4mm x 4.4mm x 3.2mm ultra-small footprint, this package provides exceptional optical power density. The radiometric power performance and optimal peak wavelength of this LED are matched to the response curves of dental resins, resulting in a significantly reduced curing time. The patent-pending design has unparalleled thermal and optical performance. The high quality materials used in the package are chosen to optimize light output, have excellent UV resistance, and minimize stresses which results in monumental reliability and radiant flux maintenance.



## Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
DC Forward Current	$I_F$	1000	mA
Peak Pulsed Forward Current	$I_{FP}$	1000	mA
Reverse Voltage	$V_R$	See Note 1	V
Storage Temperature	$T_{stg}$	-40 ~ +150	°C
Junction Temperature	$T_J$	125	°C
Soldering Temperature	$T_{sol}$	180	°C
Allowable Reflow Cycles		6	
ESD Sensitivity		> 8,000 V HBM Class 3B JESD22-A114-D	

1) LEDs are not designed to be reverse biased

## Optical Characteristics @ $T_c = 25^\circ\text{C}$

Parameter	Symbol	Typical	Unit
Radiant Flux (@ $I_F = 700\text{mA}$ )	$\Phi$	550	mW
Radiant Flux (@ $I_F = 1000\text{mA}$ )	$\Phi$	700	mW
Peak Wavelength	$\lambda_P$	400	nm
Viewing Angle	$2\Theta_{1/2}$	85	Degrees
Total Included Angle	$\Theta_{0.9}$	100	Degrees

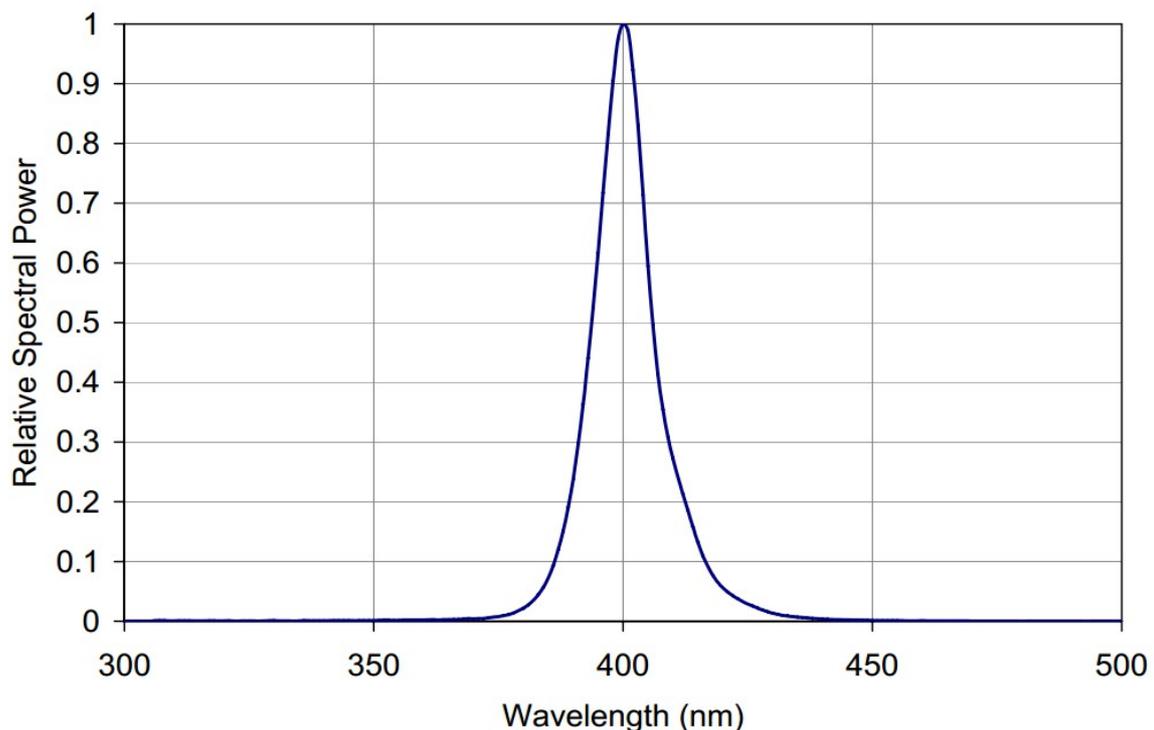
## Electrical Characteristics @ $T_c = 25^\circ\text{C}$

Parameter	Symbol	Typical	Unit
Forward Voltage (@ $I_F = 700\text{mA}$ )	$V_F$	3,9	V
Forward Voltage (@ $I_F = 1000\text{mA}$ )	$V_F$	4,1	V
Temperature Coefficient of $V_F$	$\Delta V_F / \Delta T_J$	-3,7	mV/°C
Thermal Resistance (Junction to Case)	$R\Theta_{J-C}$	5,5	K/W

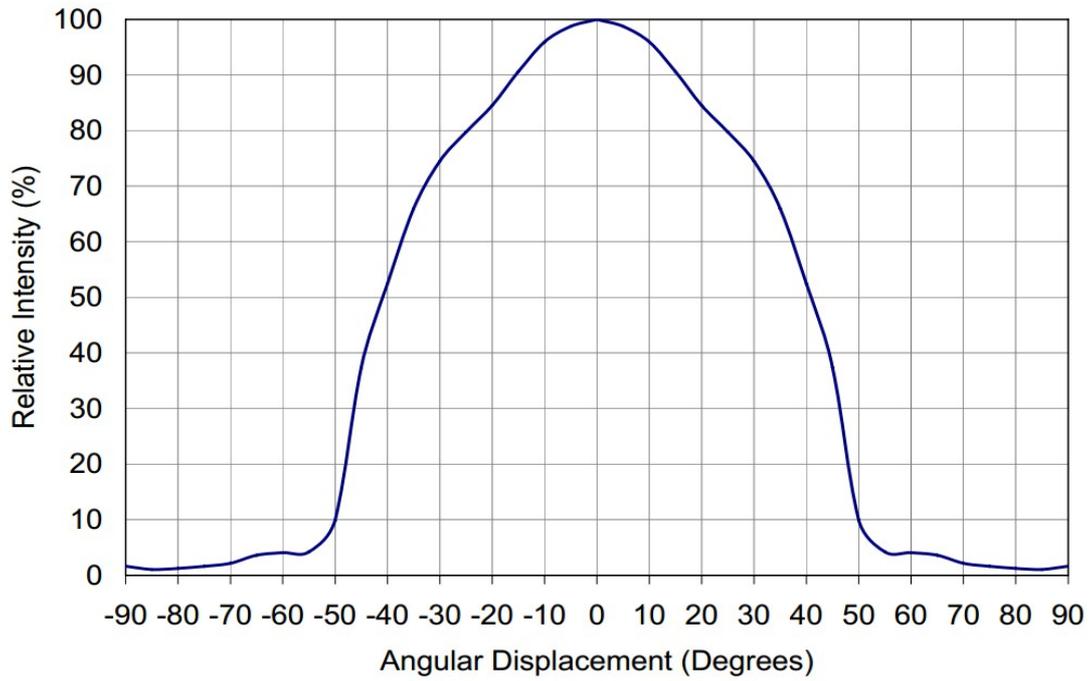
## Average Radiant Flux Maintenance Projections

Based on long-term WHTOL testing, the Manufacturer projects that the RSW Series will deliver, on average, 90% Radiant Flux Maintenance at 100,000 hours of operation at a forward current of 700 mA. This projection is based on constant current operation with junction temperature maintained at or below 115°C.

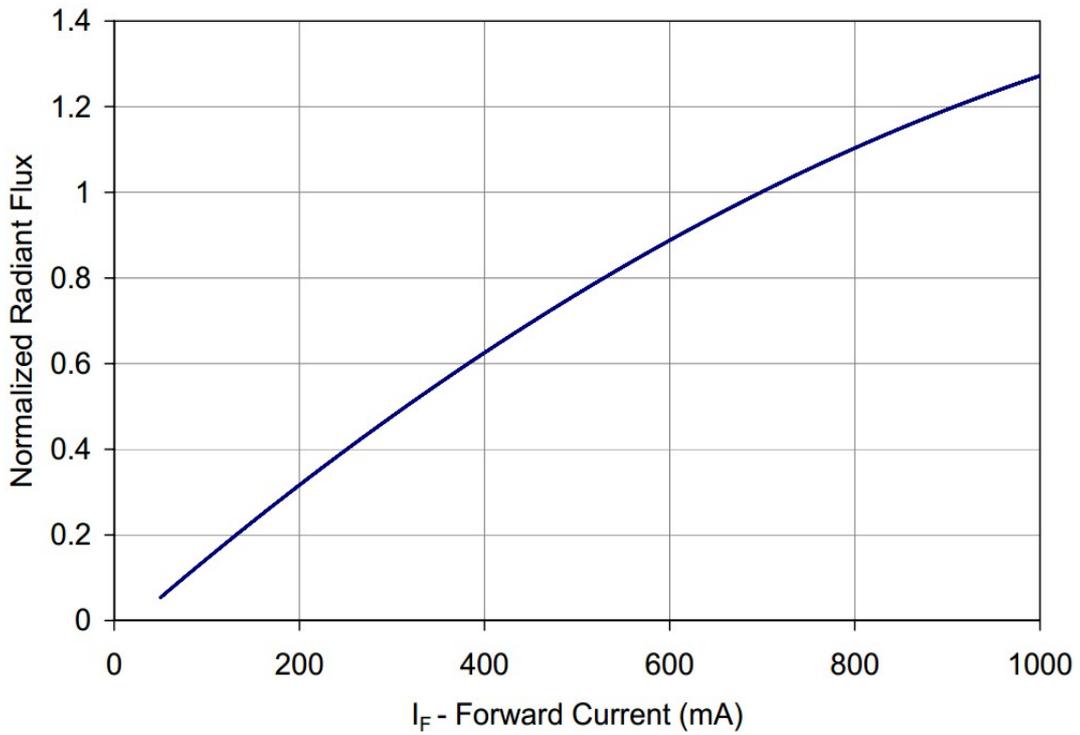
## Relative Spectral Power vs. Wavelength @ $T_C = 25^\circ\text{C}$ .



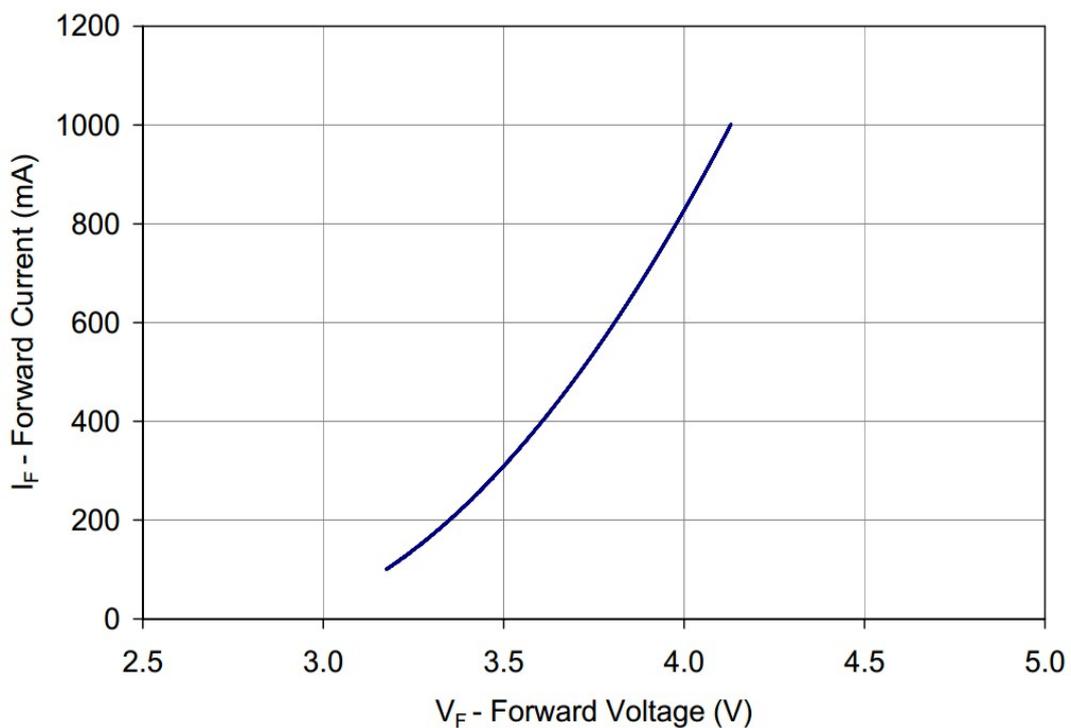
## Typical Radiation Pattern



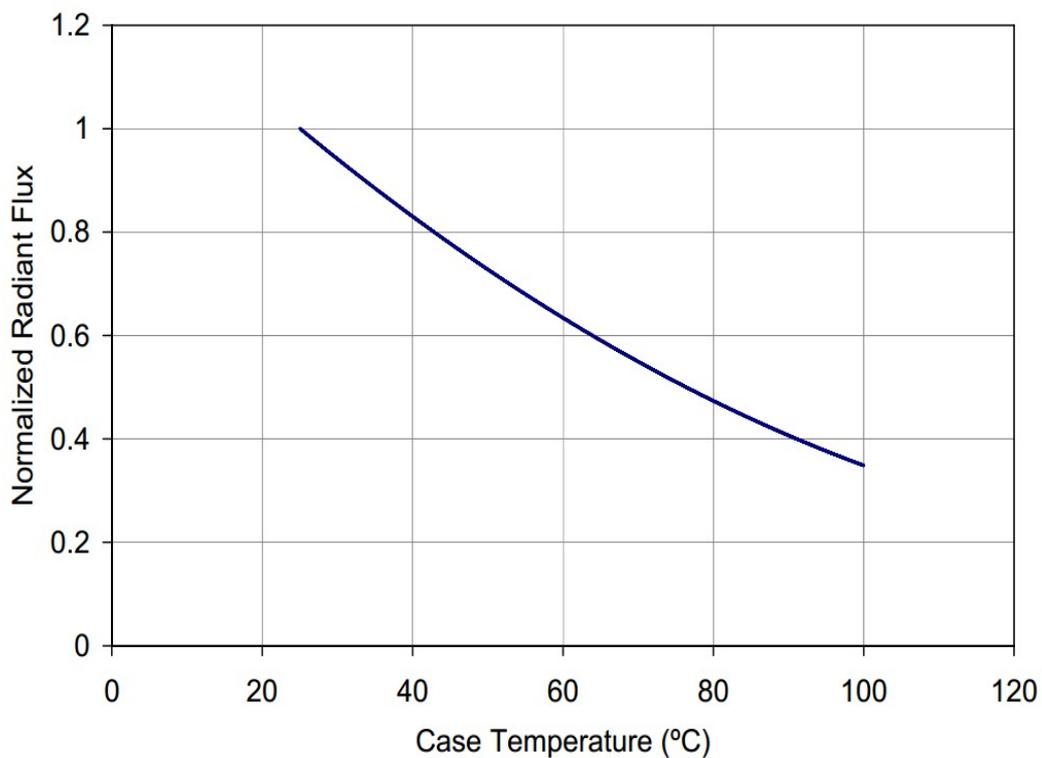
## Typical Normalized Radiant Flux vs. Forward Current @ TC = 25°C.



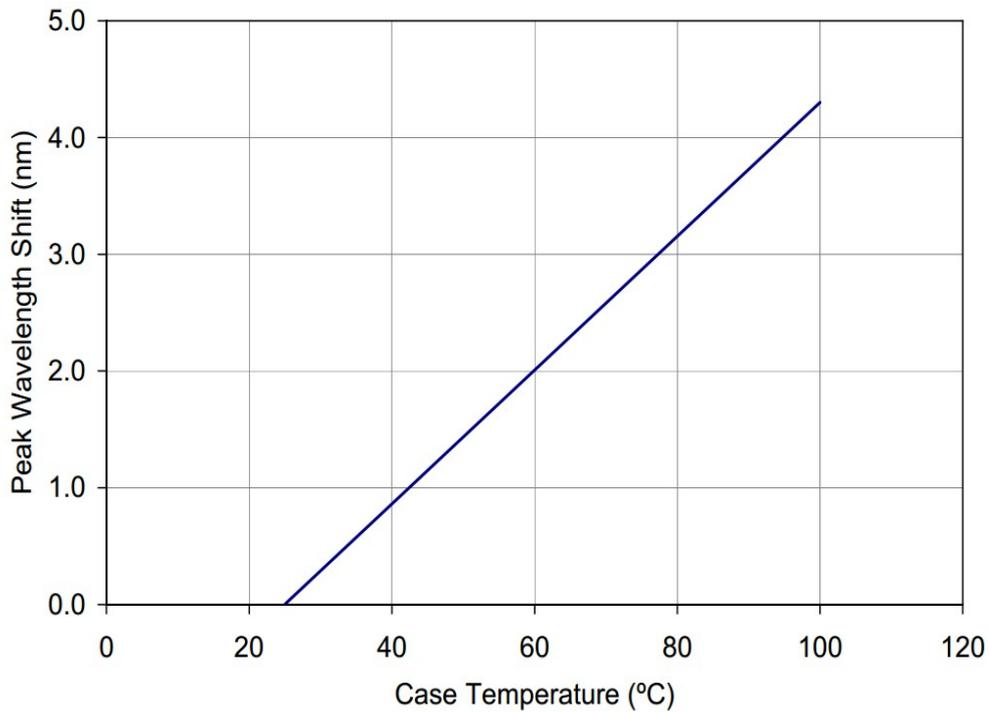
**Typical Forward Current vs. Forward Voltage @ TC = 25°C.**



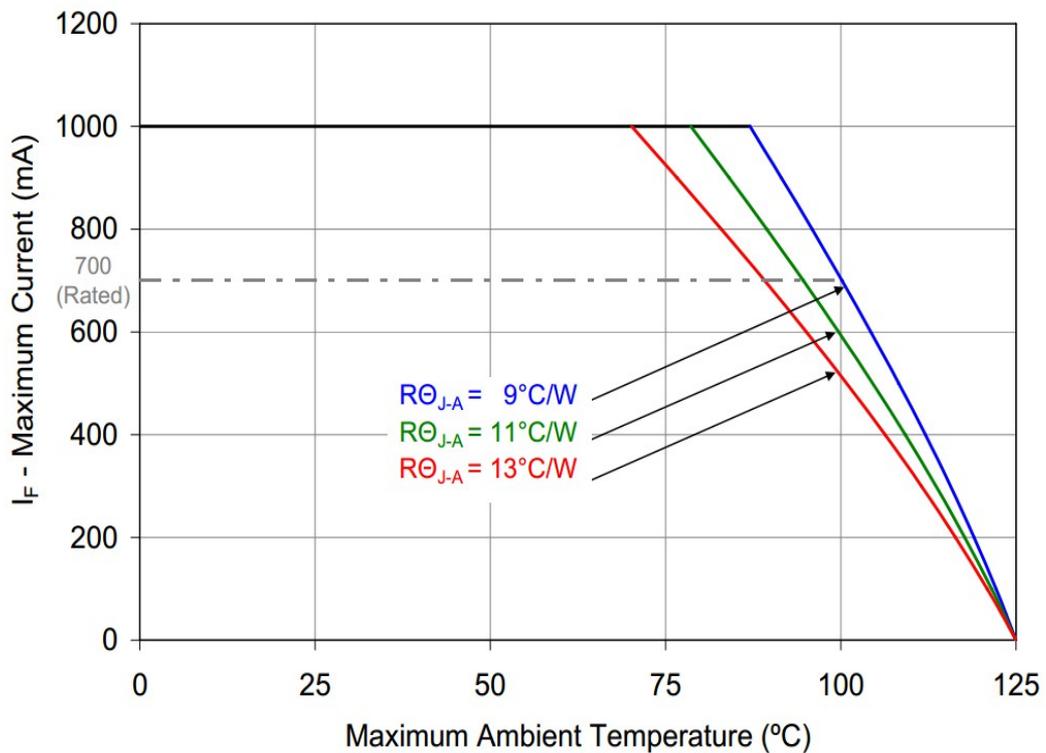
**Typical Normalized Radiant Flux vs. Case Temperature.**



## Typical Peak Wavelength Shift over Temperature



## Current Derating



1.  $R_{\theta_{J-C}}$  [Junction to Case Thermal Resistance] for the RSW-P05-590-0 is typically 5,5 K/W.
2.  $R_{\theta_{J-A}}$  [Junction to Ambient Thermal Resistance] =  $R_{\theta_{J-C}}$  +  $R_{\theta_{C-A}}$  [Case to Ambient Thermal Resistance].

**Notes:**

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**Technical modifications and errors reserved**

