

Datasheet

High Efficacy UV LED Emitter
400nm / 10W

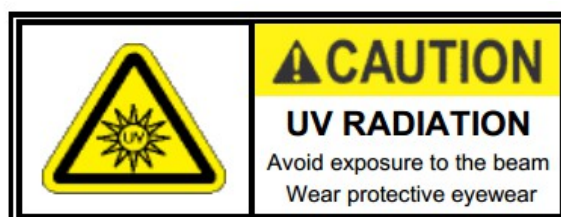
RSW-P10-400-0



High Efficacy 10W UV LED

- Ultra-small foot print – 7.0mm x 7.0mm x 4.3mm
- Surface mount ceramic package with integrated glass lens
- Very low Thermal Resistance (1.8°C/W)
- Individually addressable die
- Very high Radiant Flux density
- JEDEC Level 2 for Moisture Sensitivity Level
- Autoclave complaint (JEDEC JESD22-A102-C)
- Lead (Pb) free and RoHS compliant
- Reflow solderable (up to 6 cycles)
- Emitter available on MCPCB (optional)

The RSW-P10-400-0 UV LED emitter provides superior radiometric power in the wavelength range specifically required for sterilization, dental curing lights, and numerous medical applications. With a 7.0mm x 7.0mm 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 many 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}	260	°C
Allowable Reflow Cycles		6	
ESD Sensitivity		> 1 kV HBM Class 3B JESD22-A114-D	

1) LEDs are not designed to be reverse biased

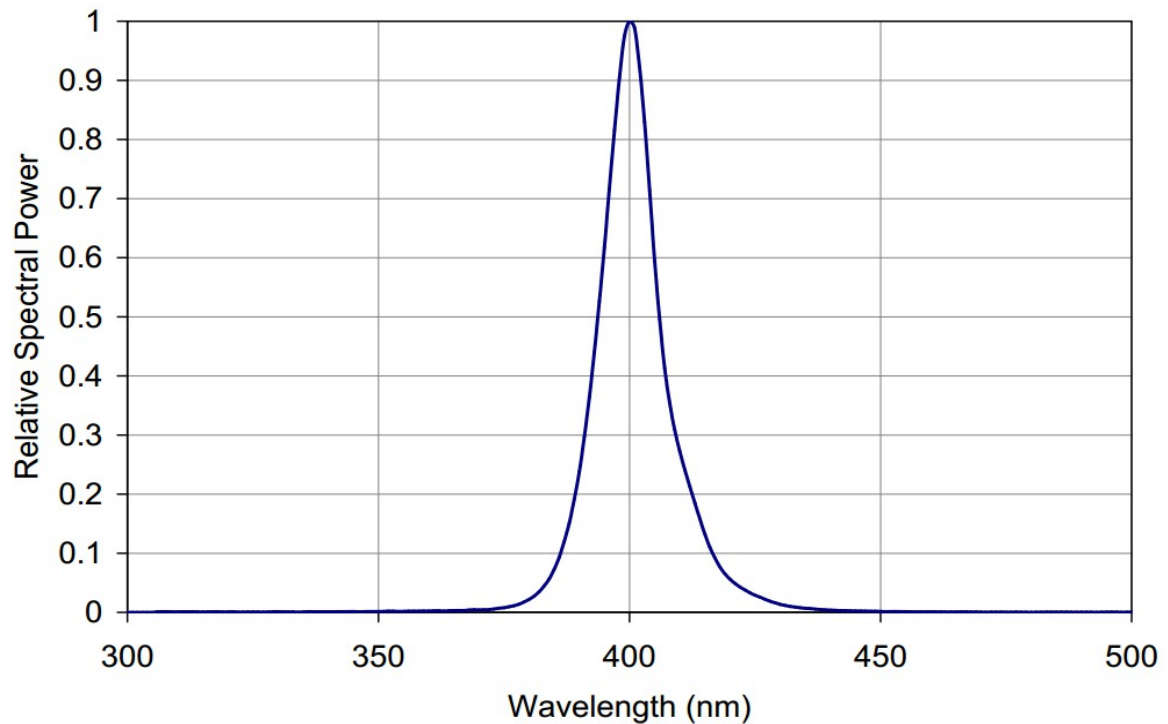
Optical Characteristics @ $T_c = 25^\circ\text{C}$

Parameter	Symbol	Typical	Unit
Radiant Flux (@ $I_F = 700\text{mA}$)	Φ	1,8	W
Radiant Flux (@ $I_F = 1000\text{mA}$)	Φ	2,2	W
Peak Wavelength	λ_P	400	nm
Viewing Angle	$2\Theta_{1/2}$	115	Degrees
Total Included Angle	$\Theta_{0.9}$	175	Degrees

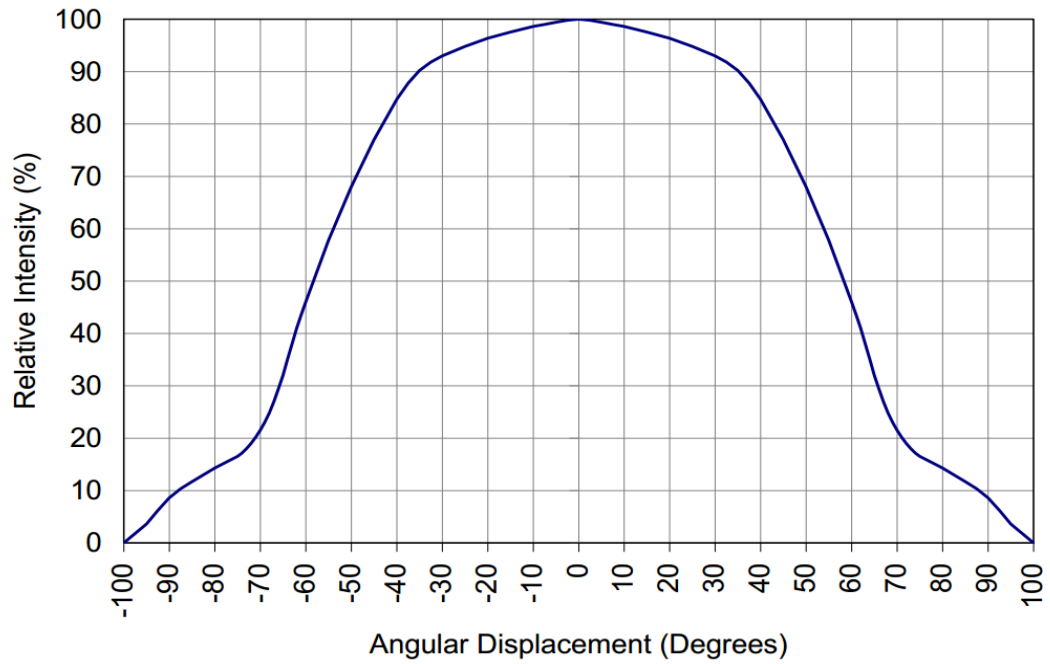
Electrical Characteristics @ $T_c = 25^\circ\text{C}$

Parameter	Symbol	Typical 1 Die	Typical 4 Dies	Unit
Forward Voltage (@ $I_F = 700\text{mA}$)	V_F	3,9	15,6	V
Forward Voltage (@ $I_F = 1000\text{mA}$)	V_F	4,1	16,5	V
Temperature Coefficient of V_F	$\Delta V_F / \Delta T_J$		-14,2	mV/°C
Thermal Resistance (Junction to Case)	$R_{\Theta_{J-C}}$		1,8	K/W

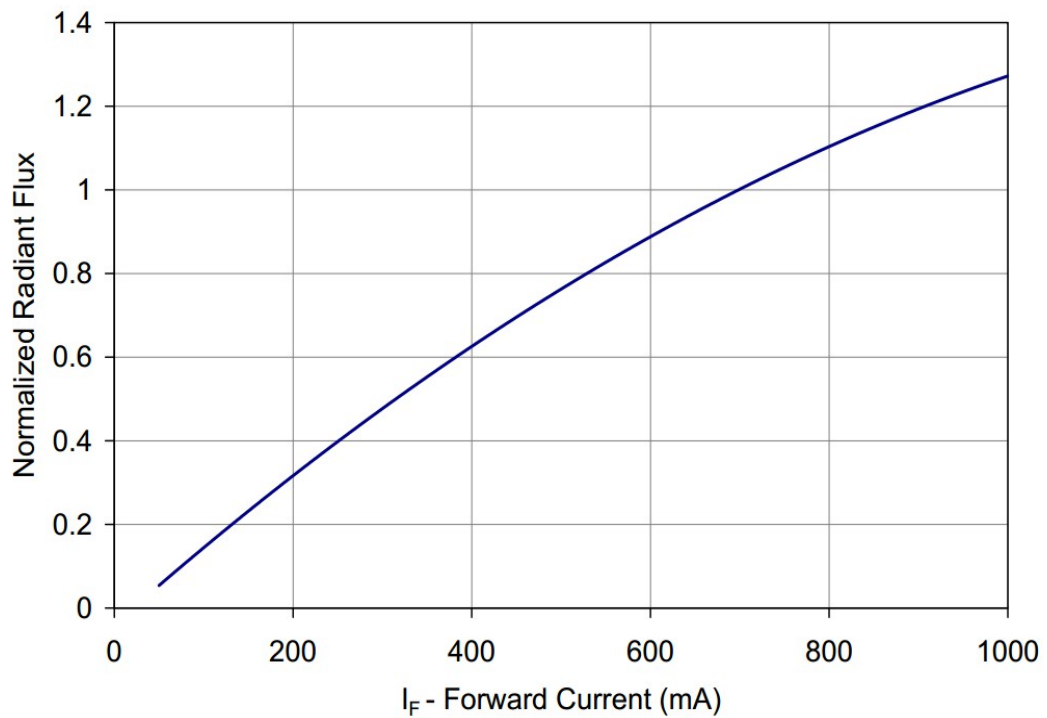
Relative Spectral Power vs. Wavelength @ $T_C = 25^\circ\text{C}$.



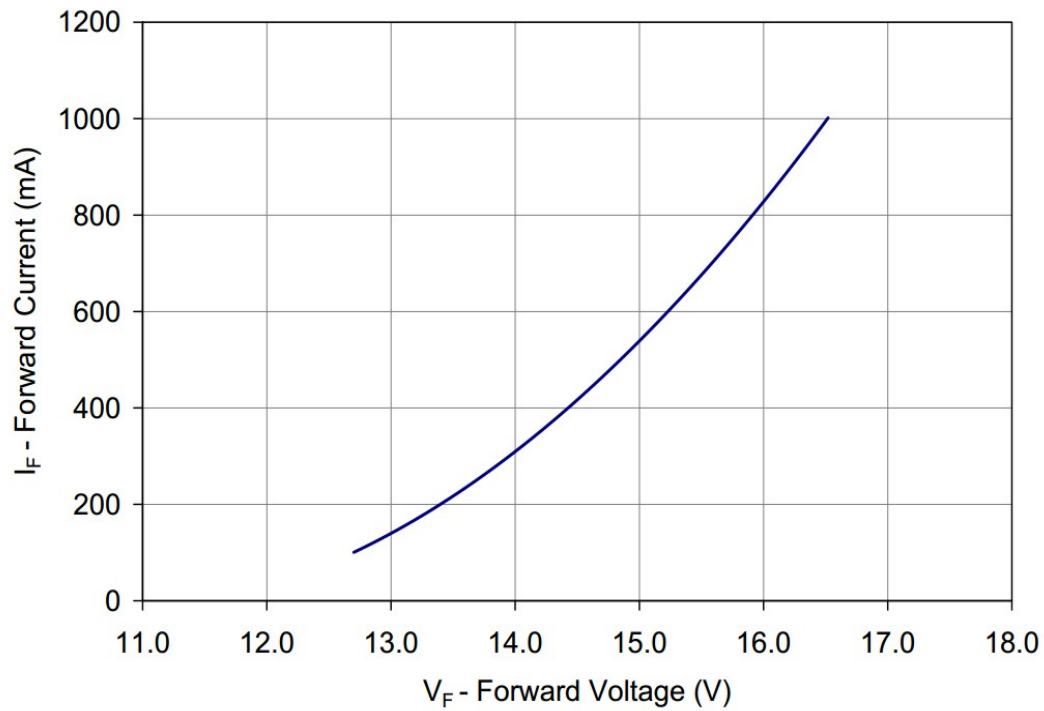
Typical Radiation Pattern



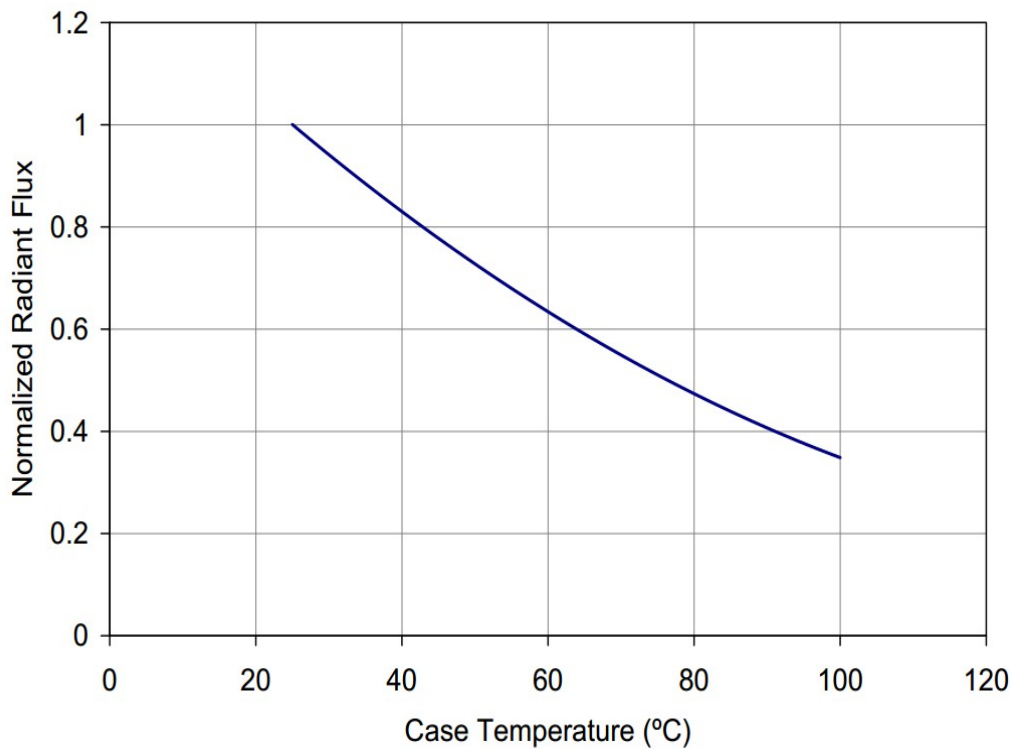
Typical Normalized Radiant Flux vs. Forward Current @ TC = 25°C.



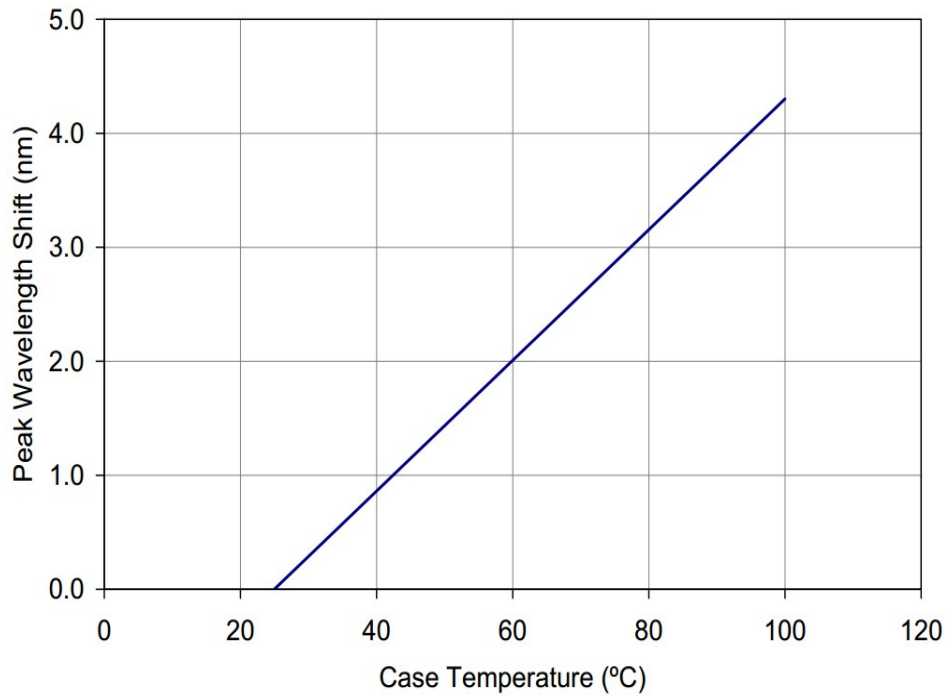
Typical Forward Current vs. Forward Voltage @ TC = 25°C.



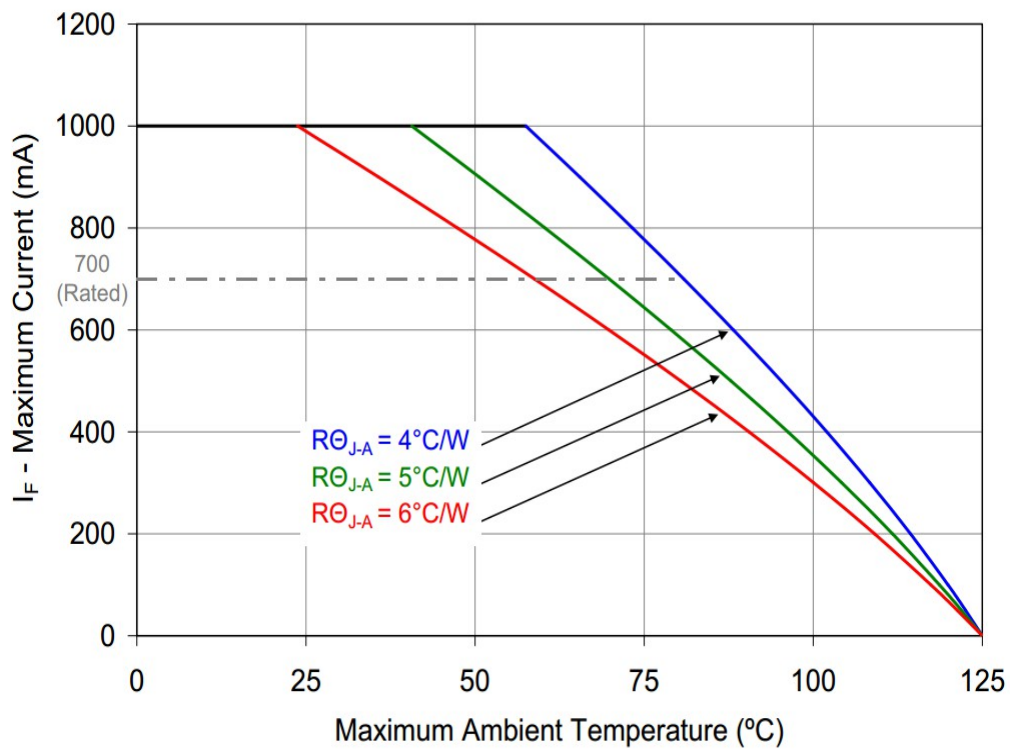
Typical Normalized Radiant Flux vs. Case Temperature.



Typical Peak Wavelength Shift over Temperature



Current Derating



1. Maximum current assumes that all four LED dice are operating concurrently at the same current.
2. R_{ΘJ-C} [Junction to Case Thermal Resistance] for the RSW-P10-400-0 is typically 1,8°C/W.
3. R_{ΘJ-A} [Junction to Ambient Thermal Resistance] = R_{ΘJ-C} + R_{ΘC-A} [Case to Ambient Thermal Resistance].

Notes:

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Germany

Technical modifications and errors reserved

