Marktech Optoelectronics

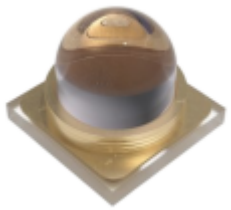
Ultraviolet Emitter

Product No: **MTSM2550D-UV**

Peak Emission Wavelength: 255nm

The MTSM2550D-UV is a powerful deep UV-C emitting device. The SMD packaged device processes long lifetime and high conversion efficiency.

Custom package solutions and sorting are available.



FEATURES

> Deep ultraviolet LED
> 30 degree collimated source
> Long lifetime
> ESD protection
> Silanna Safe

APPLICATIONS

> Chemical and biological analysis
> Water quality monitoring
> Gas sensing
> Liquid chromatography

Absolute Maximum Ratings (Ta=25°C)

Silanna UV Silanna Safe™ Pb lead-free RoHS

ITEMS	SYMBOL	RATINGS	UNIT
Forward Current	IF	100	mA
Operating Temperature	Topr	0 ~ +60	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Junction Temperature	Tj	85	°C
ESD Classification		2	

Note: Also available on PCB - Starboard MTSM2550D-UV (See Page 5)

Electrical & Optical Characteristics (Ta = 25°C)

ITEMS	SYMBOL	CONDITIONS	MIN.	TYP	MAX.	UNIT
Forward Voltage	VF	IF=20mA	5	--	7	V
Peak Wavelength	λp	IF=20mA	250	255	260	nm
Radiant Flux	PO	IF=20mA	0.45	0.85	--	mW
FWHM	Δλ	IF=20mA	--	12	18	nm
View Angle	Θ	IF=20mA	--	33.8	--	deg
Power Dissapation	PD	IF=20mA	--	0.12	--	W
Thermal Resistance Junction-Case	Tth	IF=20mA	--	4.98	--	°C/W

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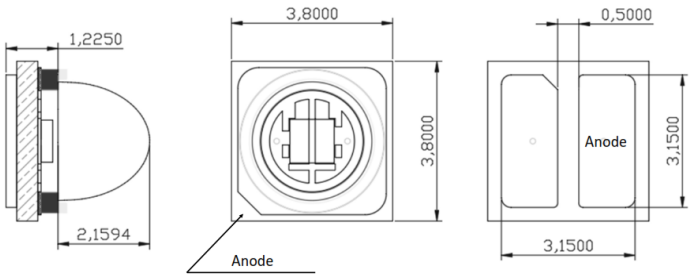
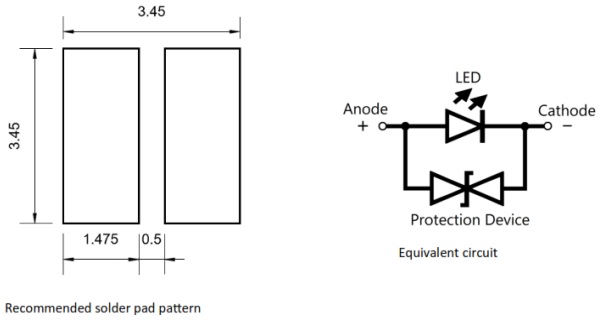
Package Dimensions





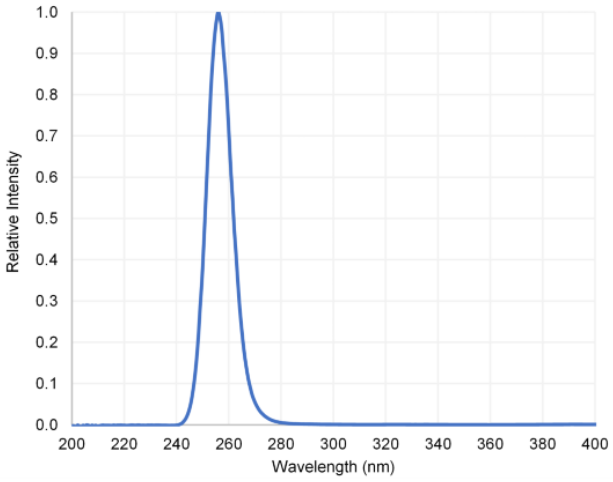


Figure 1. Relative emission intensity vs wavelength
T_A=25 °C, I_F = 20 mA

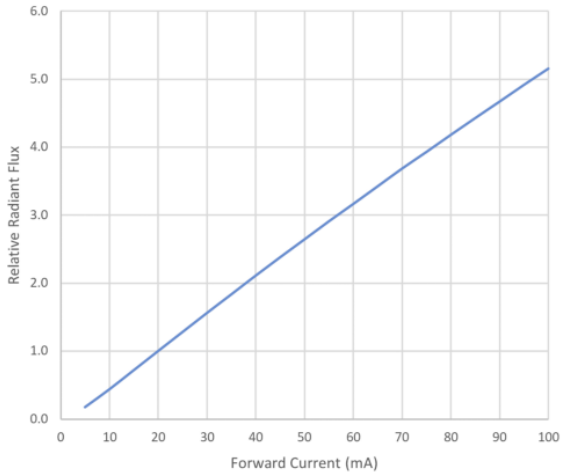


Figure 2. Relative radiant flux vs forward current
T_A=25 °C

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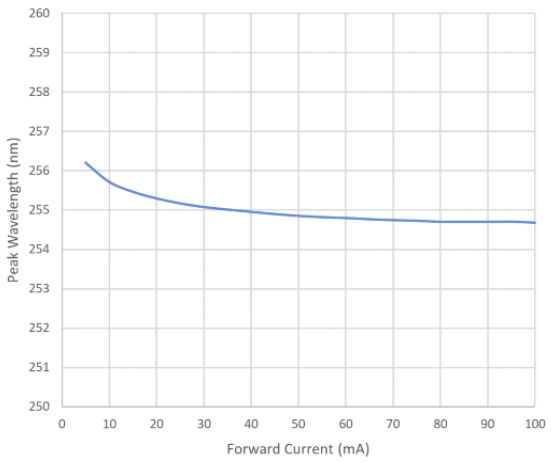

Figure 3. Peak wavelength vs forward current
T_A=25 °C

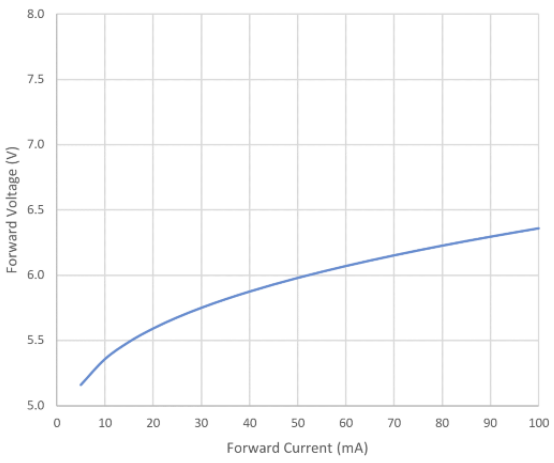

Figure 4. Forward voltage vs forward current
T_A=25 °C

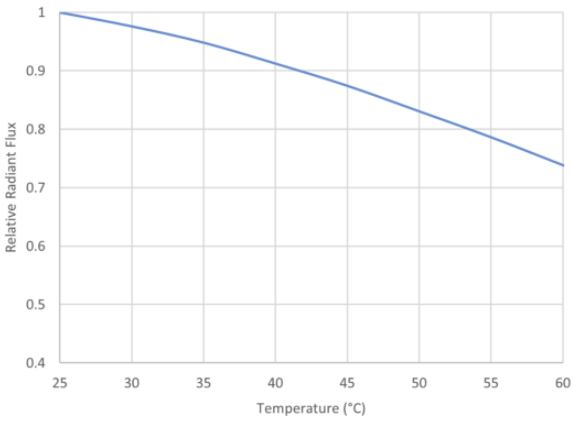

Figure 5. Relative radiant flux vs temperature (Tsolder)
I_F = 20 mA

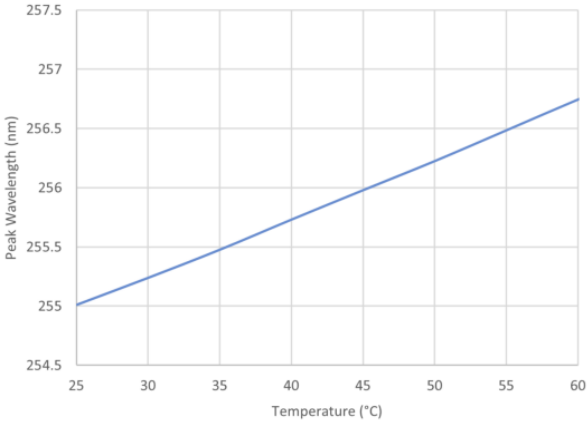

Figure 6. Peak wavelength vs temperature (Tsolder)
I_F = 20 mA

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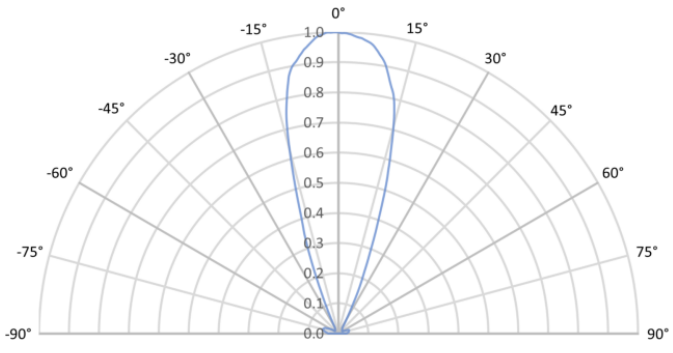

Figure 7. Radiation pattern
T_A=25 °C, I_F = 20 mA

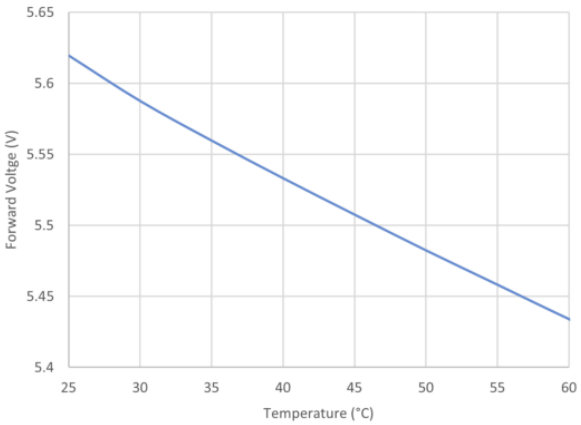

Figure 8. Forward voltage vs temperature (Tsolder)
I_F = 20 mA

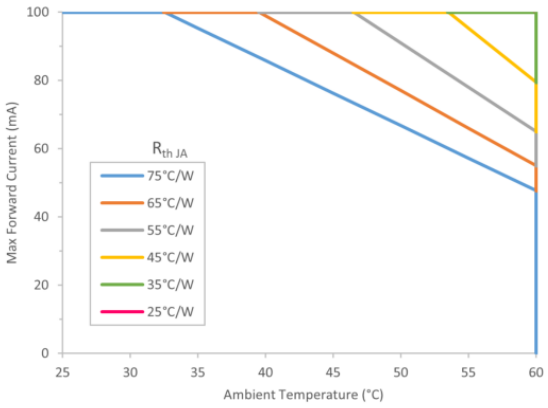

Figure 9. Max forward current de-rating

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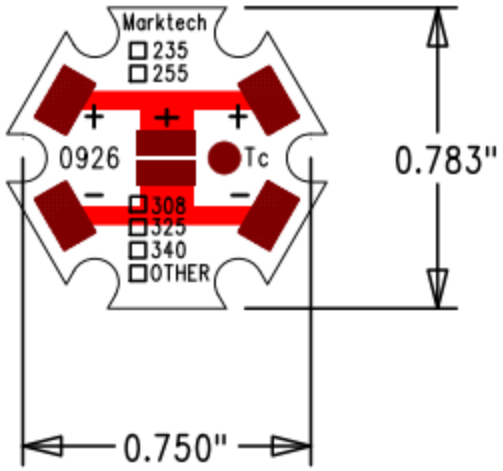
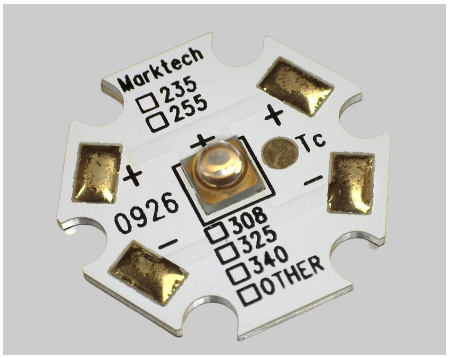
Starboard Dimensions





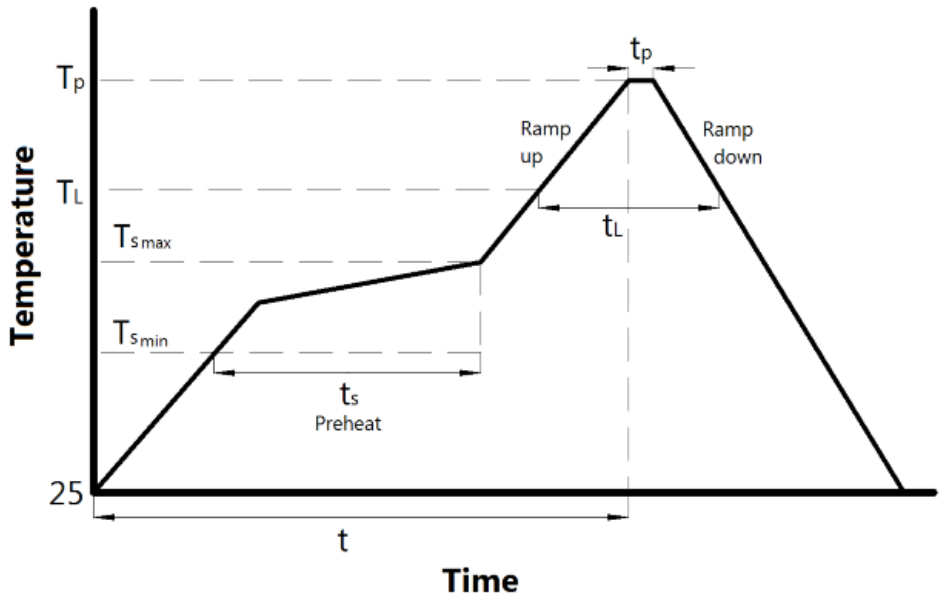
Aluminum Core Board 0.040" (1.02mm) Thickness
Overall Board Dimensions: +/- 0.010" (0.254mm)

RoHS COMPLIANT
Pb-Free

2025-11-11

Soldering conditions

Profile Feature	Lead-based assembly	Lead-free assembly
Average ramp-up rate (Ts_{max} to Tp)	3° C/second max.	3° C/second max.
Preheat: -Temperature min. (Ts_{min}) -Temperature Max (Ts_{max}) -Time (Ts_{min} to Ts_{max}) (ts)	 100 °C 150 °C 60-120 seconds	 150 °C 200 °C 60-180 seconds
Time maintained above: -Temperature (T_L) -Time (t_L)	 183 °C 60-150 seconds	 217 °C 60-150 seconds
Peak temperature (Tp)	240 °C	260 °C
Time within 5°C of actual peak temperature (t_p)	10-30 seconds	20-40 seconds
Ramp-down rate	6 °C/second max.	6 °C/second max.
Time 25°C to peak temperature	6 minutes max.	8 minutes max.



Reflow soldering temperature profile

2025-11-11

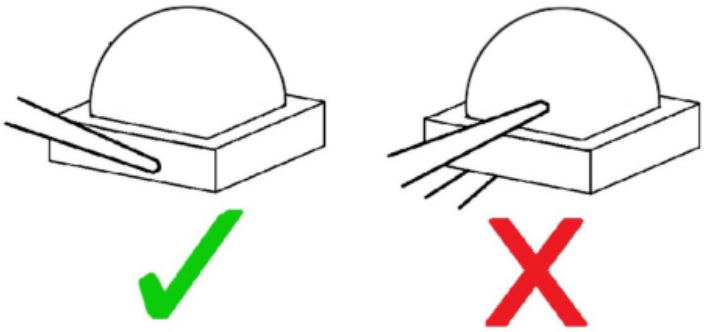
Recommended usage instructions

Storage

1. Store in a moisture free environment (< 60%RH).
2. Store between 5°C and 30°C.
3. After storing, clean with isopropyl alcohol. Do not use acetone, MKS or ultrasonic baths to clean.

Handling

1. Use ESD tweezers to hold the LED by the sides of the package.
2. Do not touch the optical surface of the LED.
3. Observe appropriate ESD precautions when handling the LED.



Circuit

1. Driving circuits must be designed to operate the LEDs in forward bias only.
2. A driver IC delivering constant current operation is recommended.
3. The recommended circuit for multiple LEDs involves driving individual load resistances. Each LED can have different forward voltages for the same current.

Safety information

The LED emits invisible UV light during operation. UV light is hazardous to eyes and skin. Long term exposure to UV light increases the risk of skin and eye cancer. Always ensure adequate control measures are in place to prevent exposure to UV light when the LED is operational.

Compliance

RoHS Compliant.

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CAUTION

1. LEDs emit very strong UV radiation during operation.
2. Don't look directly into the LED light when in operation as UV radiation can harm your eyes.
3. To prevent even inadequate exposure, wear protective eyewear.
4. If LEDs are embedded in devices, please indicate warning labels against the UV LED used.
5. Avoid prolonged exposure to skin or other tissue during operation.
6. Keep out of reach of children.
7. Take appropriate precautions around pets and other living organisms to avoid UV exposure.
8. Specification and dimension are subject to change without notice.