

SMD PowerLED module coupled to 1mm POF

Description:

In order to maximize optical power in a 1mm standard POF (NA = 0.5), the module design uses a butt coupled 40mil LED chip (powerLED chip). The low coupling efficiency is not an issue, if the application doesn't lack electrical power.

Unfortunately this type of fiber chip coupling generates high thermal loss that may destroy the PMMA made POF. For heat dissipation the design at hand therefore applies a thermally connected 20mm copper ferrule (photo module left side). Thus, an average LED DC current up to 120mA is feasible.

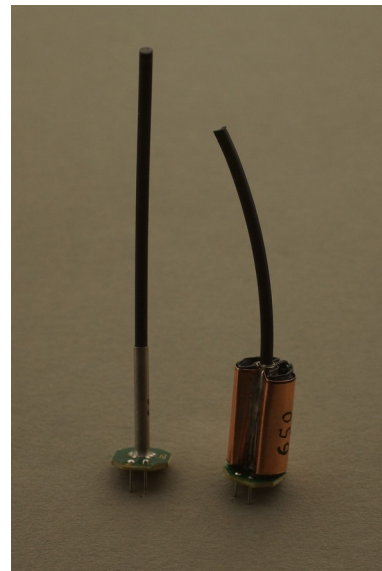
In combination with an additional copper foil heatsink the maximum LED current increases to 200mA (photo module right side).

Typically the module applies a 1mm POF in a 2.2mm cable jacket. But the setup allows the use of 1.5mm and 2.0mm POF fibers, all types of side light fibers with suitable diameters and fiber bundles up to a total diameter of 2.2mm, too.

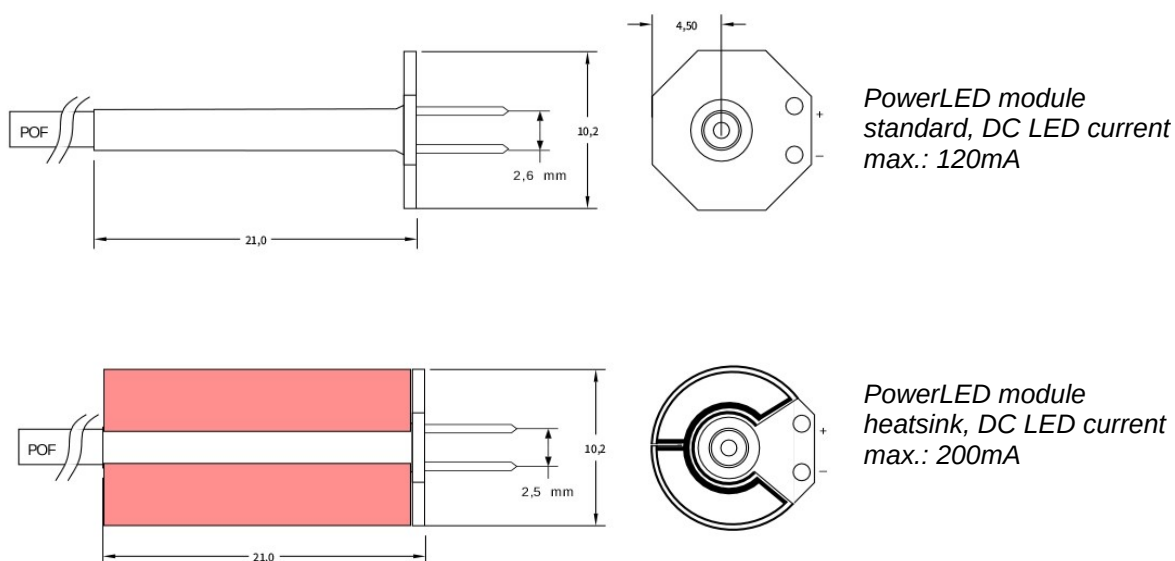
The polished POF endface emits the light in a light cone with a divergence of $\pm 29^\circ$ to the optical axis. The typical fiber length is 5cm, but customer specific length modifications are possible.

The illumination of fiber bundles requires a light mixing unit inside the module for improved uniformity. This is available on request.

Electrically the POF module is connected by a 2,54mm pitch two pin connector.



Mechanical dimensions:



The module is available only with the wavelengths given below.

Applications:

POF coupled PowerLED modules are useful in a wide variety of applications:

- Illumination,
- Fiber optic POF sensor systems that require a high power budget,
- sensor systems

Technical specifications for some selected PowerLED to POF coupled modules:

	blue	cyan	green	red	white*
peak wavelength [nm]	450	495	530	640	-
typical optical output power @120mA [dBm]					-
typical optical output power @200mA [dBm]	17	15	14	11	-

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