POLYMATECH COB · 30 MM PLATFORM

Horticulture Blue + Red CoB

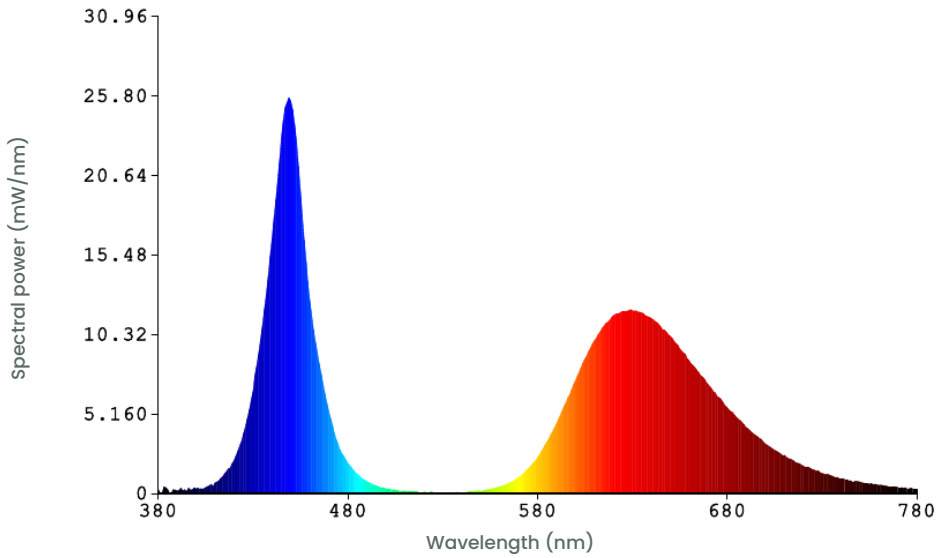
450 nm + 650 nm · Dual-band plant grow-light CoB

A dual-band chip-on-board LED with a deep-blue band and a broad red band in a single high-power package, matched to the blue and red absorption regions used by plants for photosynthesis. Built on Polymatech's common 30 mm CoB platform for straightforward integration into grow-light and controlled-environment luminaires.

Key features

- Two emission bands in one emitter: blue peak at 449.2 nm and a broad red band (see measured spectrum)
- Red-dominant mix: colour ratio R 60.3 %, G 29.7 %, B 10.0 %, as used for supplemental and sole-source growth lighting
- Recommended drive 350–700 mA constant current; power variants from 10 W to 54 W by die series / parallel configuration
- Common 30 × 30 mm platform, 17 mm light-emitting surface, 120° viewing angle, RoHS compliant

Spectral distribution



Measured spectral power distribution at 350 mA, 25 °C (laboratory spectral test, September 2026).

Applications

Vertical farms and CEA
Sole-source lighting for vertical farms and controlled-environment agriculture.

Leafy greens and microgreens
Vegetative-stage lighting for leafy greens, herbs and microgreens.

Greenhouse supplemental lighting
Extends photoperiod and adds intensity in low-light seasons.

Tissue culture and propagation
Controlled spectrum for laboratory propagation and nursery benches.

Flowering and fruiting crops
Red-biased spectrum for crops such as tomato and strawberry.

Research and breeding chambers
Defined red-to-blue ratio for plant research and breeding.

Electrical and optical characteristics

Parameter	Value (Ta = 25 °C)
Test current (IF)	350 mA
Recommended drive current	350 – 700 mA, constant current
Driver voltage compliance	≥ 32 V recommended
Forward voltage (VF) at 350 mA	27.81 V
Electrical power at 350 mA	9.73 W
Luminous flux / efficacy at 350 mA	216.4 lm / 22.24 lm/W
Radiant power at 350 mA	1,814 mW
Power variants	10 W – 54 W, by die series / parallel configuration
Peak wavelength (blue)	449.2 nm; half-width 22.7 nm
Colour ratio	R 60.3 % · G 29.7 % · B 10.0 %
Chromaticity (CIE 1931)	x = 0.3388, y = 0.1433
PPF and PPE	Available on request

Mechanical

Item	Specification
Platform	Polymatech CoB, 30 mm square
Dimensions	30.00 × 30.00 × 1.00 mm
Light-emitting surface	17.00 mm diameter
Viewing angle	120°
Lens	Flat
Compliance	RoHS
Packaging	Box

Ordering

Series	Order description
Product	Polymatech CoB — Blue + Red 450 + 650 nm Dual-Band
Also listed as	Red Light Therapy CoB · Skin Care CoB (same order code)

Application notes

- Mount on a metal-core PCB or aluminium heat sink with thermal interface material; keep case temperature below 60 °C and derate current above 60–70 °C.
- Drive with a constant-current LED driver (350 – 700 mA, ≥ 32 V compliance). Typical PPFD target 100 – 400 µmol/m²/s depending on crop and stage; photoperiod 12 – 18 h.
- Ingress protection is a property of the finished luminaire, not of the bare CoB.
- High-intensity blue light: do not look directly at the energised emitter.
- Values are laboratory measurements of production samples at 350 mA and 25 °C (September 2026); they are typical, not guaranteed limits. Contact Nisene for application support.

Enquiries

sales@nisene.com · 831-761-7980 · www.nisene.com · Specifications on request