PowerMax-Pro 15 mm OEM Detectors

High-Speed, Compact Power Detector with Large Active Area for Integration Inside Laser Systems

15 mm PowerMax-Pro OEM detectors are intended for integration inside laser systems with narrow process windows. The high-speed and high-power handling of these detectors offers advantages over semiconductor photodiodes and other infrared detectors commonly used in feedback loops and inline QC monitoring applications.

Small infrared detectors and photodiodes only sample a portion of the beam leading to errors and instability, they have steep spectral response curves, and require significant attenuation to avoid saturation. PowerMax-Pro OEM detectors will resolve these types of design challenges.

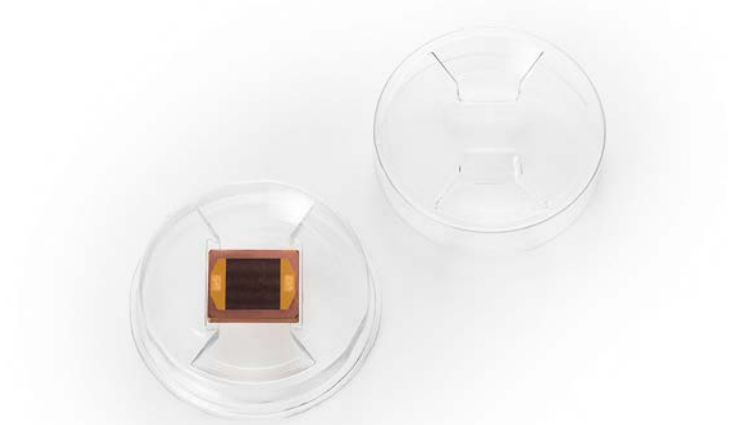
PowerMax-Pro thin-film transverse thermoelectric power sensing technology (Patent #9,012,848) offers the broad wavelength sensitivity, large dynamic range of a thermopile with a fast ten microsecond response speed.

FEATURES & BENEFITS

- High-speed 10 microsecond response time
- High-power handling to 9 W
- Supports lasers from 400 nm to 11 microns
- Broadband coating available with flat spectral response
- Large 15 mm square active area
- Compact form factor for OEM integration

APPLICATIONS

- Laser power monitoring of CW or modulated laser systems
- Active feedback control and inline QC within laser processing systems

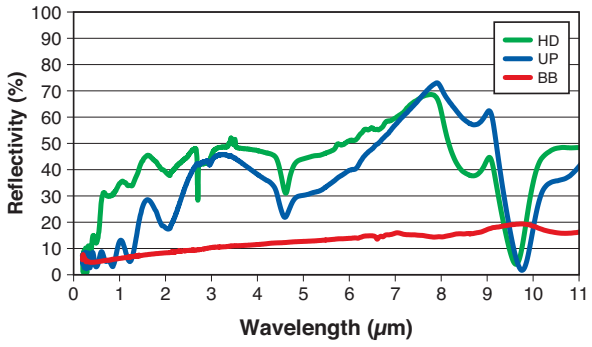


COHERENT®
Superior Reliability & Performance

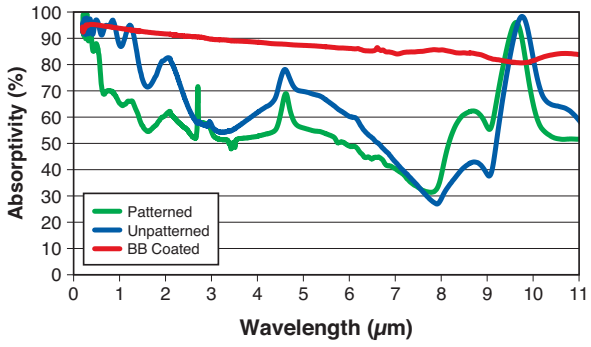
SPECIFICATIONS	PowerMax-Pro 15 mm OEM Detector - HD	PowerMax-Pro 15 mm OEM Detector - BB	PowerMax-Pro 15 mm OEM Detector - UP
Wavelength Range	400 nm to 1100 nm 9 µm to 11 µm	400 nm to 11 µm	400 nm to 1100 nm 9 µm to 11 µm
Average Power Range Guidelines[1] (W) in metal enclosure with finned heatsink	 to 5 to 9		
Max. Average Power Density Guidelines[1] (W/cm^2) without heatsink with finned heatsink with water-cooled heatsink	 25 50 300		
Max. Peak Power Density (kW/cm^2)	14		
Max. Energy Density (mJ/cm^2)	33 (10 ns; 1064 nm)		
Typical Voltage Output[2]	100 to 200 µV/W (typical)		
Typical Current Output[2]	10 to 20 µA/W (typical)		
Rise & Fall Time (µs)	≤10	≤75 (typical 30 to 70)	≤10
Detector Coating	HD	BB	UP
Active Area (mm)	15 x 15		
Maximum Beam Size[3] (mm)	10	10	2
Minimum Beam Size[3] (mm)	2	2	Damage threshold dependent
Spatial Uniformity[3] (%) (center 70% of aperture; 2.5 mm beam)	±3 ±1.5 typical	±3 ±1.5 typical	±3 (within 5 mm x 5 mm central area; 2.5 mm beam)
Calibration	User Calibrated OEM Detector		
Part Number	1385327	1385329	1385328

1 OEM detectors require mechanical mounting with a thermal interface to disipate heat. See PMP 15mm Development Kit Sensor user manual for integration guidelines.
2 Coherent recommends using these detectors in current mode with a transimpedance amplifier. See PMP 15 mm Development Kit Sensor user manual for integration guidelines.
3 The "UP" type detectors are recommended only for small beams <2 mm diameter in fixed installations with minimal beam movement. For larger beams choose HD or BB models.

PowerMax-Pro 15 mm OEM Detector Optical Reflectivity

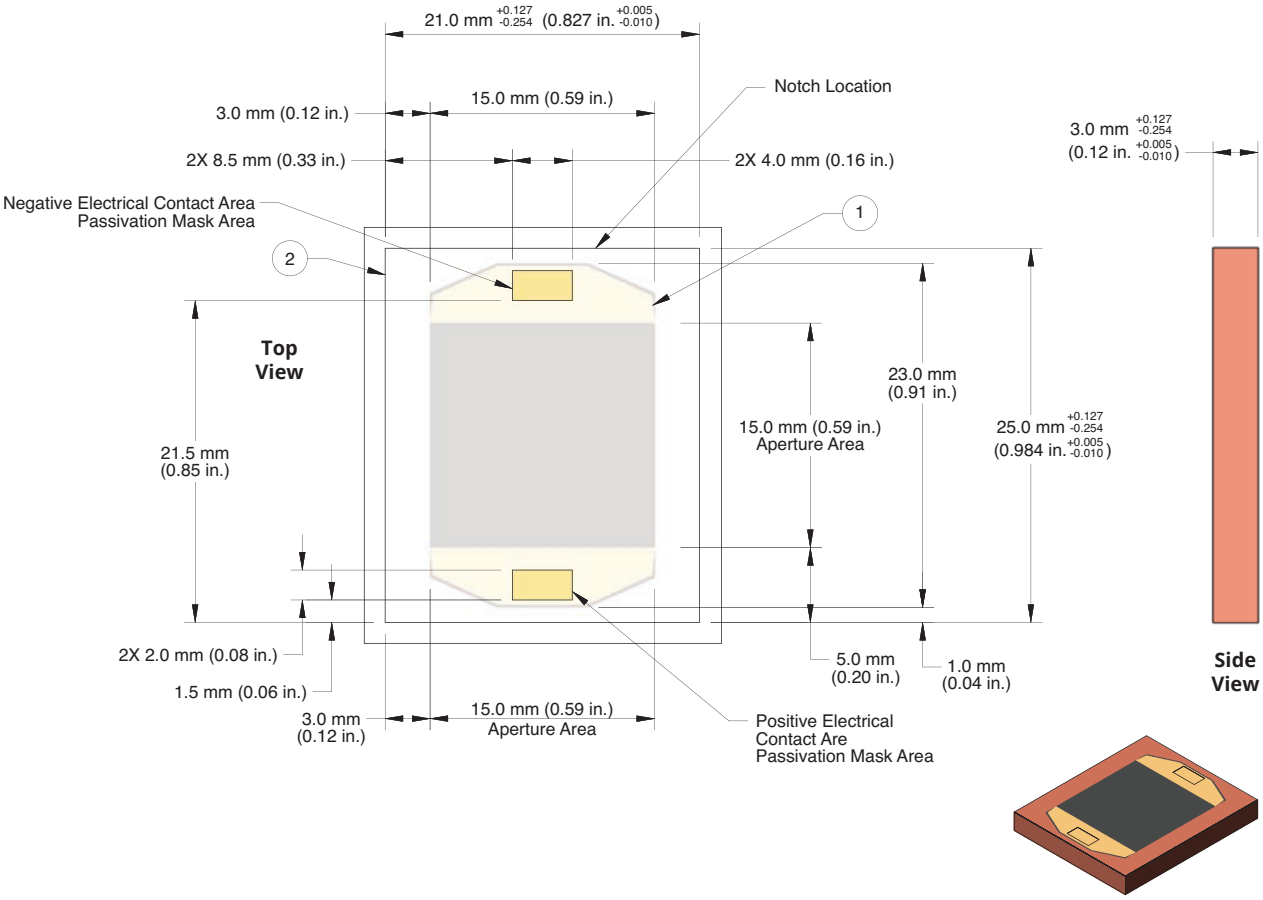


PowerMax-Pro 15 mm OEM Detector Optical Absorptivity



MECHANICAL SPECIFICATIONS

PowerMax-Pro 15 mm OEM Detector



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