



ABaT™ Unipolar Barrier Detector

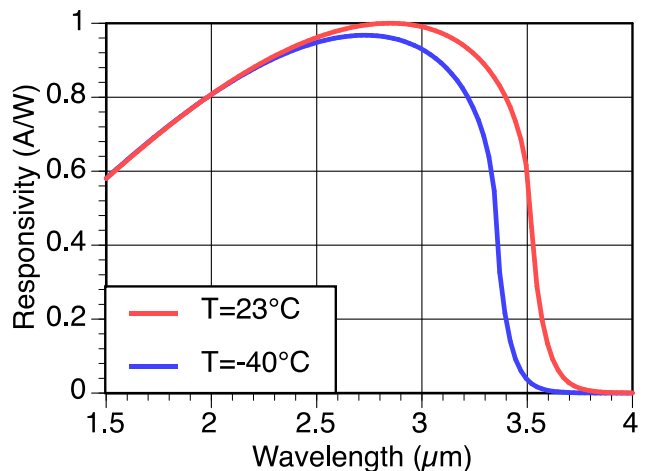
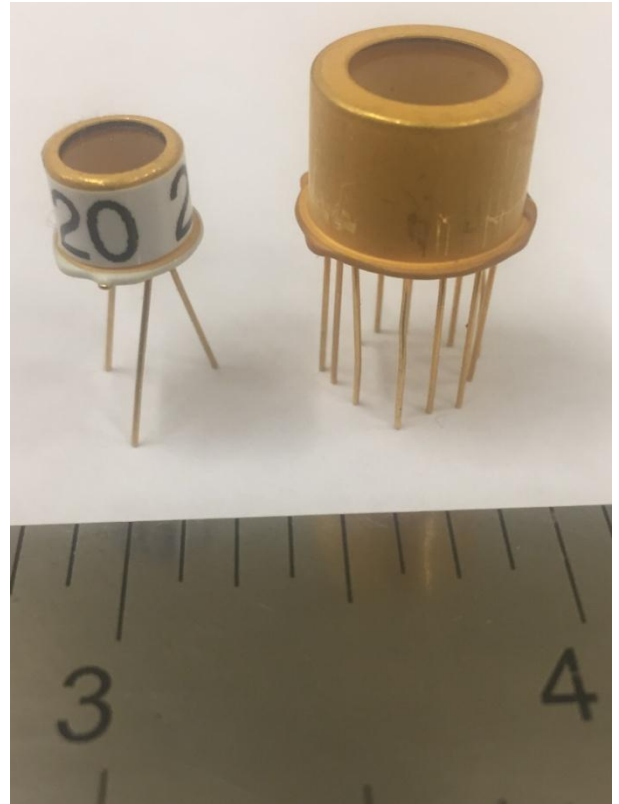
3.3-3.5 μm Cutoff Wavelength

Amethyst Barrier Technology, ABaT™, is Amethyst Research's new and disruptive infrared (IR) detector technology which offers low noise and high responsivity with excellent linearity over a broad spectral range in the mid-wave IR region. The advanced unipolar barrier architecture reduces dark current, thereby improving signal-to-noise ratio. The use of III-V compound semiconductor materials leverages mature and stable fabrication processes for superior manufacturability.

Detectors are available in TO-39 and TO-8 packages with active areas from ¼ to 1 mm². The operating temperature is optionally controllable by thermoelectric cooling.

Specifications

Parameter	Value	
Detector element	InAs	
Detectivity D* (peak) (cmHz ^{1/2} W ⁻¹)	1.2 × 10 ¹⁰ @ 23°C 1.2 × 10 ¹¹ @ -40°C	
Time Constant (μsec)	< 1	
Dark current density (A/cm ²)	14.7 × 10 ⁻³ @ 23°C 69.7 × 10 ⁻⁶ @ -40°C	
Package types (with sapphire window)	TO-8 3-Stage TEC	TO-39 Uncooled
Operating voltage (mV)	0 to -300	
Active area (mm × mm)	¼ × ¼, ½ × ½, 1 × 1	



For large scale orders, we can also provide custom designed detectors. Please contact us for further information.