



## tunIR™

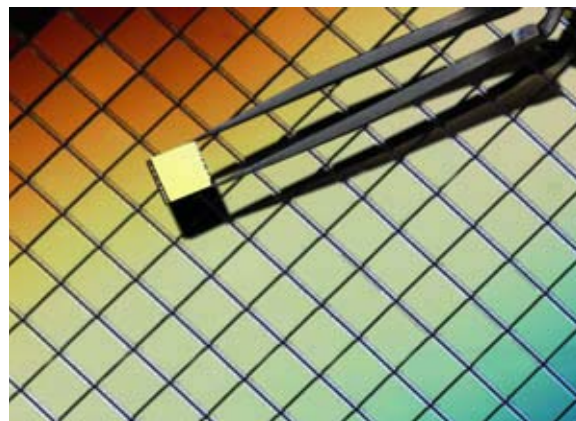
*restricted band infrared source 3-5µm or 8-12µm*

### DESCRIPTION

The tunIR Tuned Band Emitter uses a two-dimensional photonic crystal structure to tune and confine the IR emission to the spectral region of interest. They are available in either the 3 – 5 µm or 8 – 12 µm ranges. These miniature devices provide high energy infrared signals with minimal power consumption. Each device contains 2 elements which may be coupled together or independently driven in pulsed or constant modes. Both elements are vacuum sealed to create an intrinsically safe package.

### FEATURES & BENEFITS:

- Power output  
*Power in either band: 1.5-2 mW*
- Power efficient  
*<67.5 mW per filament*
- Continuous/Pulsed operation  
*0-1Hertz*
- Wavelength Specific  
*tunIR 425 or tunIR 812 Band Emitters*
- Lightweight & Small  
*Different packaging options available*
- Vacuum Sealed  
*Impermeable to liquids & vapors*
- Intrinsically Safe  
*Non-incendiary*



### APPLICATIONS:

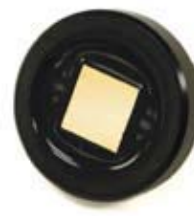
The power efficient tightly controlled emission spectrum of the tunIR devices makes them suitable for multiple applications where power consumption and intrinsic safety are critical.

- NDIR gas sensors
- Medical applications
- Automotive emissions
- Refrigerant detection
- Indoor air quality

The tunIR units can be operated individually or in combination to produce single or multiwavelength emitters in the mid- or long infrared portions of the spectrum.



ICx Photonics tunIR mounted on a TO-8 header with a cap.

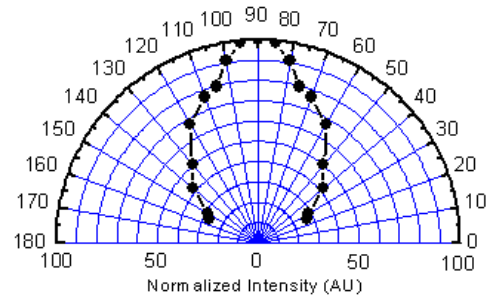


ICx Photonics tunIR mounted on a TO-8 header potted in silicone.

### ELECTRICAL SPECIFICATIONS

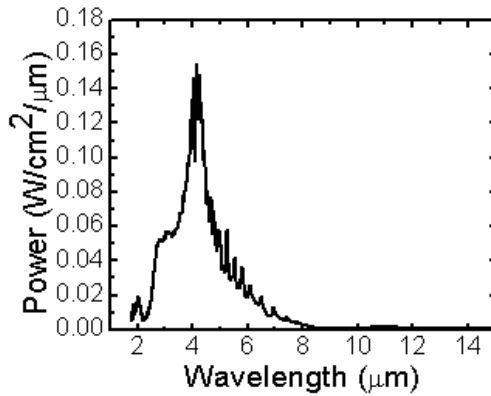
Device Resistance	two 116 ohm filaments (configurable in series or parallel)
Device Resistance when powered	240 ohm
Input voltage	4V per filament
Power Consumption	<67.5 mW per filament
Current Draw	<17 mA per filament
Operational package temperature	< 40 ° C

### Normalized angular power spectrum for tunIR 3-5 μm and 8-12 μm



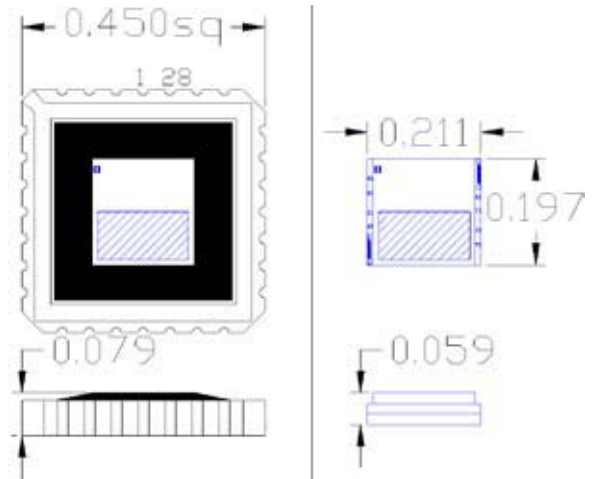
### OPTICAL CHARACTERISTICS

#### tunIR 3-5 μm



Inband power (integrated 3-5 μm)	>15 mW
Out of band power	<0.2 mW
Modulation depth @ 1Hz	100 %
Modulation depth @ 5Hz	70 %
Emitter Area	two 1.5 x 3 mm <sup>2</sup> filaments

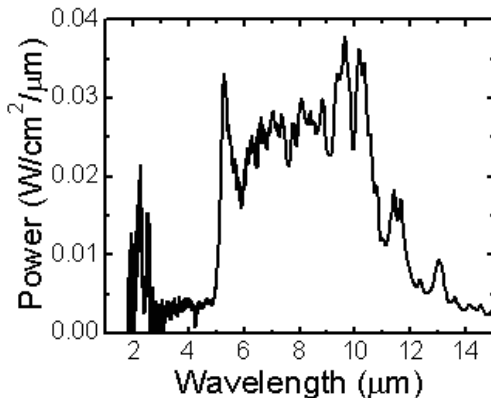
### PACKAGE GEOMETRY



28 pin ceramic LCC surface mount package

Un-packaged device for direct wirebonding to circuit board

#### tunIR 8-12 μm



Inband power (integrated 8-12 μm)	6 mW
Out of band power	<0.5 mW
Modulation depth @ 1Hz	100 %
Modulation depth @ 5Hz	not measured
Emitter Area	two 1.5 x 3 mm <sup>2</sup> filaments



4 Federal Street  
 Billerica, MA 01821  
[www.icxphotonics.com](http://www.icxphotonics.com)  
[www.icxt.com](http://www.icxt.com)