



# markIR™ Infrared Emitters

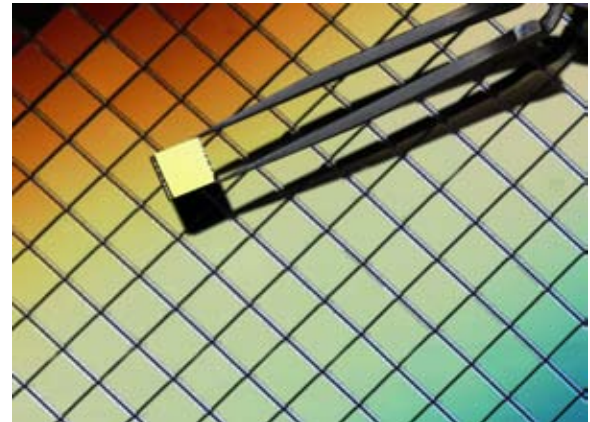
*Band specific output between 3-5µm or 8-12µm*

## DESCRIPTION

The markIR Tuned Band Emitters utilize a two-dimensional photonic crystal structure to tune and restrict the IR emission for visibility in only the desired spectral region. These miniature devices provide high energy Infrared signals with minimal power consumption, thus enabling long-range visibility and prolonged battery operation. Each hermetically sealed device contains 2 elements which may be coupled together or independently driven in pulsed or constant modes.

## FEATURES & BENEFITS:

- markIR 35 or markIR 812 Band Emitters  
*Visible with MWIR or LWIR cameras only*
- Wavelength Specific  
*No visible or near IR (Gen III) output*
- Bright Emission  
*Viewable distance up to 600m*
- Power Efficient  
*Up to 45 hours continuous operation (CR123 batteries)*
- Lightweight & Small  
*Mountable with clip, pin or adhesive*
- Vacuum Sealed  
*Submersible to 10 meters*
- MEMS Device  
*May be operated pulsed or constant*
- Configurable Output Direction  
*45° through 360° viewing angle*



## APPLICATIONS:

The tightly controlled emission spectrum of the markIR is ideal for operations where detection only by specific types of imaging equipment is desired.

- Personnel/unit identification
- Cargo/pallet markers
- Vehicle IFF
- Landing zone markers
- Signaling

The markIR units can be operated individually or in combination to produce single or multiwavelength emitters in the mid- or long infrared portions of the spectrum. Several units in an array may be used to extend viewing distance or provide multi-directionality.



Wilcox UIFF Device featuring markIR emitters.

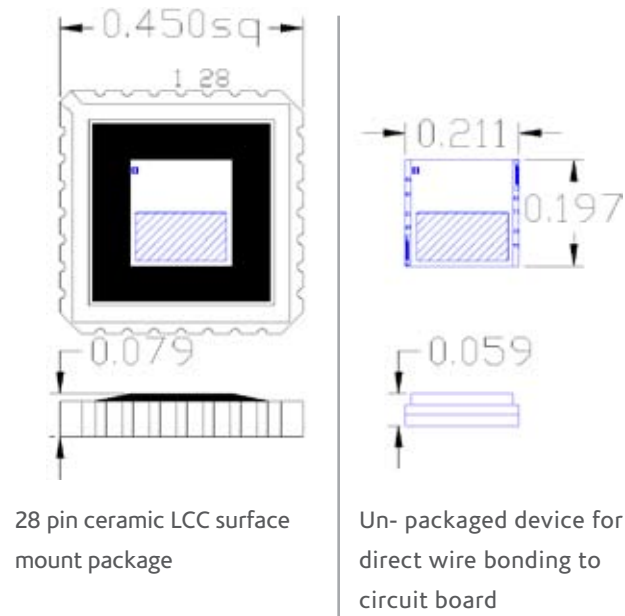


Sample configuration of markIR as a location identifier.

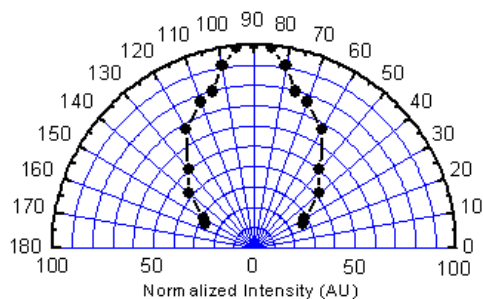
## ELECTRICAL SPECIFICATIONS

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

## PACKAGE GEOMETRY

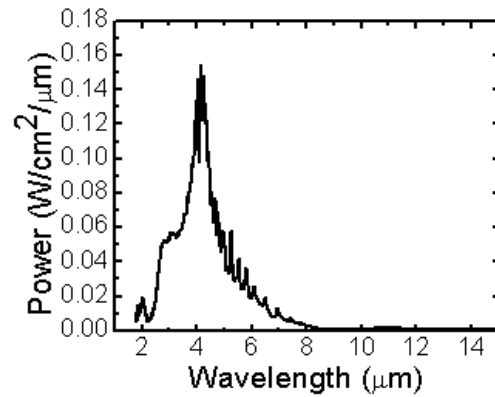


## OPTICAL CHARACTERISTICS



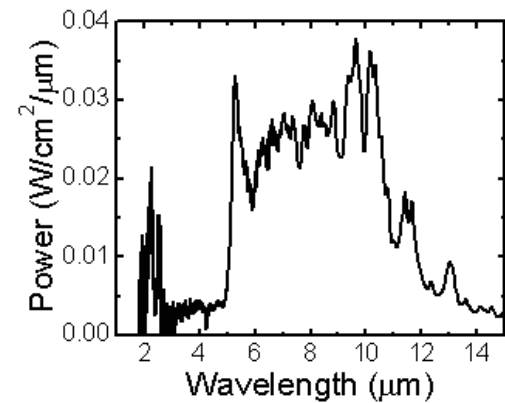
Normalized angular power spectrum for markIR 35 and 812

## markIR 35



Output power (integrated 3-5 μm)	>15 mW
Out of band power ( $I^2$ or 8-12 μm)	<0.2 mW
Modulation depth @ 1Hz	100 %
Modulation depth @ 5Hz	70 %
Emitter Area	two 1.5 x 3 mm <sup>2</sup> filaments
Viewing Distance (Inframetrics Milcam w/ 240 mm lens)	500+ m

## markIR 812



Output power (integrated 8-12 μm)	6 mW
Out of band power ( $I^2$ or 3-5 μm)	<0.5 mW
Modulation depth @ 1Hz	100 %
Modulation depth @ 5Hz	not measured
Emitter Area	two 1.5 x 3 mm <sup>2</sup> filaments
Viewing Distance (bolometer w/ 180 mm lens)	220+ m



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