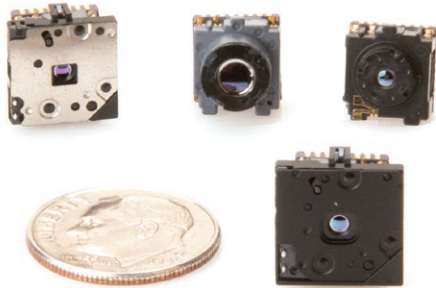




LWIR MICRO THERMAL CAMERA MODULE

FLIR Lepton[®] 2.5



The FLIR Lepton[®] is a revolutionary radiometric-capable LWIR camera solution that is smaller than a dime, fits inside a smartphone, and is one tenth the cost of traditional IR cameras. With a focal plane array of 80 x 60 active pixels, Lepton easily integrates into native mobile devices and other electronics as an IR sensor or thermal imager. The radiometric Lepton captures accurate, calibrated, and noncontact temperature data in every pixel of each image for even greater utility in commercial applications. Non-radiometric versions are also available.

Lepton is the technology behind many groundbreaking thermal imagers from FLIR, from the FLIR ONE thermal imaging accessory for smartphones to the MR176 Imaging Moisture Meter. New devices equipped with thermal imaging have incredible potential in the areas of safety, temperature measurement, and presence detection. And due to high volume manufacturing techniques, FLIR can deliver Lepton at a price point that is an order of magnitude below other thermal camera cores.

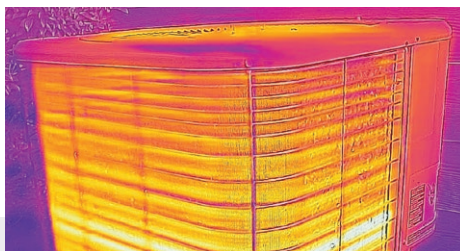
www.flir.com/Lepton



ENHANCED IR SENSOR

Radiometry, unbeatable SWaP for mobile devices, and greater sensitivity than common thermopile arrays.

- Greater sensitivity than common thermopile arrays at <math><50\text{ mK}</math> (0.050°C)
- Temperature stabilized output for radiometric processing
- Low operating power – 150 mW typical, 650 mW during shutter event
- Low power standby mode



MICRO THERMAL IMAGER

Uncooled thermal imaging for mobile devices, unattended sensors, and small electronics designs.

- Integrated digital thermal image processing
- Industry standard 50° FOV
- Shutterless option available
- Fast time to image (<math><0.5\text{ seconds}</math>)



EASY INTEGRATION

Simplifies development and manufacturing of thermal-enabled devices.

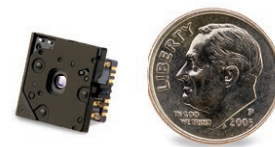
- Small package size of 11.5 x 12.7 x 6.835 mm
- SPI video interfaces
- Uses standard cell phone-compatible power supplies
- Two-wire serial control interface and 32-pin socket interface to connector

SPECIFICATIONS

Thermal Imager	LEPTON 50° Radiometric
Sensor technology	Uncooled VOx Microbolometer
Spectral range	Longwave infrared, 8 μm to 14 μm
Array format	80 × 60 progressive scan
Pixel size	17 μm
Effective frame rate	8.6 Hz (commercial application exportable)
Thermal sensitivity	<50 mK (0.050°C)
Temperature compensation	Automatic. Output image independent of camera temperature.
Scene dynamic range	High Gain Mode: -10°C to 140°C, typical* Low Gain Mode: -10°C to 450°C, typical*
Radiometric accuracy	High gain: Greater of ±5°C or 5% (typical) Low gain: Greater of ±10°C or 10% (typical)
Non-uniformity corrections	Automatic with shutter
Image optimization	Factory configured and fully automated
FOV - horizontal	51°
FOV - diagonal	63.5°
Output format	User-selectable 14-bit, 8-bit (AGC applied), or 24-bit RGB (AGC and colorization applied)
Solar protection	Integral
Electrical	
Input clock	25-MHz nominal, CMOS IO Voltage Levels
Video data interface	Video over SPI
Control port	CCI (I2C-like), CMOS IO Voltage Levels
Input supply voltage (nominal)	2.8 V, 1.2 V, 2.5 V to 3.1 V IO
Power dissipation (Typical, room temp)	150 mW (operating), 650 mW (during shutter event), 4 mW (standby)
Physical Attributes	
Package dimensions – socket version (w x l x h)	11.5 × 12.7 × 6.835 mm (0.45 × 0.5 × 0.27 in)
Weight	0.9 g
Environmental	
Optimum operating temperature range	-10°C to +80°C
Non-operating temperature range	-40°C to +80°C
Shock	1500 G @ 0.4 ms

*Scene dynamic range is a function of sensor characteristics and ambient temperature. Range values reported are typical values at room temperature ambient.

Specifications are subject to change without notice. For the most up-to-date specs, go to www.flir.com/lepton



Actual size

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19-0372-OEM-COR-Lepton 2.5 Datasheet



The World's Sixth Sense®