



# FLIR LEPTON 3<sup>®</sup>

## High Resolution Micro Thermal Camera

The FLIR Lepton 3, FLIR's highest resolution LWIR micro thermal camera solution, delivers full 160 x 120 thermal resolution – a 4x increase over earlier Lepton versions. The revolutionary Lepton was the first complete longwave infrared thermal camera small enough to be used in smartphones and other mobile devices. The new, higher resolution Lepton 3 gives users better image detail in a powerful, compact, lightweight package for even greater utility in commercial applications as both a thermal camera and a detection sensor. Smaller than a dime and ten times less expensive than a traditional IR camera, the 160 x 120 resolution Lepton brings high quality thermal vision everywhere.

### ENHANCED IR SENSOR

*Greater resolution & sensitivity than common thermopile arrays*

- 160 x 120 active pixels
- Thermal sensitivity <50 mK
- Low operating power – 140 mW typical, 650 mW during shutter event
- Low power standby mode

### MICRO THERMAL IMAGER

*Uncooled thermal imaging for small electronics*

- 56° lens
- Integrated digital thermal image processing
- Integrated shutter
- Fast time to image (<0.5 seconds)

### EASE OF INTEGRATION

*Simplifies development & manufacturing of thermal-enabled devices*

- Small 11.8 x 12.7 x 7.2 mm package
- SPI video interfaces
- Uses standard cell phone-compatible power supplies
- Two-wire serial control interface
- 32-pin socket interface to connector

## Specifications

| Overview                                        |                                                                                           | Lepton 3 |  |
|-------------------------------------------------|-------------------------------------------------------------------------------------------|----------|--|
| Sensor technology                               | Uncooled VOx microbolometer                                                               |          |  |
| Spectral range                                  | Longwave infrared, 8 µm to 14 µm                                                          |          |  |
| Array format                                    | 160 x 120, progressive scan                                                               |          |  |
| Pixel size                                      | 12 µm                                                                                     |          |  |
| Effective frame rate                            | 8.8 Hz (commercial application exportable)                                                |          |  |
| Thermal sensitivity                             | <50 mK (0.050° C)                                                                         |          |  |
| Temperature compensation                        | Automatic. Output image independent of camera temperature.                                |          |  |
| Non-uniformity corrections                      | Automatic with shutter                                                                    |          |  |
| Scene dynamic range                             | Low Gain Mode: up to 450°C;<br>High Gain Mode: up to 150°C                                |          |  |
| Image optimization                              | Factory configured and fully automated                                                    |          |  |
| FOV - horizontal                                | 56°                                                                                       |          |  |
| FOV - diagonal                                  | 71°                                                                                       |          |  |
| 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, 2.8 V to 3.1 V IO                                                           |          |  |
| Power dissipation (Typical, room temp)          | 140 mW (operating), 650 mW (during shutter event), 4 mW (standby)                         |          |  |
| Mechanical                                      |                                                                                           |          |  |
| Package dimensions – socket version (w x l x h) | 11.8 x 12.7 x 7.2 mm                                                                      |          |  |
| Weight                                          | 0.9 grams                                                                                 |          |  |
| Environmental                                   |                                                                                           |          |  |
| Optimum operating temperature range             | -10°C to +65°C                                                                            |          |  |
| Non-operating temperature range                 | -40 °C to +80 °C                                                                          |          |  |
| Shock                                           | 1500 G @ 0.4 ms                                                                           |          |  |

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