

## 2<sup>ND</sup> AND 3<sup>RD</sup> GEN IR-DETECTION MODULES

- **MCT, Type II superlattice**
- **Up to 576 x 7 linear TDI arrays**
- **Up to 640 x 512 matrix arrays**
- **3rd Gen dual band, dual color**
- **JT or Stirling cooler**

AIM is a global supplier of state of the art IR-detection modules for the most challenging programs.

MWIR and LWIR 2nd Gen focal plane arrays in linear TDI or two-dimensional configurations with complexities as high as 576 x 7 or 640 x 512 are in full scale production using MCT detector technology.

Various types of dewar packages using either Joule Thomson or Stirling coolers may be combined with the FPAs into integrated detector cooler assemblies (IDCAs). Split linear or rotary integral coolers are also available to meet specific requirements like long life, low vibration, low noise, high efficiency, etc.

Miniaturized command control electronics (CCEs) with integrated analog-to-digital converters and power regulation provide optimized interfacing.

3rd Gen technology moves into production. Dual color MWIR/MWIR IDCAs based on Type II superlattice technology provide breakthrough solutions for missile approach warning. Dual band 640 x 512 MWIR/LWIR IDCAs are under development to provide imaging performance for next Generation FLIRs.



## 2<sup>ND</sup> AND 3<sup>RD</sup> GEN IR-DETECTION MODULES

### MCT linear arrays

|                           |                    |                    |
|---------------------------|--------------------|--------------------|
| Format                    | 288 x 6            | 576 x 7            |
| Spectral range [µm]       | 8-10.5 (*)         | 8-10.5 (*)         |
| Pixel size [µm]           | 25 x 28            | 20 x 20 or 20 x 30 |
| NETD @ 300K [mK]          | < 25               | < 40               |
| For Tint [µs] / F/#       | 16.0 / 1.7         | 18.0 / 2.5         |
| Detector outputs          | 1 digital (14 bit) | 4 digital (14 bit) |
| Max. pixel rate [MHz]     | 20                 | 80 (160)           |
| Image size                | 288 x 768          | 576 x 768          |
| Max. full frame rate [Hz] | 25 or 30           | 25 or 50           |

(\*) MWIR versions also available

### MCT matrix arrays

|                           |                       |      |           |             |      |
|---------------------------|-----------------------|------|-----------|-------------|------|
| Format                    | 384 x 288             |      | 640 x 512 | 640 x 512   |      |
| Spectral range [µm]       | 3-5                   | 8-9  | 3-5       | 3-5         | 8-9  |
| Pixel pitch [µm]          | 24                    |      | 24        | 15          |      |
| NETD @ 50% well [mK]      | < 15                  | < 25 | < 15      | < 25        | < 40 |
| Detector outputs analog   | 2                     |      | 8         | 4           |      |
| Max. pixel rate [MHz]     | 20                    |      | 80        | 40          |      |
| Read out mode             | ITR and Rolling Frame |      |           | IWR and ITR |      |
| Max. full frame rate [Hz] | 120                   |      | 200       | 100         |      |

### 3rd Generation

|                           |  |                                      |
|---------------------------|--|--------------------------------------|
| Format                    | dual color 384 x 288 x 2<br>superlattice | dual band 640 x 512 x 2<br>MCT (***) |
| Spectral range [µm] 1     | 3.4 - x (**)                             | 3-5                                  |
| Spectral range [µm] 2     | y - 5.0 (**)                             | 8-9                                  |
| Signal registration       | temporal and spatial coincidence         | spatial coincidence                  |
| Pixel pitch [µm]          | 40                                       | 20                                   |
| NETD@ 50% well [mK]       | < 35 (color 1) / < 25 (color 2)          |                                      |
| For Tint [ms] / F/#       | 2.8 / 2.0                                | variable aperture                    |
| Detector outputs analog   | 8  | 8                                    |
| Max. pixel rate [MHz]     | 80                                       | 80                                   |
| Read out mode             | Snapshot, ITR                            | IWR, ITR,<br>single band operation   |
| Max. full frame rate [Hz] | 100 (for Tint < 5.5ms)                   | 100                                  |

ITR = Integrated Then Read, IWR = Integrated While Read  
 (\*\*) {3.4 < x < y < 5.0} details of cross over points x, y customer specific  
 (\*\*\*) under development  
 Customer specific designs on request.

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