MT6412BA

640×480-12µm VGA Microbolometer ROIC

Features

- Advanced VGA Microbolometer ROIC
- 640 × 480-12 µm Array format
- 1, 2, or 4 analog outputs with optional reference
- Programmable Biasing, Timing, and Windowing
- High Speed, Low Power, and Low Noise
- Tested ROIC parts on 200mm CMOS wafers

Technical Specifications

Array Format	640 × 480				
Pixel Size	12 µm × 12 µm				
ROIC Operating Mode	Rolling Line				
Biasing and Timing	On-Chip Programmable				
Detector Resistance (R_{det})	60 kΩ ±50%	200 kΩ ±50%	400 kΩ ±25%	750 kΩ ±25%	1 MΩ ±20%
	Gain 1x	Gain 2x	Gain 4x	Gain 8x	Gain 16x
Integration Time	Programmable from 1µs to 1ms in steps of 1 period of system clock				
Number of Analog Outputs	Programmable 1, 2, or 4 analog video, Programmable 1 or 2 analog reference				
Analog Outputs	Swing ≥ 2.0V	Load Capacitance ≤ 15pF	Load Resistance ≥ 10MΩ		
Gain and Offset	On-Chip Programmable gain and offset				
Readout Modes	Rolling Line				
Windowing	Programmable size and location				
Frame Rate	≤ 60 fps for full window (640×480)				
Supply Voltage	Analog : 3.3V Core and I/O	Digital: 1.8V Core, 3.3V I/O			
System / Pixel Clock	System: ≤ 25 MHz (Nominal 20 MHz)	Pixel: ≤ 12.5 MHz (Nominal 10 MHz)			
Programming Interface	Serial Programming Interface (SPI) For ROIC Command/Control and Non-Uniformity Correction (NUC) operations				
Power Dissipation	≤ 150mW @ 60 fps with 2 outputs				
Output Noise Level	≤ 0.5mV rms at 300K				
Temperature	Operated with TEC: 25°C ≤ T_{op} ≤ 30°C Operated w/o TEC: -35°C ≤ T_{op} ≤ 60°C	Storage: -40°C ≤ T_{st} ≤ 80°C			
Temperature Sensor	On-chip sensor with 1mV/K sensitivity				
Wafer / Die Sizes, DPW	Wafer: 200mm	Die: 11 .1mm × 13.9 mm	Total: 144 Die	120 A+ Grade Die (Typical)	
Pads	Dual pad structure: 1 for probing and 1 for wirebonding				
Package Pin Count	≤ 32				
Synchronization	Master Mode: self-triggered Slave Mode: Frame synchronization via frame sync input				
TEC-LESS Operation	Supported using dynamically updated NUC tables based on ROIC operation temperature				