EVBUM2303/D

KAE-02150 Non-TEC Image Sensor Evaluation Kit

ON Semiconductor®

www.onsemi.com

EVAL BOARD USER'S MANUAL

Description

ON Semiconductor KAE−02150 Image Sensor Evaluation Kit enables customers to easily and quickly evaluate the performance of the KAE−02150 and KAE−02152 Interline Transfer EMCCD Image Sensors that do not include an integrated thermoelectric cooler (TEC) without the need to develop a full camera design. ON Semiconductor does provide a kit (part KAE−02150−AB−SD−A−GEVK) to evaluate the KAE−0215x sensor with built in TEC. When combined with ON Semiconductor Sensor Studio II software, this hardware allows easy camera control such as VGA/CDS gains, black levels, Integration time, electron multiplication factor and readout configuration (single dual quad). Image capture and analysis functions such as video recording, still image capture, gain merging algorithm and image analysis are also supported.

Features

- Compatible with KAE−02150 and KAE−02152 Interline Transfer EMCCD Image Sensors
- Kit Includes Monochrome KAE−02150 Image Sensor
- ADDI7015 Analog Front End
- Three Operating Modes Supported:
  - Normal: All Signal Routed to Standard CCD Output
  - EM: All Charge Routed to Electron Multiplication Output
  - Mixed: Intra−scene Switchable Gain Routes Charge Based on Signal Intensity
- USB Interface for Sensor Control, Image Capture, and Firmware Downloads
- Field Updating of Firmware via Sensor Studio II
- Socketed Sensor for Easy Sensor Replacement, allowing Evaluation of KAE−02150 and KAE−02152 Variants
- Includes Mount for C Lens
- Integrated Tripod Mount (1/4−20 Thread)
- Multi−stage Thermoelectric Cooler Module Included. TE Controller not Included
- Optional Lens Mount Kit (not Included) Supports C and F Mount Lens and Includes an IR Cut Filter for Color Imaging Evaluation

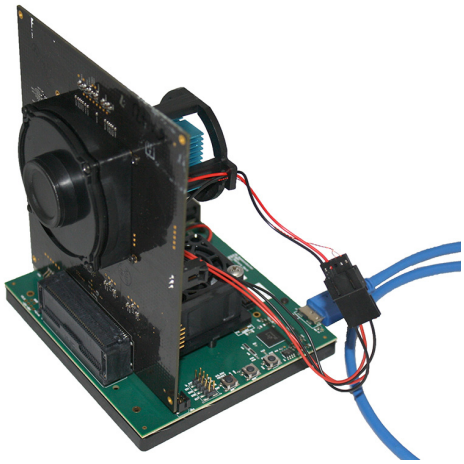

Figure 1. Evaluation Board Picture

Kit Includes

- Image Capture Board with Integral Tripod Mount
- Headboard (Sensor installed and Lens Mount Affixed)
- Dual−stage Thermoelectric Cooler Module (PN: TE Technology TE−2−(127−127)−1.3)
- USB 3.0 Cable (2 meter Length)
- Quick Start Guide
- User's Manual Available in Sensor Studio II Help Section

Parameter	Typical Value
Hardware Interfaces	USB 3.0, USB 2.0
Typical Data Rate (USB 3.0)	71 MB/sec
Sensor Output Pixel Rate / AFE Data Rate	Analog 20/40 MHz / LVDS 120/240 MHz
Sensor Frame Rate (Full Resolution with USB 3.0): Normal Operation (40 MHz) EM and Mixed Modes (20 MHz)	(single / dual / quad) 14 / 24 / 50 fps 7 / 12 / 25 fps
Display Frame Rate (Full Resolution with USB 3.0): Normal Operation (40 MHz) Intra Scene (20 MHz)	(single / dual / quad) 7 / 12 / 26 fps 4 / 6 / 13 fps
On Board Frame Buffer Capacity: 2 Mp	64 frames
Optics	Includes mount for C lenses, Compatible with optional lens mount kit

ORDERING INFORMATION

Part Number	Description	Compatible Image Sensors (sold separately)
KAE−02150−AB−A−GEVK	KAE−02150 (2 Mp) monochrome image sensor evaluation kit (KAE−02150 image sensor included)	KAE−02150 KAE−02152

OPTIONAL HARDWARE ORDERING INFORMATION

Part Number	Description	Compatible Image Sensors (sold separately)
KAE−02150−FBB−JP−EE	KAE−02150 Bayer color image sensor	N/A
KAE−02152−ABB−JP−EE	KAE−02152 monochrome image sensor	N/A
KAE−02152−FBB−JP−EE	KAE−02152 Bayer color image sensor	N/A
LENS−MOUNT−KIT−D−GEVK	Lens mount kit to support C and F mount lenses (includes IR cut−filter)	N/A

REQUIRED HARDWARE AND SOFTWARE

Host Computer

- 2 GHz processor, 8 GB RAM, USB 2.0 / 3.0 interface, Windows 7 and Windows 10 Operating System (64 bit)
- Sensor Studio II software. Available for download at onsemi.com

For Maximum Speed

- Native USB 3.0 chipset

Other (User Supplied)

- +12 VDC, 2 Amp, power supply with 2.1 mm center positive DC jack
- Camera lens
- IR cut filter (required for evaluating color image sensors)
- Table−top tripod (optional)
- TE Controller (tested with TE Technology models TC−48−20 and TC−720)

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
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