



Data Sheet
Digital Camera Module: ITC1910
September 2004

DIGITAL CAMERA MODULE: ITC1910

The ITC1910 is a 2 megapixel (1920 x 1080) HDTV-format digital camera that provides 12 bit images at 15 frames per second via a cameralink interface. The interline transfer CCD image sensor makes this camera ideal for applications where the detrimental effects of image smearing need to be eliminated, e.g. traffic control.

QUICK REFERENCE DATA

Resolution	2 MP
Pixel Array	1920 × 1080 pixels
Pixel Frequency	32 MHz
Frame Rate	15 fps
Sensor Type	Interline Transfer
Optical Format	1.0 inch
A/D Conversion	12 bit
Dynamic Range (min)	56 dB

DIGITAL CAMERA MODULE: ITC1910**TECHNICAL DATA**

A/D Conversion	12 bit
Total RMS Dark Noise (0dB gain, $T_{int}=100\mu s$)	4 ± 1 DN
Q_{max}	40 kel
Gain Range (in 0.1dB steps)	0 – 24dB
Pixel Frequency	32 MHz
Frame Output Rate	15 Hz
ADC Input Clamp	8 bits
Dynamic Range	>56 dB
Power Requirements	12 V DC 0.54 A

Sensor

The sensor is a 1920 × 1080 progressive scan interline CCD featuring an electronic shutter and anti-blooming technology. The square pixels are $7.4\mu m \times 7.4\mu m$ with an active image area of $11.8mm \times 8.9mm$ and an image diagonal of 14.8mm. The sensor has a Q_{max} of 40kel.

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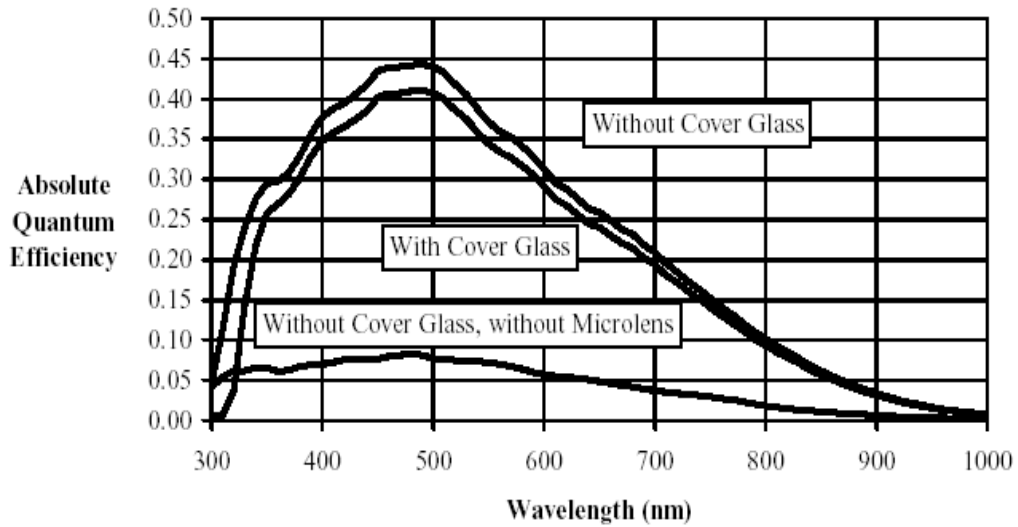


Figure 1. Quantum efficiency of KAI-2093 (monochrome) image sensor

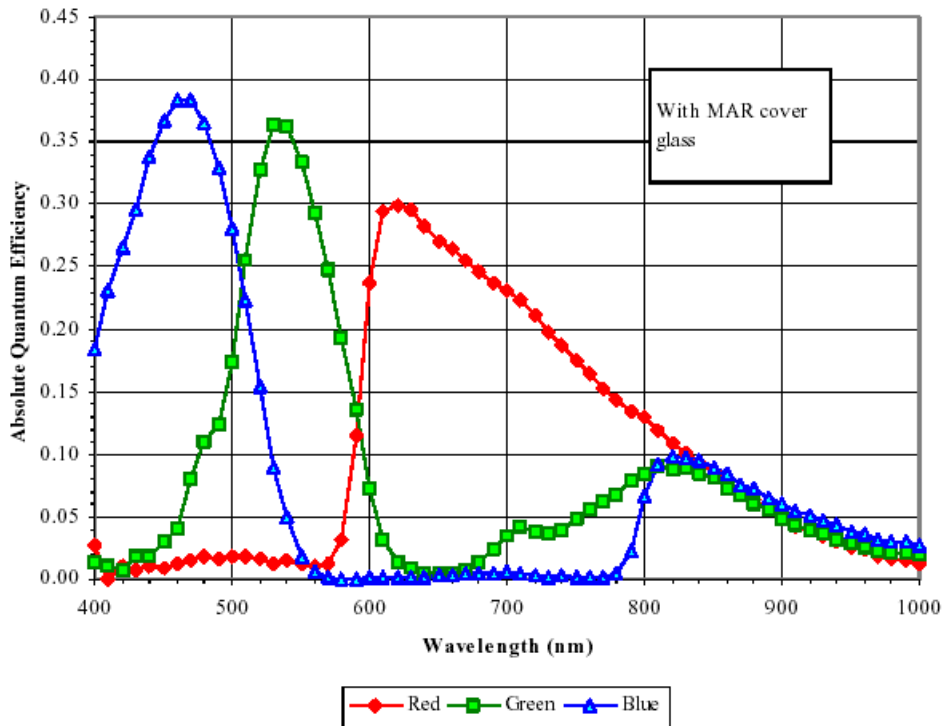


Figure 2. Quantum efficiency of KAI-2093 (color) image sensor

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Blemishes

Blemish definitions:

Name	Definition	Maximum Number
Major Defective Pixel	A pixel whose signal deviates by more than 25mV from the mean value of all active pixels under dark field conditions by more than 15% from the mean value of all active pixels under uniform illumination of 80% saturation	20
Major Defective Pixel	A pixel whose signal deviates by more than 8mV from the mean value of all active pixels under dark field conditions	200
Cluster Defect	A group of 2 to 10 contiguous major defective pixels with a width no greater than 2 defective pixels	8
Column Defect	A group of more than 10 contiguous major defective pixels along a single column	0

Note: there will be at least two non-defective pixels separating any two major defective pixels.

Blemish test conditions:

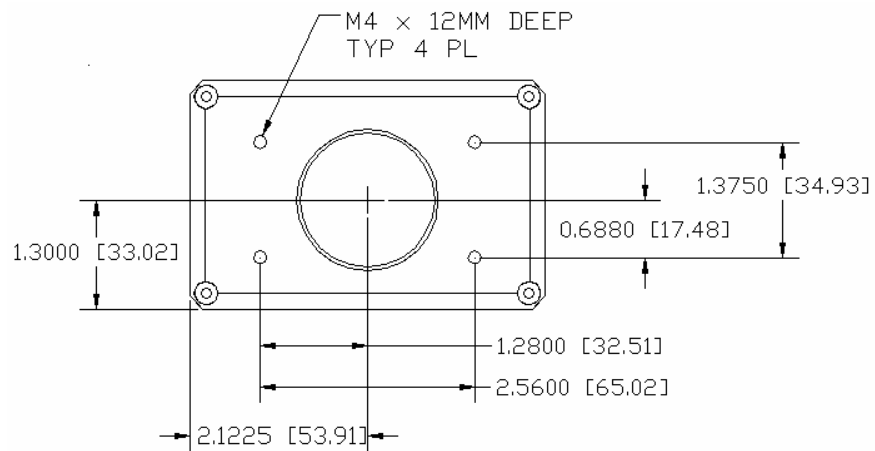
Temperature	40 °C
Integration time (40MHz HCCD frequency, no binning, 30fps frame rate)	33 ms
Light Source	Continuous illumination centered at 550nm

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Power Supply and I/O Connector Pin Out

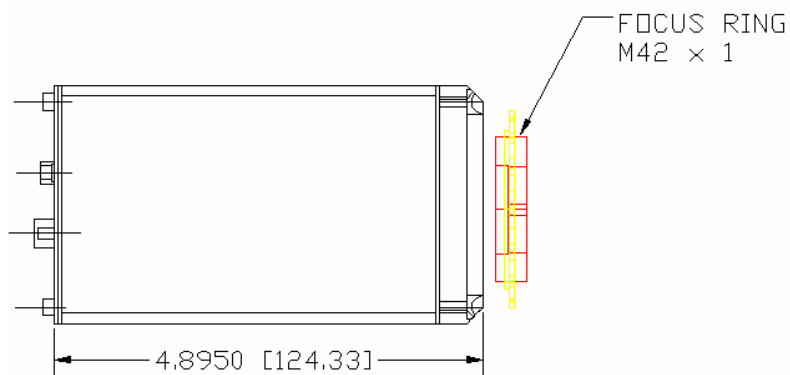
Connector Pin Number	Signal Name	Function	Notes
1	+12V input	Power Input	+12V DC <600mA
2	C Ground	Power Return	+12V Return
3	NC	Spare	No Connection
4	Trigger	Input	75Ω TTL/CMOS
5	NC	Spare	No Connection
6	Strobe	Output	TTL/CMOS
7	C Ground	Power Return	+12V Return
8	RX RS	Receive Control	RS232 Input
9	+12V Input	Power Input	+12V DC
10	C Ground	Power Return	+12V Return
11	RTS	Ready to Send	RS232 Input
12	NC	Spare	No Connection
13	CTS	Clear to Send	RS232 Input
14	NC	Spare	No Connection
15	TX	Transmit Control	RS232 Input

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Mechanical Dimensions



(a)



(b)

Figure 3. Dimensions of ITC1910 camera. (a) Front view, (b) Side view