Specifications V1.2

Model: RT-XMV-246RGB-C

Specifications subject to change
without notice

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Retriever Technology

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RT-XMV-246RGB-C Specifications

1) General Description

The RT-XMV-246RGB-C is a CCD camera equipped with a 1/2-inch 658 x 496 interline frame transfer single tap CCD with 12-bit Camera Link outputs. It has a wide variety of functions, such as EM gain, shutter speed, frame speed and triggering that are programmable through the software interface.

RT-XMV-246RGB-C	
Sensor	Texas Instruments TC246RGB[1] Front illuminated interline frame transfer with on-chip charge multiplication.
Effective Pixels	658(H) x 496(V)
Pixel Size	10.0 µm x 10.0 µm
Full Well	28,000 e
Read Noise	16 e[2]
Frame Rate	39 fps max
Device Operation	Progressive scan (all-pixel-sequential readout)
Lens Mount	C-mount[3]
Digital Signal Output	12 bit Camera Link Base Mode. 10, 8 and bottom 8 bit selectable
Pixel Clock	15 MHz
Gain	EMCCD 1x – 2000x Programmable in 1024 levels. ADC selectable 3 dB – 32 dB.
Electronic Shutter	650 µsec minimum
Exposure Modes	Free Run, Triggered (Program and Manual), Double Exposure
Correlated Double Sampling	Yes
Cooling	-20° C Peltier. On board fan.
Supply Voltage	12 V DC
Power Consumption	15 W
Mass	0.55 kg
Dimensions	42 x 37 x 55 mm (W x H x D)
Accessories	2 m Camera Link Cable.

[1] TC246CYM and TC247SPD available. Fiber optic attached versions available.
[2] At 30 fps.
[3] Other custom mounts including CS, F available.

Optical characteristics

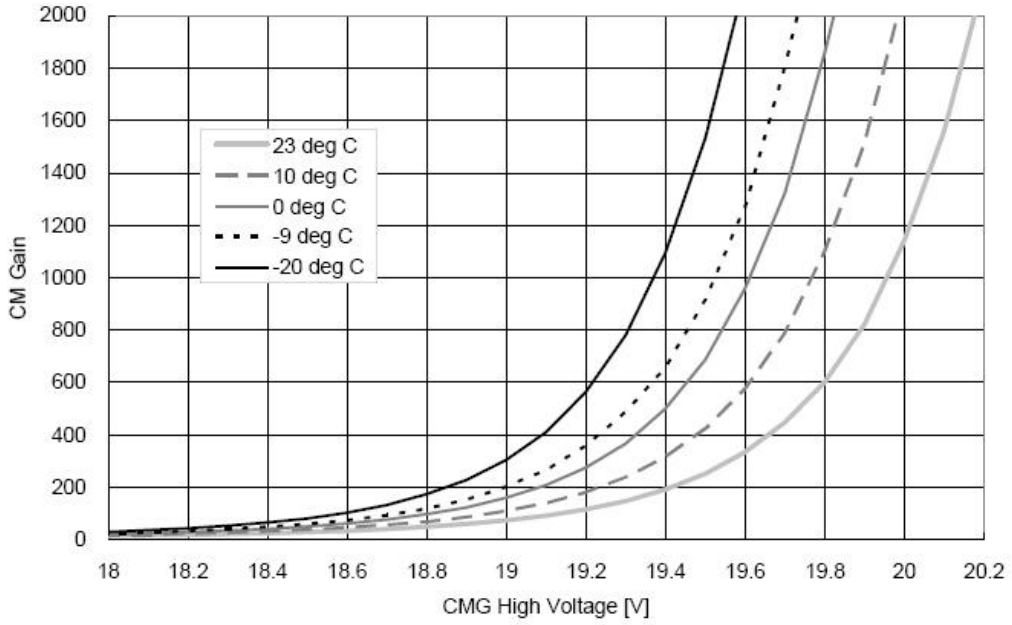
Ta = 25°C, Integration time = 16.67msec (unless otherwise noted)

PARAMETER		TYP	UNIT
Sensitivity with typical CCM gain (Note 1)	No IR-cut filter : Red	3100	V/Lx sec
	No IR-cut filter : Green	1860	
	No IR-cut filter : Blue	1120	
	With IR-cut filter : Red	260	
	With IR-cut filter : Green	340	
	With IR-cut filter : Blue	220	
Sensitivity without CCM gain (Note 1)	No IR-cut filter : Red	15.5	V/Lx sec
	No IR-cut filter : Green	9.3	
	No IR-cut filter : Blue	5.6	
	With IR-cut filter : Red	1.3	
	With IR-cut filter : Green	1.7	
	With IR-cut filter : Blue	1.1	
Saturation signal output no CCM gain (Note 2)		400	mV
Saturation signal output Anti blooming Enable no CCM gain (Note 2)		180	
Saturation signal output with typ CCM gain (Note 2)		1500	
Zero input offset output (Note 3)		100	
Blooming overload ratio (Note 4)		500:1	-
Image area well capacity		28k	e
Smear (Note 5)		-84	dB
Dark current (Note 6)		0.01	nA/cm^2
Dark signal (Note 7)		0.01	mV
Spurious non-uniformity	Dark	5.0 max	mV
	Illuminated	-30 min 30 max	%
Column uniformity (Note 8)		2.0	%
Electronic-shutter capability		1/2000	sec

Notes:

1. Light source temperature is 2856 °K. The IR filter used is CM500 1mm thick.
2. Saturation is the condition in which further increase in exposure does not lead to further increases in output signal.

3. Zero input offset is the residual output signal measured from the reset level with no input charge present. This level is not caused by the dark current and remains approximately constant independent of temperature. It may vary with the amplitude of SRG1.
4. Blooming is the condition in which charge induced by light in one element spills over to the neighboring elements.
5. Smear is the measure of error signal introduced into the pixels by transferring them through the illuminated region into the memory. The illuminated region is 1/10 of the image area height. The value in the table is obtained for the integration time of 33.3ms and 1.5 MHz vertical clock transfer frequency.
6. Dark current depends on temperature and approximately doubles every 8 C^{o}. Dark current is also multiplied by CCM operation. The value given in the table is with the multiplier turned off and it is a calculated value.
7. Dark signal is actual device output measured in dark.
8. Column uniformity is obtain by summing all the lines in the array, finding the maximum of the difference of two neighboring columns anywhere in the array, and dividing the result by the number of lines.



Typical Variation of Multiplication Gain with CMG High Voltage

End Use Restrictions

Geographic

Texas Instruments Japan (TIJ) has adopted a company policy to restrict the sale of their EMCCD products to any "restricted country" under the US export control regulations or the so-called 'D' list of countries, which includes countries such as China, Vietnam, Cambodia, Iraq, Libya, Russia and other former Soviet States. Sales of the products to any "restricted" D list country or any of the countries subject to US trade embargoes, such as North Korea, Iran, Syria, Cuba and Sudan, are denied even if the application is for civilian use.

Application

- Scientific, Medical, Industrial, Surveillance and all other civilian applications for sales to countries not included on the 'D' list of restricted countries or to countries not subject to US trade embargoes will be supported by TIJ.
- All defense related applications which would involve the EMCCD products or cameras being used for combat or weapon systems are discouraged and cannot be supported by TIJ.

Other

US trade restrictions on overseas sales and end use of EMCCD products may exist. Please contact Retriever Technology about all end use applications and geographies prior to purchase.