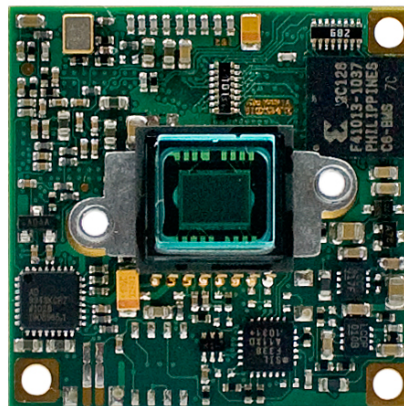


VIDEOLOGY

IMAGING SOLUTIONS INC.
Original Equipment Manufacturer

Application Note 20D45X Family



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1. Document History

Revision	Issue Date	Reason	CN#
Rev A	04-20-11	Initial release (Europe Rev 01)	11-0046

2. Introduction

The camera is designed as an extension of Videology's current digital camera module line. The 20/21D45X is a digital output camera, but also offers analog output options. The camera can output either analog CVBS or analog YC out.

The camera is a high end camera product that is suitable to drive a IR-cut filter switch for real day/night applications.

Also with its dynamic noise cancellation and slow shutter mode the camera is very suitable for very low light applications.

Its compact design (32x32 mm) makes it possible to fit almost in any casing.

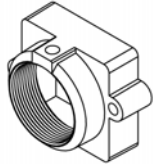
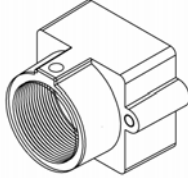
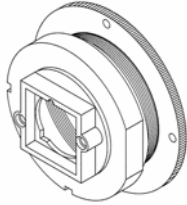
3. Specifications

Electrical		20D45X (NTSC)	21D45X (PAL)
sensor		1/3" Interline CCD	
Active Pixels (H x V)		768 x 492	752 x 582
Pixel Pitch (H x V)		4.9um x 5.6um	5.0um x 4.8um
Scanning Frequency V		15750 KHz	15625 KHz
Scanning Frequency H		60 Hz (30 full images)	50 Hz (25 full images)
Video Output	Digital	YUV 8 bits ITU-R BT.656 (clock NTSC 28.636 MHz/ PAL 28.375 MHz)	
	Analog	CVBS or Y/C	
Sensitivity		Typical 0.05 Lux (F1.2, AGC max) Gamma 0.45 reflection chart 80%, 3200K	
Signal to Noise Ratio		> 49 dB	
Horizontal Resolution		>520TVL	
Shutter Mode		Electronic iris or fixed shutter speeds	
White Balance		Auto mode: 2850K-6000K, Fixed modes (selectable)	
Mirror Mode (Horizontal)		On/off selectable both horizontal and vertical	
Output Signals		Clock signal 3.3V into 10K Ω Hsync: 3Vpp into 10K Ω Vsync: 3Vpp into 10K Ω	
Communication		I2C	
Sync System		Internal/External (H/V)/LL (optional)	
Supply Voltage		5VDC (\pm 10%)	
Current		270 mA	
Power Consumption		< 1.4 Watt	

Environmental

Operating Temperature	-10°C ~ 50°C (14°F ~ 122°F)
Operating Humidity	20 to 93% RH
Storage Temperature	-20°C ~ 65°C (-4°F ~ 149°F)
Storage Humidity	Up to 98% RH

Mechanical

Dimensions W x H x D	32mm x 32mm (1.26" x 1.26")		
Weight	21g (0.74 oz)		
Lens Mounts	Replace "X" in model number with desired lens:		
Example: Change 20D45X to 20D455 to select an M- 12 board mount.	5 = Metal M-12 Board	6 = Metal M-14 Board	8 = Metal CS Board
			
Lifetime MTBF	50000Hrs		

Complementary Models

2XD458-T	CS mount & True day/night
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4. Connector Pin Out

The camera has in total 3 possible output connectors:

Digital connectors:

Pinning connector J1 53916-0304 MOLEX conn-SMD-male 30-pole

Pin#	function
1	GROUND
2	GROUND
3	Video Data0
4	Dnu
5	Video Data1
6	Dnu
7	Video Data2
8	Dnu
9	Video Data3
10	Dnu
11	Video Data4
12	Dnu
13	Video Data5
14	Video lowest two bits:0
15	Video Data6

Pin#	function
16	Video lowest two bits:1
17	Video Data7
18	Nc
19	Data Clock
20	For future features
21	Iris signal
22	GROUND
23	HREF
24	VREF
25	For future features
26	For future features
27	I2C data
28	I2C Clock
29	CVBS (anaolog video 1Vpp int 75 Ohm)
30	+5V supply voltage in

Pinning connector J3 Molex 78119-1408, 40 pole flex foil connector

Pin#	function
2	+5V supply voltage in
3	I2C data
5	I2C Clock
9	CVBS (anaolog video 1Vpp int 75 Ohm)
13	Iris out
17	Video Data0
19	Video Data1
21	Video Data2
23	Video Data3
25	Video Data4
27	Video Data5
29	Video Data6
31	Video Data7
35	Data Clock

Pin#	function
8	Not connected
12	Not connected
37	Not connected
39	Not connected
Following pins are connected to ground: 1, 7, 11, 15, 33, 4, 6, 10, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40	

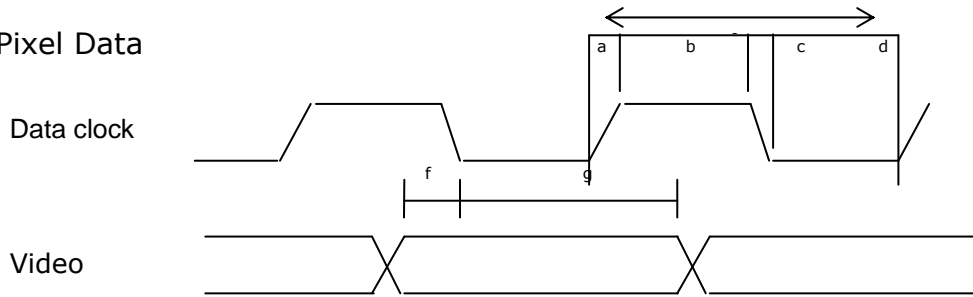
Analog connector J2 (optional)

Pin#	function
1	C signal (colour)
2	Iris (opt ground)
3	I2C data
4	I2C Clock
5	Ground

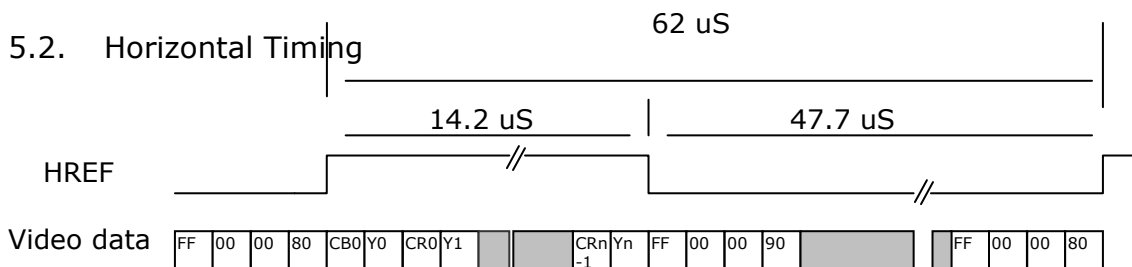
Pin#	function
6	CVBS/Y
7	Ground
8	+5V supply voltage in
9	LL-phase (optional)
10	Linelock (optional)

5. Timing Diagrams

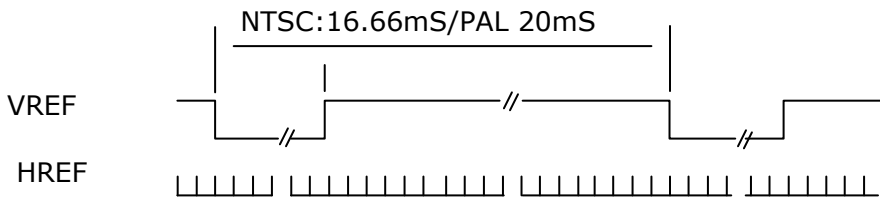
5.1. Pixel Data



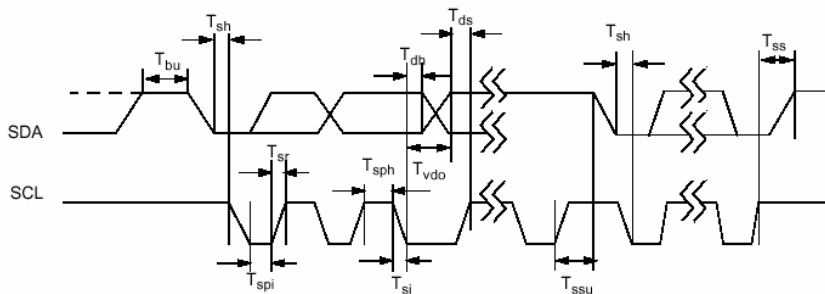
item	name	min	nom	max
a	Clock rise time	0.5 nS		4 nS
b	Clock high time	7 nS		11nS
c	Clock fall time	0.5 nS		3 nS
d	Clock low time	7 nS		11nS
e	Clock period	34.8	35 nS	35.3
f	Data setup time	9 nS		
g	Data hold time	10 nS		



5.3. Vertical Timing



5.4. I2C Communication

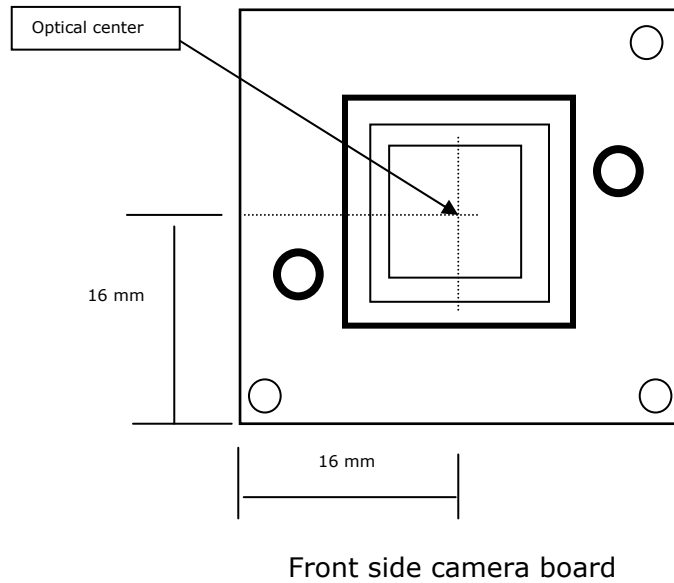
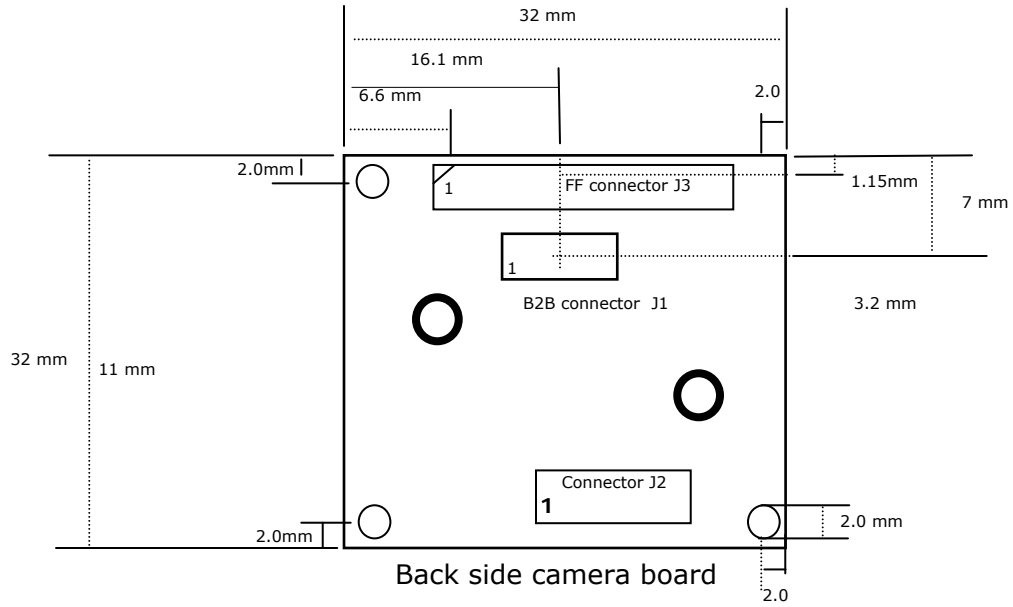


In table below the max/min timing ratings can be found for the I2C communication.

item	Min (uS)	Max (uS)
Tbu	4	na
Tsu		
Tdb	1	
Tds	1.5	
Tsh	2.0	

6. Mechanical Drawing

7.



Tolerances in the drawing ± 0.25 mm

Contact Information

For technical assistance with this product, please contact the supplier from whom the product was purchased.

For OEM inquiries, contact Videology Imaging Solutions:

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