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MCA-6020 1080P USB Camera Module Datasheet

We are dedicated to developing sensing technology, and providing customers with an innovative and diverse range products.

With the state-of-the-art algorithm technology, there are many brand products with our advanced image technology in the market.

Midas Touch, Inc.
Tel:+886-2-7729-4139
Fax:+886-2-7729-4149
Email: contact@midastouchinc.com
https://www.midastouchinc.com

Revision History

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1. Preface

This documentation describes product specifications to ensure design to meet customer's requirements.

MCA-6020D32-S1-T20 is an USB Video Class (UVC) and USB Audio Class (UAC) compliant camera module with video and audio feature, designed for PC image applications. It is made up of the following components, CMOS sensor, lens, holder, backend, PCB, image processing circuit, connector and microphone, to come out a digital video and audio device. It shall be a reliable device to transfer video and audio data through USB interface to PC.

MCA-6020D32-S1-T20 not only offers up to FHD resolution (1920X1080) for image applications to take still image, but also offers video stream for end user to preview/record motion image through USB 2.0 interface. And It can support VGA (640x480) resolution up to 30 fps at YUY2 mode, FHD resolution up to 60fps at MJPG mode. It also provides stereo audio input by two microphones.

MCA-6020D32-S1-T20 builds in AE, AWB and AGC for automatic image control supported by CMOS sensor. For image quality control, it also offers UVC standardized User Interface (UI) to let end user well tune image by property page.

2. Features

- Compliant to USB2.0 and USB Video Class & USB Audio Class
- Support still image capture and video streaming
- Automatic image control
  - Automatic Exposure Control (AEC)
  - Automatic White Balance (AWB)
  - Automatic Gain Control (AGC)
- Support 1920 x1080 frame rate up to 60fps
- Support for still image resolution: 1920(H) x 1080(V)
- Audio input： 2× Microphone (Analog Microphone)
- LED indicated (blue)
- Input Voltage: DC 5V

3. Applications

- Conference call Cameras
- Surveillance Cameras
- FA Cameras
- Industrial Cameras

4. Key Specification

Module Specification			
Size(LWH/mm)	61.0 x 19.0 x 17.45 mm (include PCB thickness)		
PCB Thickeness	1.2 mm		
Output Interface	USB 2.0		
Image/Video Format	YUY2 & MJPG		
Output size	1920x1080		
	1280x960		
	1280x720		
	960x540		
	848x480		
	800x600		
	640x480		
	640x360		
	320x240		
Video Class Compliant	YES		
Device Name	MCA-6020		
PID	TBD		
VID	1BCF		
Operating Temperature	0℃ to +70℃		
Power Consumption			
	Min	Type	Max
Input Supply Voltage	4.75	5.0V DC	5.25
Un-configured Current	–	35 mA	–
Operating Current	–	–	210 mA

Max Frame Rates (fps)						
	320×240	640×480	800x600	1280x720	1280x960	1920x1080
YUY2	60	30	15	10	-	-
MJPG	60	60	60	60	60	60

Backend IC Specification	
Type	Backend IC with USB2.0 interface
Compatibility	USB Video class Compliant, Microsoft WHQL Certified

Support Sensor Size	Support Most popular CMOS sensors
OS Supported	Windows, Mac, Thin-client

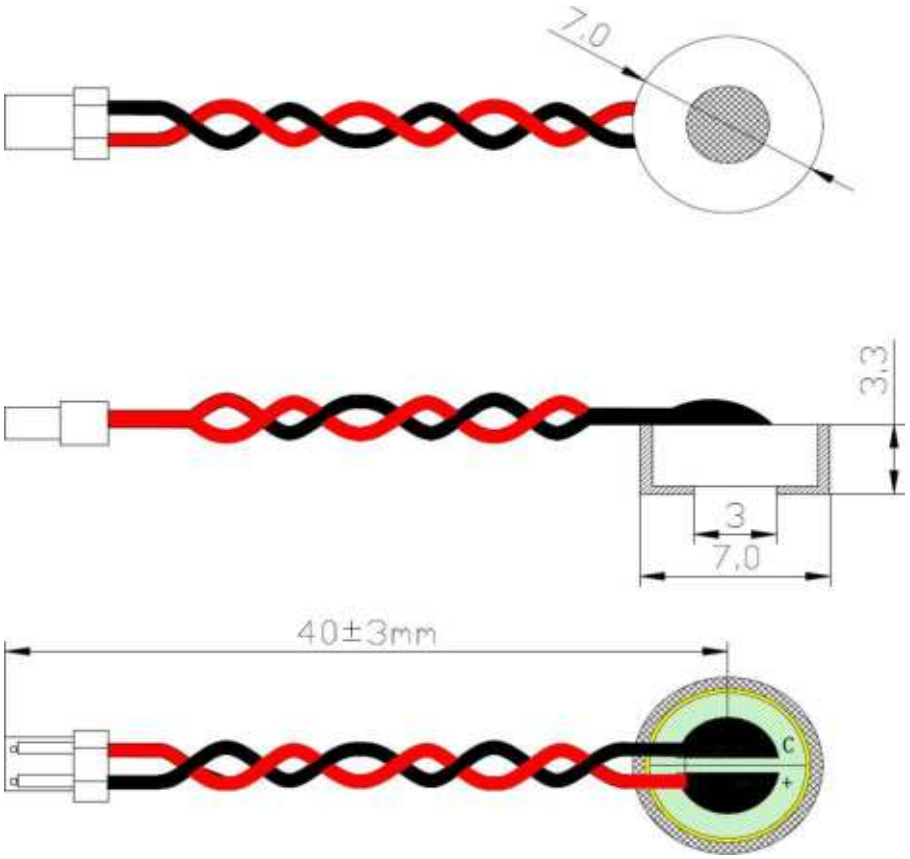
Sensor Specification	
Optical format	1/2.7-inch Full HD CMOS Sensor
Active resolution	1920H×1080V
Unit pixel size	3.0μm x 3.0μm

Lens Specification	
F/No.	2.2 ± 5%
Field of View	95.8° (Diagonal)
TV Distortion	＜0.6%
Construction	1 Glass+ 4 Plastic
IR Filter	Tavg ≧ 92%　　@440~630nm

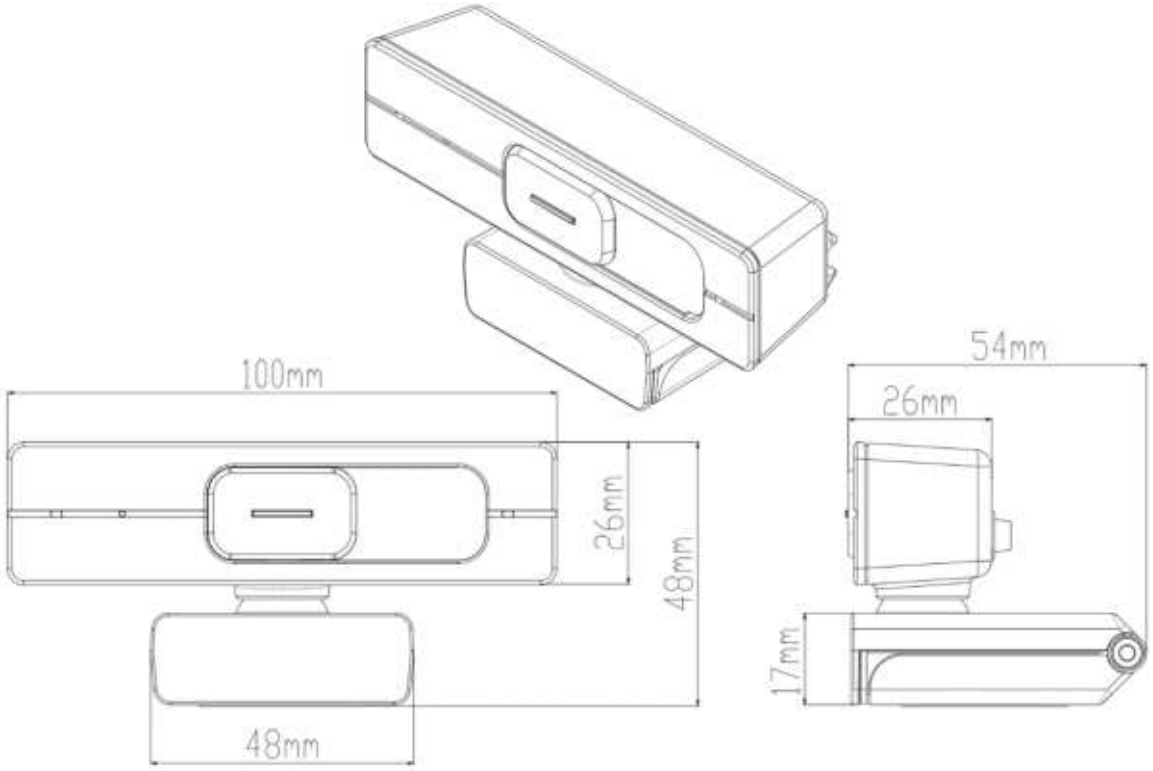
5. Microphone Specification

Item	Test Conditions	Min	Standard	Max	Unit
Directivity		Omni-directional			
Sensitivity	f=1kHz, Pin=1Pa	-31	-28	-25	dBFS

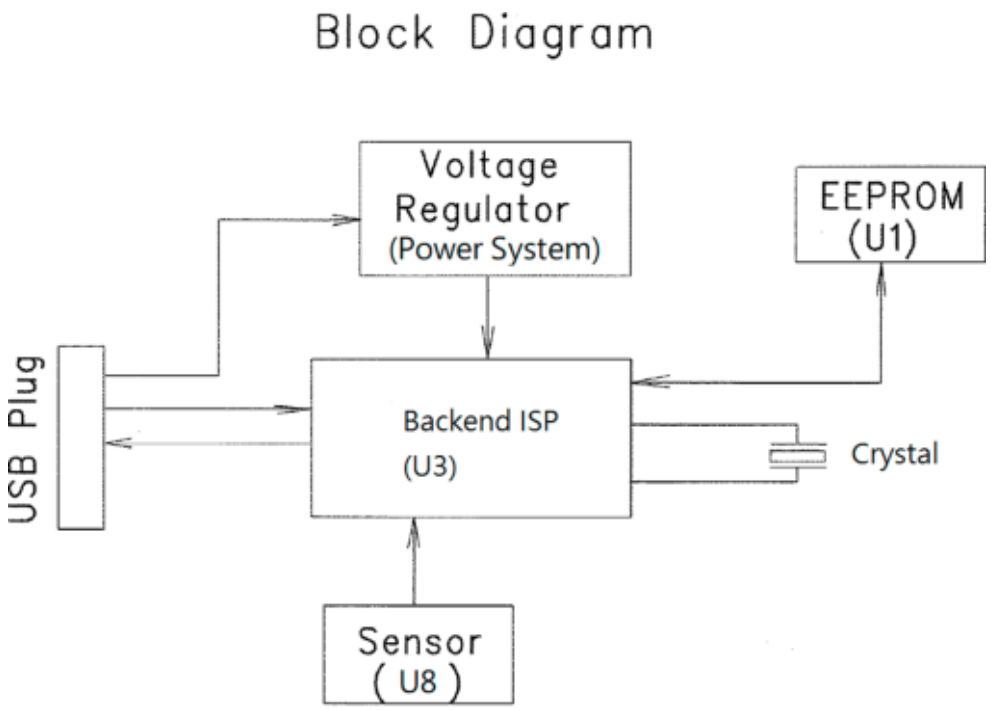
Output impedance	f=1kHz			2.2	KΩ
Current Consumption	VCC =2.0V,RL=2.2KΩ			400	μA
S/N Ratio	f=1kHz, Pin=1Pa	65			dB
Decreasing Voltage	VCC=1.0V to2.0V			-3	dB
Maximum input S.P.L				110	dB



6. Outline Specification



7. Block Diagram



8. PCB connector interface description

J1 is analog microphone connector - pitch 1.0mm 2 Pin WTB J3 is analog microphone connector - pitch 1.0mm 2 Pin WTB J4 is for USB interface connector - pitch 1.25mm 4 Pin WTB