



LEOPARD IMAGING INC

LI-IMX274-MIPI-CS

Data Sheet

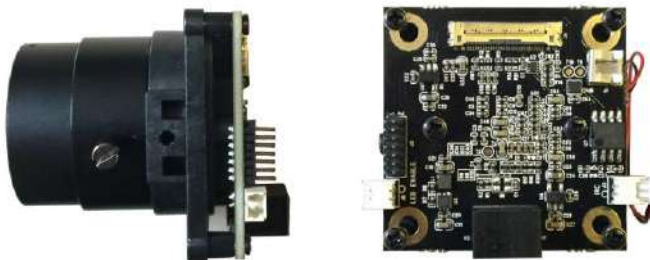
Key Features

- Sony Diagonal 7.20 mm (Type 1/2.5) CMOS Image Sensor IMX274
- Active pixels: 3864H x 2196V
- Pixel size: 1.62 μm x 1.62 μm
- Color sensor
- Interface: MIPI output
- Support CS lens
- Module Size: 38mmx38mm
- Weight: 54 g
- Part#: **LI-IMX274-MIPI-CS**

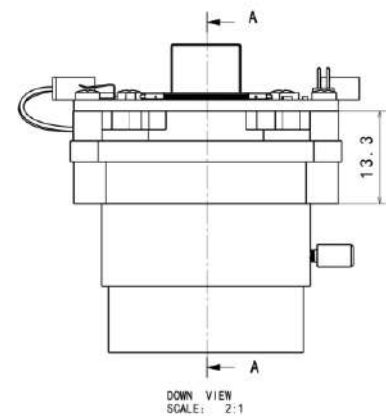
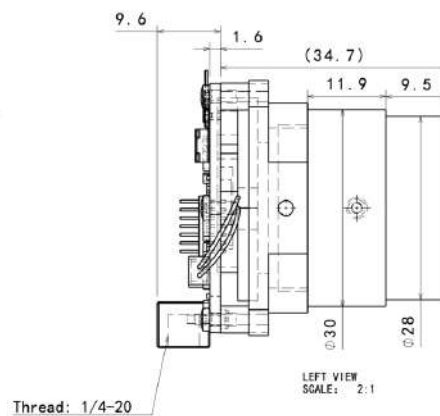
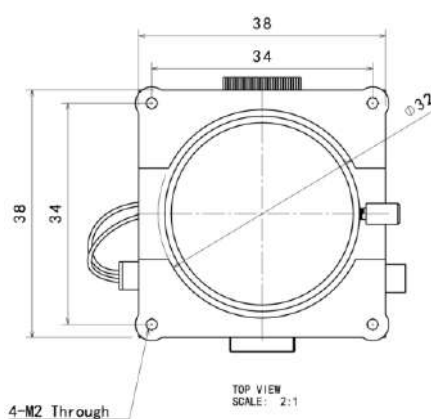


Lens Spec

- Model: ES0522F.IR
- Focal length: 5.0 mm
- Aperture, F/#: 2.2
- Built in 650nm IR cut filter
- FOV (D/H/V): 87 °/ 76 °/43 °
- TV Distortion: < -8%
- Mount Type: CS



Dimensions



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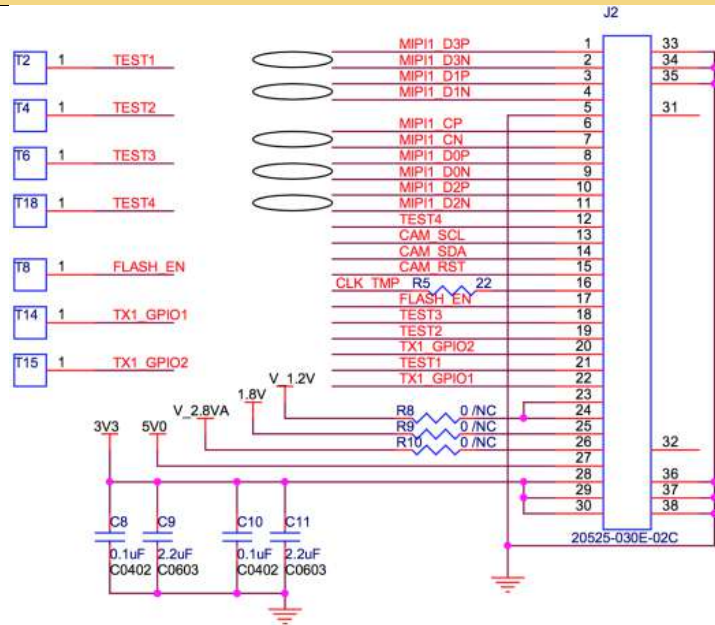
1130 Cadillac Ct., Milpitas, CA 95035, USA
Phone: +1-408-263-0988
Fax: +1-408-217-1960
Email: sales@leopardimaging.com
Website: www.leopardimaging.com
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Interfaces

Interfaces

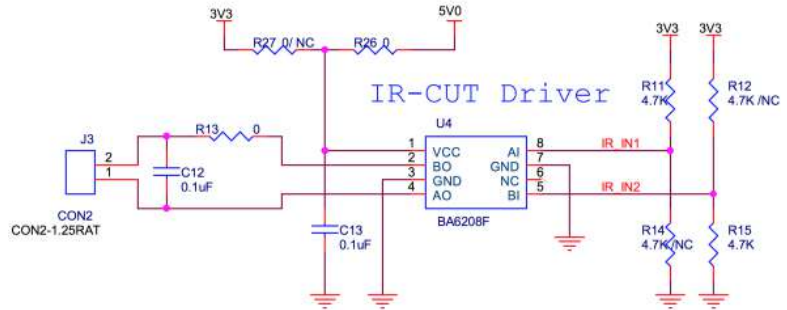
Interface J2:

- Part#: 20525-030E-02C
- Number of Positions: 30
- Pitch: 0.4mm
- Mating I-PEX cable: LI-FAW-1233-T1 (200mm)



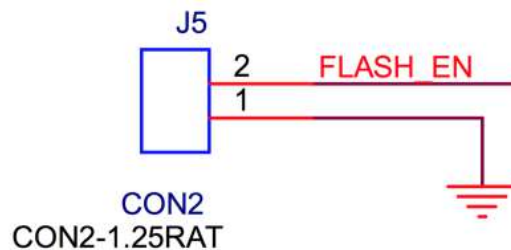
Interface J3:

- Part#: 1734829-2
- Number of Positions: 2
- Pitch: 1.25mm



Interface J5:

- Part#: 1734829-2
- Number of Positions: 2
- Pitch: 1.25mm



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Supply voltage (Analog)	V_{ADD}^{*1}	-0.3 to +3.3	V
Supply voltage (Digital 1)	V_{DDD1}^{*2}	-0.5 to +2.0	V
Supply voltage (Digital 2)	V_{DDD2}^{*3}	-0.5 to +3.3	V
Input voltage (Digital)	V_I	-0.3 to $V_{DDD2} + 0.3$	V
Output voltage (Digital)	V_O	-0.3 to $V_{DDD2} + 0.3$	V
Guaranteed operating temperature	T_{OPR}	-30 to +75	°C
Storage guarantee temperature	T_{STG}	-30 to +80	°C
Performance guarantee temperature	T_{SPEC}	-10 to +60	°C

Recommended Operating Conditions

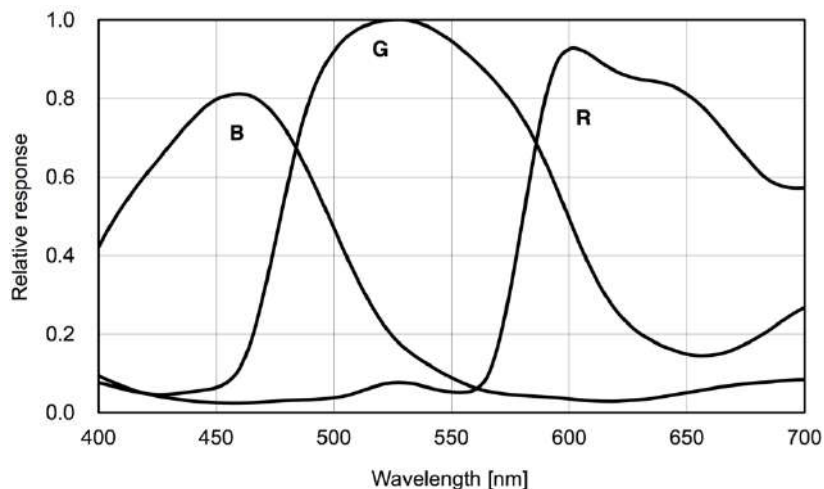
Item	Symbol	Rating	Unit
Supply voltage (Analog)	V_{ADD}^{*1}	2.8 ± 0.1	V
Supply voltage (Digital 1)	V_{DDD1}^{*2}	1.2 ± 0.1	V
Supply voltage (Digital 2)	V_{DDD2}^{*3}	1.8 ± 0.1	V
Input voltage (Digital)	V_I	-0.1 to $V_{DDD2} + 0.1$	V

*1 V_{ADD} : V_{DDSUB} , V_{DDHCM} , V_{DDHPX} , V_{DDHDA} , V_{DDHCP} (2.8 V power supply)

*2 V_{DDD1} : $V_{DDL CN}$, $V_{DDL SC1}$ to 2, $V_{DDL PA}$, $V_{DDL PL1}$, $V_{DDL PL2}$ to 3, $V_{DDL IF}$ (1.2 V power supply)

*3 V_{DDD2} : V_{DDMIO} , V_{DDMIF} (1.8 V power supply)

Spectral Sensitivity Characteristics



DC Characteristics

Current Consumption and Gain Variable Range

($V_{ADD} = 2.9\text{ V}$, $V_{DDD1} = 1.3\text{ V}$, $V_{DDD2} = 1.9\text{ V}$, $T_j = 60\text{ }^\circ\text{C}$, Reference Gain (0 dB)
All pixel scan mode (MODE0), 29.97 frame/s)

Item	Symbol	Min.	Typ.	Max	Unit	Remarks
Current consumption (Analog)	I_{ADD}	—	—	62	mA	
Current consumption (Digital 1)	I_{DDD1}	—	—	190	mA	
Current consumption (Digital 2)	I_{DDD2}	—	—	1	mA	
Standby current (Analog)	I_{ADDSTB}	—	—	35	μA	In the dark
Standby current (Digital 1)	$I_{DDD1STB}$	—	—	13	mA	In the dark
Standby current (Digital 2)	$I_{DDD2STB}$	—	—	20	μA	In the dark
PGA gain variable range	PGAG	0	—	27	dB	

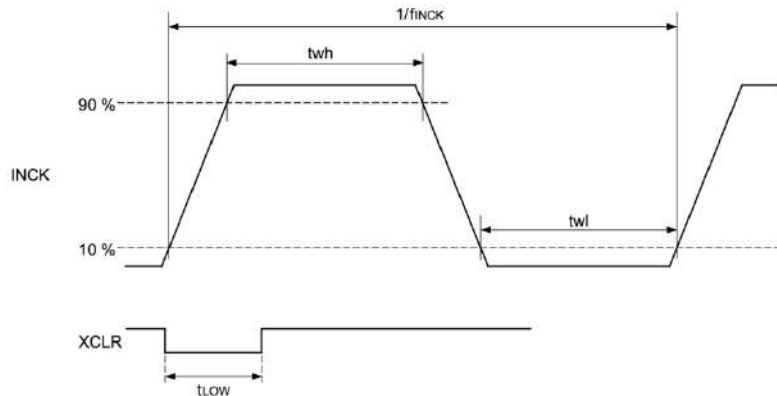
Supply Voltage and I/O Voltage

Item	Pins	Symbol	Min.	Typ.	Max.	Unit
Supply voltage	Analog V_{DDSUB} , V_{DDHCM} , V_{DDHPX} , V_{DDHDA} , V_{DDHCP}	V_{ADD}	2.70	2.80	2.90	V
	Digital 1 $V_{DDL CN}$, V_{DDLSC1} to 2, V_{DDLPL1} , V_{DDLPA} , V_{DDLPL2} to 3, V_{DDLIF}	V_{DDD1}	1.10	1.20	1.30	V
	Digital 2 V_{DDMIO} , V_{DDMIF}	V_{DDD2}	1.70	1.80	1.90	V
Digital input voltage	SDA, SCL	V_{IH1}	$0.7 \times V_{DDD2}$	—	1.9	V
		V_{IL1}	-0.3	—	$0.3 \times V_{DDD2}$	V
	XCLR, INCK	V_{IH2}	$0.65 \times V_{DDD2}$	—	$V_{DDD2} + 0.3$	V
		V_{IL2}	-0.3	—	$0.35 \times V_{DDD2}$	V
Digital output voltage	XHS, XVS	V_{HVOUT}	—	V_{DDD2}	—	V



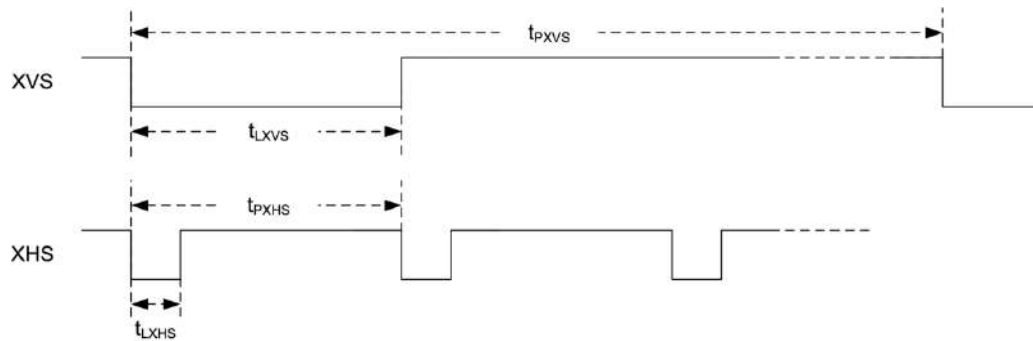
AC Characteristics

INCK, XCLR



Item	Symbol	Min.	Typ.	Max.	Unit
INCK clock frequency	f_{INCK}	6	—	27	MHz
INCK Low level pulse width	t_{wl}	5	—	—	ns
INCK High level pulse width	t_{wh}	5	—	—	ns
Clock duty	—	40	50	60	%
XCLR Low level pulse width	t_{LOW}	100	—	—	ns

XHS, XVS (Output)



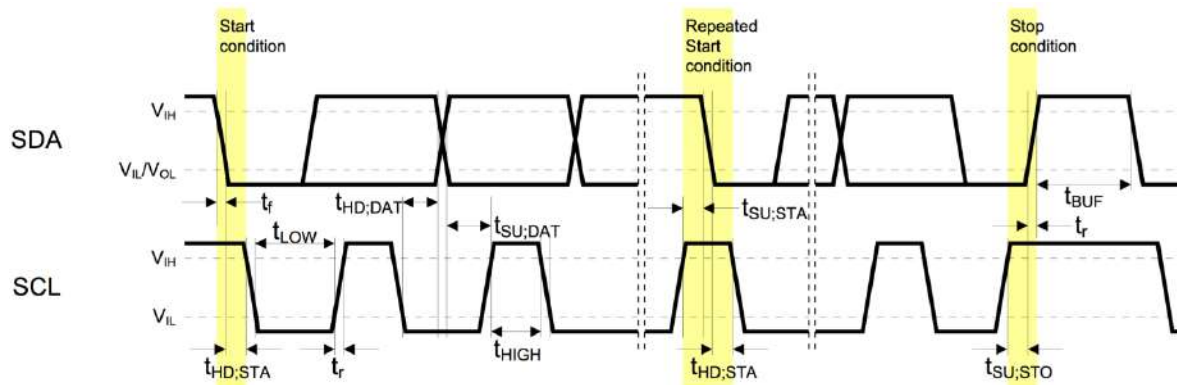
Item	Symbol	Min.	Typ.	Max.	Unit	Remarks
XHS Low level pulse width	t_{LXHS}		222		ns	16 clk@72MHz
XHS pulse period	t_{PXHS}		$HMAX^{*1}$		clk@72MHz	
XVS Low level pulse width	t_{LXVS}		t_{PXHS}		clk@72MHz	
XVS pulse period	t_{PXVS}		$HMAX^{*1} \times VMAX^{*2}$		clk@72MHz	

*1 The value set as HMAX (address 30F6h, bit [7:0] and address 30F7h, bit [7:0])

*2 The value set as VMAX (address 30F8h, bit [7:0], address 30F9h, bit [7:0] and address 30FAh, bit [3:0]).



I²C Communication



I²C Specification

Item	Symbol	Min.	Typ.	Max.	Unit	Remarks
Low level input voltage	V_{IL}	-0.3	—	$0.3 \times V_{DD2}$	V	
High level input voltage	V_{IH}	$0.7 \times V_{DD2}$	—	1.9	V	
Low level output voltage	V_{OL}	0	—	$0.2 \times V_{DD2}$	V	$V_{DD2} < 2V$, Sink 3 mA
Output fall time	tof	—	—	250	ns	Load 10 pF to 400 pF, $0.7 \times V_{DD2}$ to $0.3 \times V_{DD2}$
Input current (SCL, SDA, XCLR, INCK)	li	-10	—	10	μA	$0.1 \times V_{DD2}$ to $0.9 \times V_{DD2}$
Input capacitance of SCL / SDA	Ci	—	—	10	pF	

I²C AC Characteristics

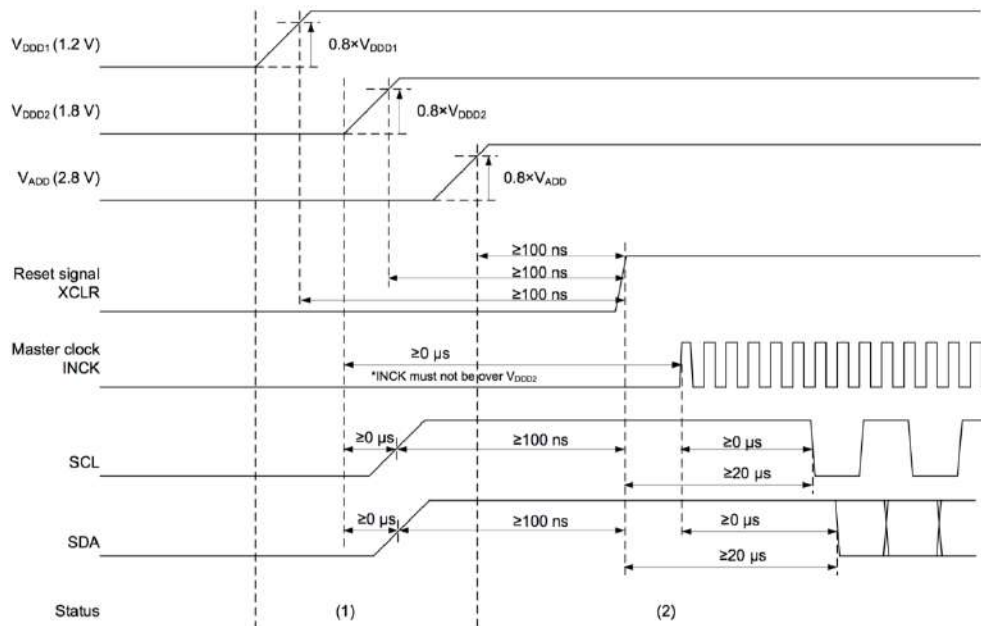
Item	Symbol	Min.	Typ.	Max.	Unit
SCL clock frequency	f_{SCL}	0	—	400	kHz
Hold time (Start Condition)	$t_{HD,STA}$	0.6	—	—	μs
Low period of the SCL clock	t_{LOW}	1.3	—	—	μs
High period of the SCL clock	t_{HIGH}	0.6	—	—	μs
Set-up time (Repeated Start Condition)	$t_{SU,STA}$	0.6	—	—	μs
Data hold time	$t_{HD,DAT}$	0	—	0.9	μs
Data set-up time	$t_{SU,DAT}$	100	—	—	ns
Rise time of both SDA and SCL signals	t_r	—	—	300	ns
Fall time of both SDA and SCL signals	t_f	—	—	300	ns
Set-up time (Stop Condition)	$t_{SU,STO}$	0.6	—	—	μs
Bus free time between a STOP and START Condition	t_{BUF}	1.3	—	—	μs



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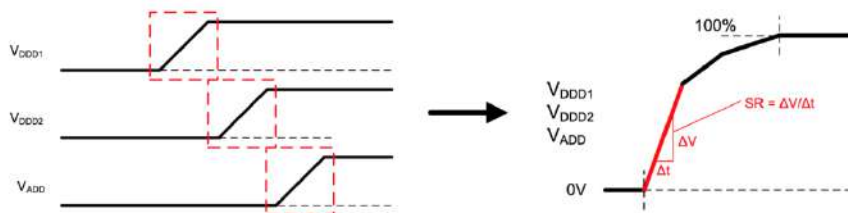
Power-on Sequence



Period name	Remarks
(1) Power stabilization period	All input signals are set to Low level. There are no constraints of the power-on sequence with V _{ADD} , V _{DD1} , and V _{DD2} .
(2) Register communication period for standby cancel	Wait 100 ns after the last power supply in V _{ADD} , V _{DD1} and V _{DD2} . Then set XCLR to "H" and start the standby cancel sequence.

Slew Rate Limitation of Power-on Sequence

Conform to the slew rate limitation shown below when power supply change 0 V to each voltage (0 % to 100 %) in power-on sequence.



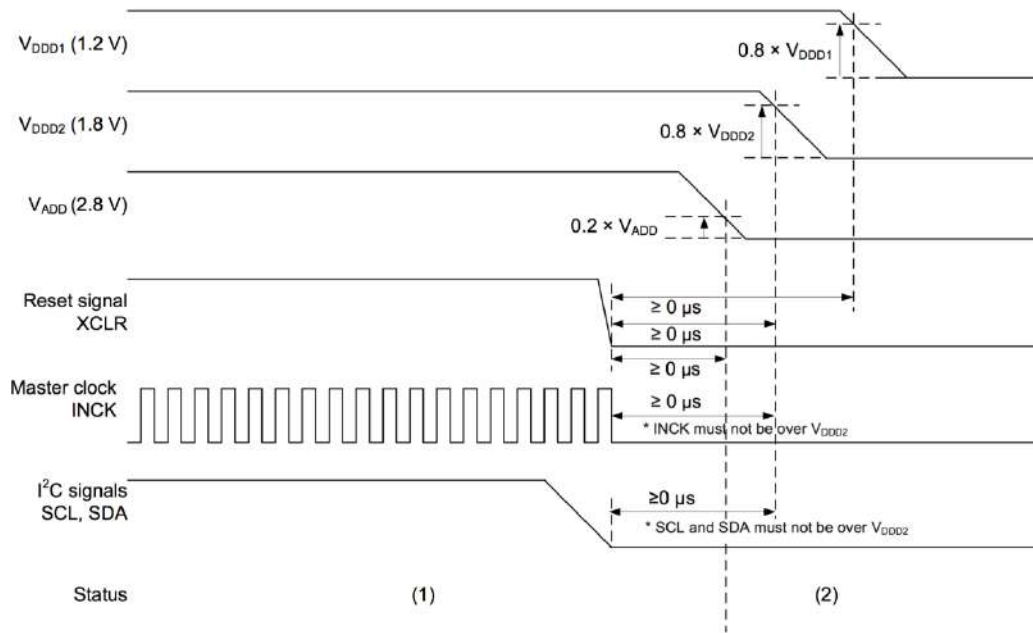
Item	Symbol	Power supply	Min.	Max.	Unit	Remarks
Slew rate	SR	V _{DD1} (1.2 V)	—	25	mV/us	
		V _{DD2} (1.8 V)	—	25	mV/us	
		V _{ADD} (2.8 V)	—	25	mV/us	



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Power-off Sequence



Period name	Remarks
(1) Pixel output period	Pixel signal output period
(2) Power-off period	Turn the power supplies off after all input signals are set to "Low" level except SCL and SDA. Set SCL and SDA to "Low" level at the same time with turning off the power supply of V_{DD2} . There are no constraints of the power-off sequence with V_{ADD} , V_{DD1} , and V_{DD2} .



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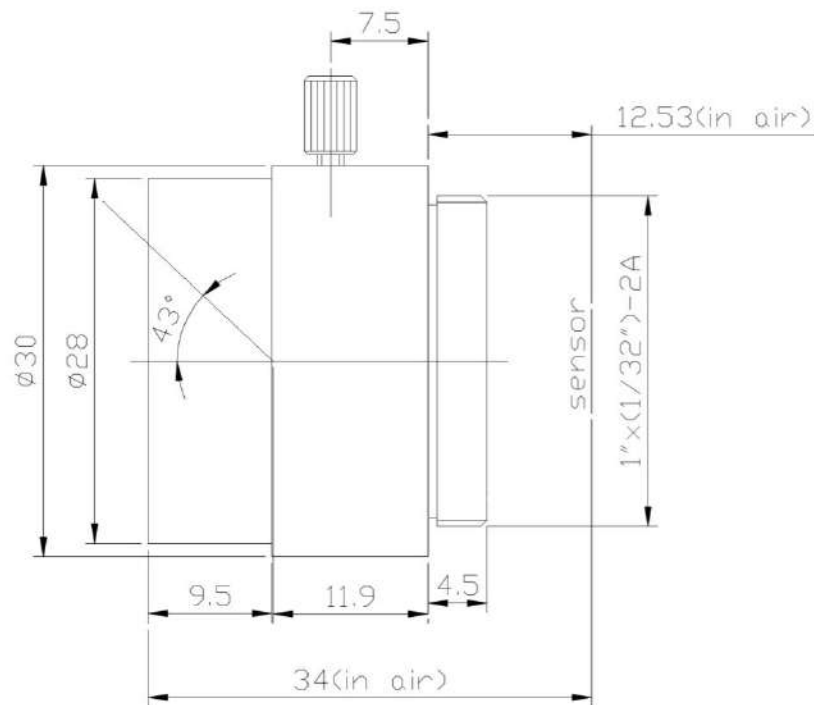
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10 Megapixel IR Series

ES0522F.IR



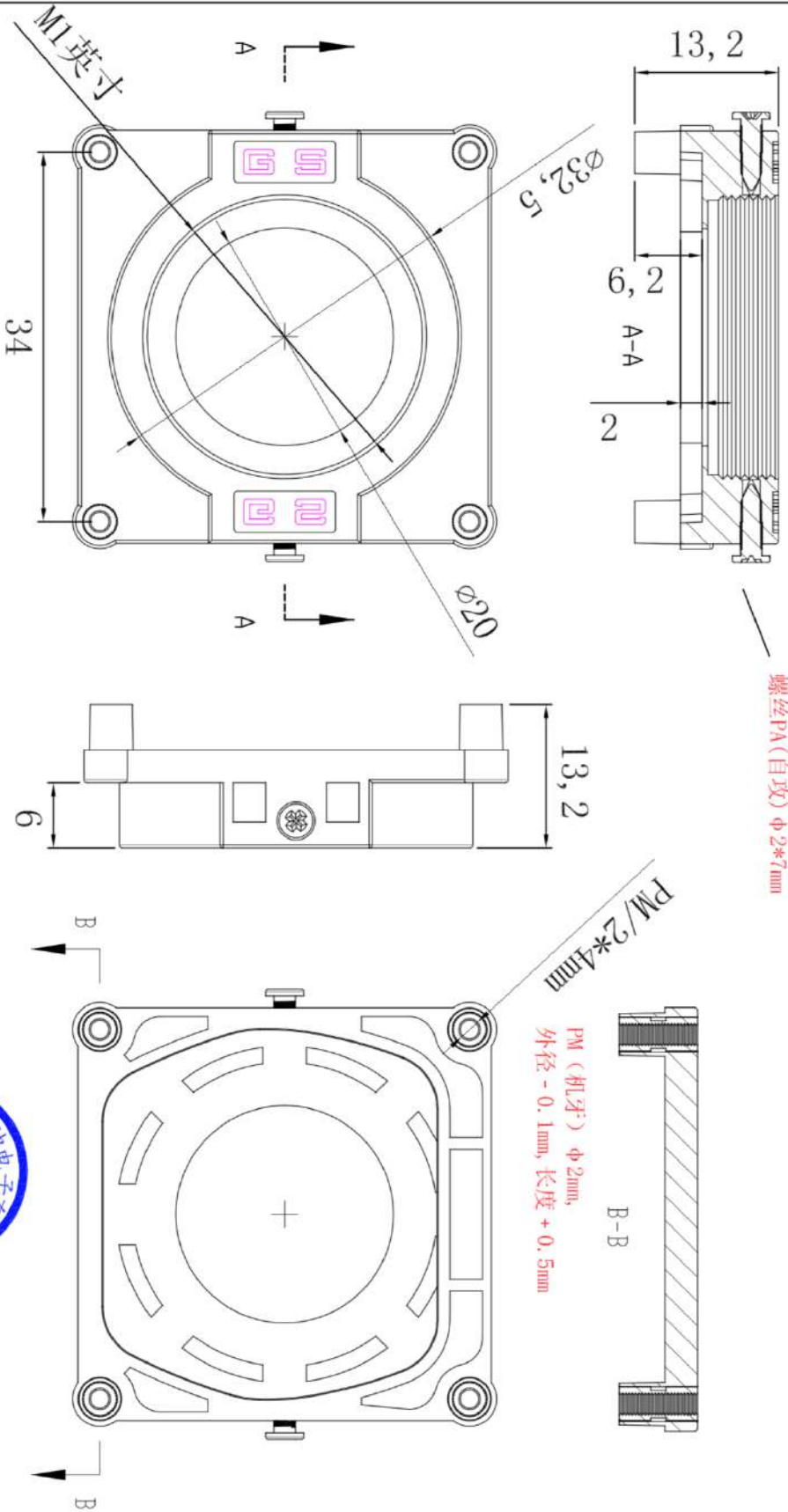
有效焦距	E.F.L.		5 mm
相对孔径	F No.		F2.2
接口类型	Mount Type		CS
水平视角	H.FOV	1/1.8"	72°
像面尺寸	Image Format (Max)		1/1.8"
光圈类型	Iris Type		Fixed
近 摄 距	M.O.D		0.3m
畸 变	TV Distortion	1/1.8"	-8%
操控方式	Control Type	变倍 Zoom	/
		聚焦 Focus	Manual
工作温度	Operating Temperature		-30°C ~ 70°C
镜头重量	Weight		39g
尺寸规格	Dimensions		



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上海广神电子 (深圳) 有限公司

感红外日夜转换器

EXPLAIN



设计部 环境 -40°C ~ +100°C ±5% 使用寿命

设计	广由	单位	mm	公差	±0.05
制图	广元	比例	2:1	日期	2010-12-01
图号	IRC/5-38S				
联系人: 吴国虎	电话: 86-13501551929				

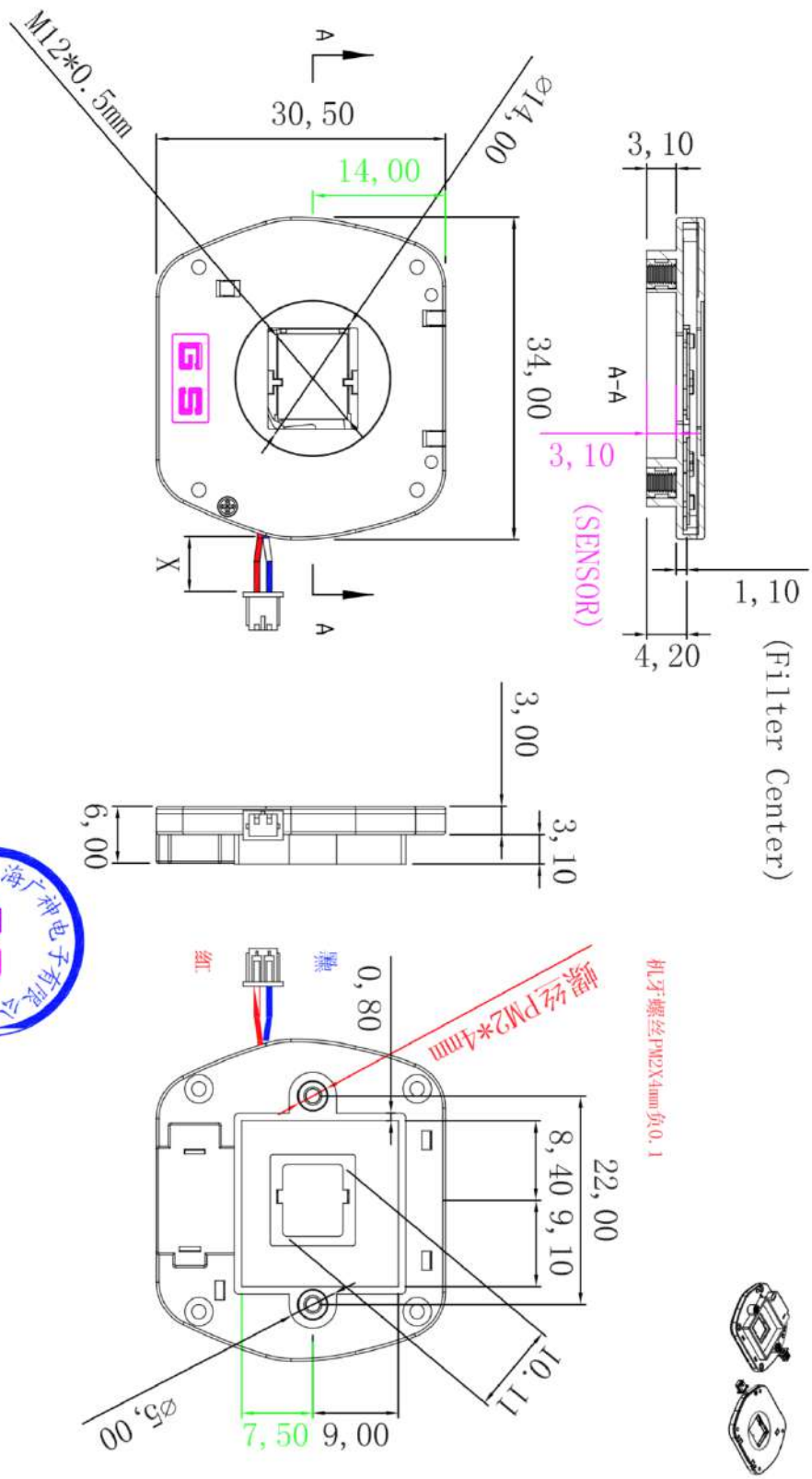
型号	GS5B-38S	
额定电压	工作电压	
额定电流	瞬间电流	
直流电阻	绝缘电阻	



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EXPLAIN

设计	广由	单位	mm	公差	±0.05	型号	GS5B-2230-CS	工作环境	-20°C~+60°C
制图	广元	比例	2:1	日期	2010-12-01	额定电压	3.5V	工作电压	3.3V~12V, At 20°C
图号	IRC5B-2230-CS					额定电流	35mA	瞬间电流	0.5S
联系人: 吴国虎	电话: 86-13501551929					直流电阻	100ohm ± 10%, At 20°C	绝缘电阻	



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