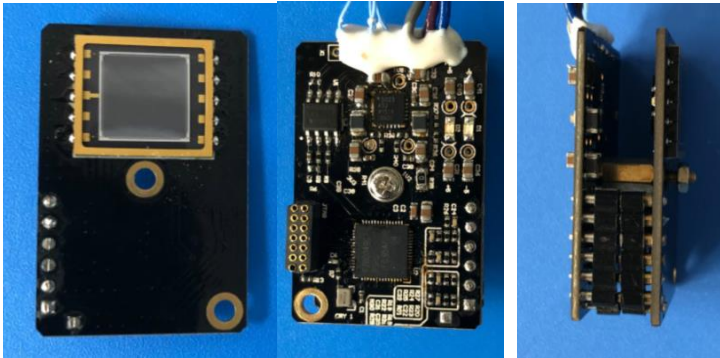




Two-dimensional PSD with Amplifier



Description

PSD100-SPB4 is 2D lateral effect position sensor that provide X and Y axis positional information.

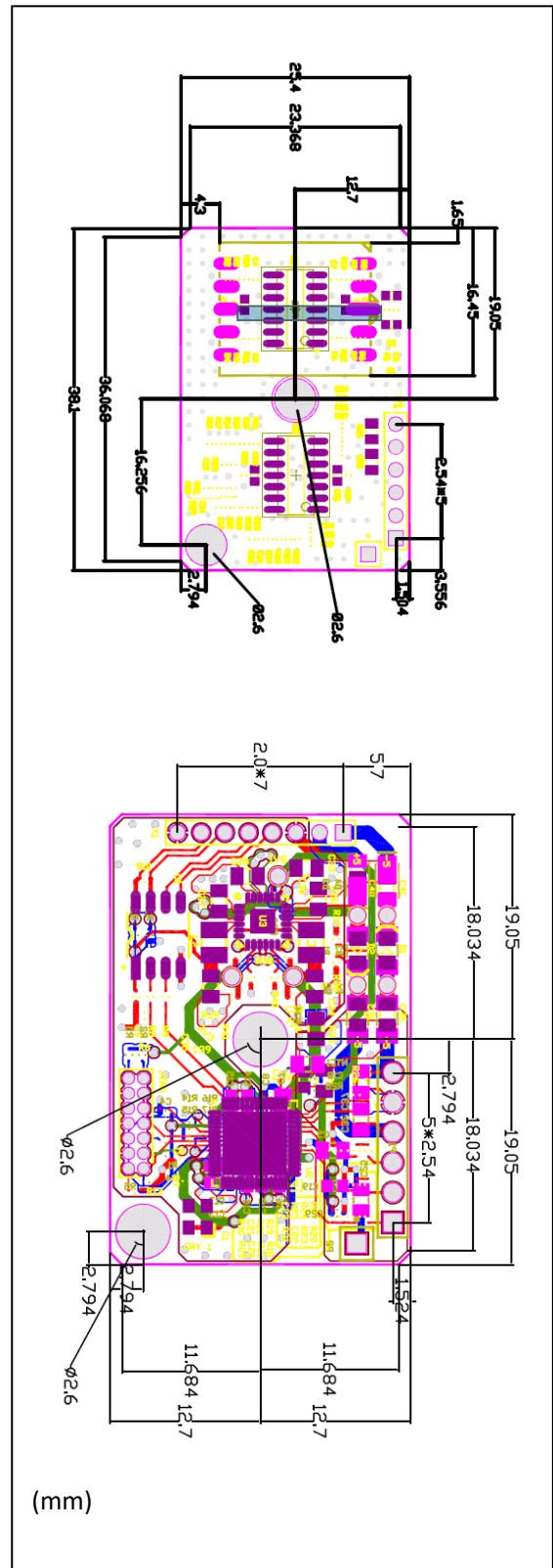
This module contain a high precision 2D PSD (OTRON P/N: PSD100-IC) and low noise amplifier (I/V converter), to output VX, VY and Vsum analog signal. While, it can also output digital, It allows serial connection (RS-232) to a PC. Position information Can be easily loaded into a PC to communicate.

Features

- * Small package size
- * Both analog and digital outputs
 - Analog output: High precision analog voltage output
 - Digital output: High resolution digital output

Applications

- * Optical axis alignment
- * Laser beam tracking
- * Distance measurement
- * Length measurement



Information in this technical datasheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject change without notice

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Absolute Maximum Rating

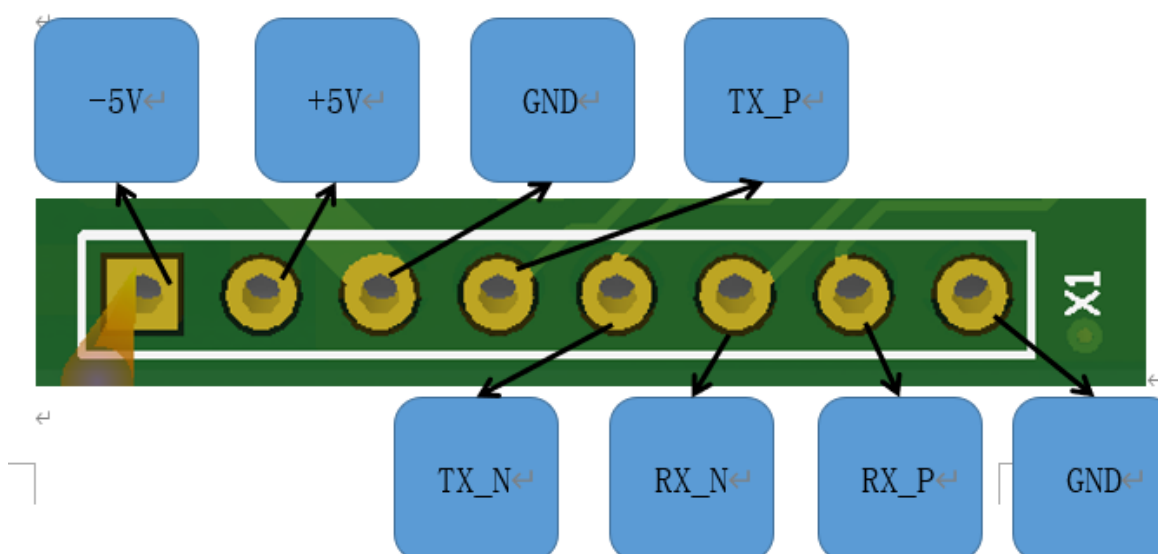
Symbol	Parameter	Min.	Max.	Typ.	Units
T _{STD}	Storage Temp.	-40	+80	25	°C
T _{OP}	Operating Temp	-40	+60	25	°C
V _{CC}	Power Supply Voltage	-	-	±5	V
V _R	Applied Bias Voltage	0	15	5	V
I _o	Current Consumption	-	-	200	mA



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Active area	A			9*9		mm ²
Position detection error			70		180	um
Position resolution	ΔR			0.8	2	um
Wavelength range	λ		320	960	1100	nm
Responsivity	Re	@960nm		63		V/mW
Transimpedance	Rf			1*10 ⁴		KV/A
Output Voltage	Vout			±4		V
Output noise	Vnoise			2	10	mVp-p
3dB bandwidth	F3db			15		KHz
Spot size	Φ		0.2		9	mm
Response time	T				70	us
Photocurrent (max)	Po			40		uA

■ PIN LEGS:





Communication protocol

Buad rate		1 000 000				
High bit first and low bit later						
Data collection frame						
Complete data frame	N byte	Data type	Data information	Illustration 1	Illustration 2	
48 byte in all	0-1	Uint16	Frame Head;	Frame Head;	AA 55	
	2-3	Uint16	Frame Length;	Frame Length;	0x0030	
	4-5	Uint16	Command Frame Num;	Command Frame Num;	Null	
	6-7	Uint16	Data frame Num;	Data frame Num;		
	8-9	Uint16	Operation status;	Operation status;	Null	
	10-11	----	Null	Align data to fill zero		
	12-19	Uint64	SampleTime_us;	Sampling time unit: μ s		
	20-21	int16	TargAngY;	Target angle(Y)	Null	
	21-22	int16	TargAngX;	Target angle (X)	Null	
	23-24	int16	Y_ratio;	Y ratio = V_y/V_{sum}	10000:1	
	25-26	int16	X_ratio;	X ratio = V_x/V_{sum}	10000:1	
	27-28	int16	V _y ;	Y output voltage	1:1mV	
	29-30	int16	V _x ;	X output voltage	1:1mV	
	31-32	int16	V _{sum} ;	voltage of summation of	1:1mV	



PSD100-SPB4

				four channels		
	33-34	Uint16	ProcessingTime_us;	Data process time	1:1μs	
	35-36	int16	M_5V;	5V power voltage	1:1mV	
	37-38	int16	M_n5V;	-5Vv	1:1mV	
	39-40	int16	M_Temperature;	temperature		
	41-45	int16	Reserve[10];	Reserve bit		
	46	Uint8	Checksum	Sum of 2~45 byte		
	47	Uint8	FrameTail;	Frame end	0xCC	
Compact data frame	0-1	Uint16	FrameHead	Frame Head;	AA 55	
16 byte in all	2-3	int16	TargAngY	Target angle(Y)	Null	
	4-5	int16	TargAngX	Target angle (X)	Null	
	6-7	int16	Y_ratio	Y ratio =Vy/Vsum	10000:1	
	8-9	int16	X_ratio	X ratio =Vx/Vsum	10000:1	
	10-11	int16	Vx	Y output voltage	1:1mV	
	12-13	int16	Vy	X output voltage	1:1mV	
	14-15	int16	V_sum	voltage of summation of four channels	1:1mV	
Command frame	0-1	Uint16	Frame Head	Frame head	AA BB	
8 byte in all	2	Uint8	Operation Mode	Operation Mode	Null, maybe every value	
	3	Uint8	Tx Mode	Communication mode	0x00: Complete data frame; 0x01: Compact data frame	
	4-5	Uint16	Sample Interval	Sample Interval	1:0.1ms	Default value



PSD100-SPB4

						10ms
	6	UInt8	Check Sum	Check Sum	Null, maybe every value	
	7	UInt8	Frame end	Frame end	0xEE	
	example	AA BB 00 01 F4 01 00 EE				
		Compact communication mode, Sample Interval 50.0ms				

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