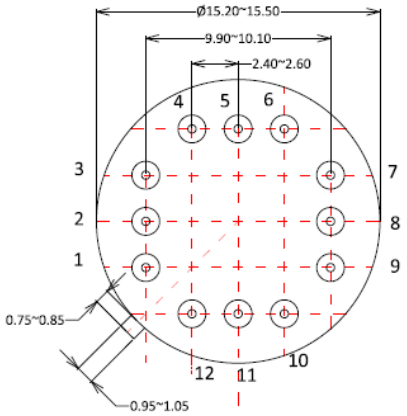
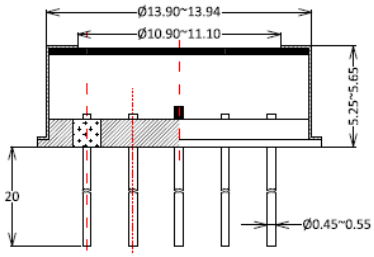
InGaAs APD Preamplifier Module

OSH200AKM





PIN No.	Describe
1/3/5/11/12	NC
2	APD+
4	Temp sense-
6	Temp sense+
7	V_{out+}
9	V_{out-}
10	TIA+
8	GND

NOTES:

All dimension are in millimeters.

Description

OSH200AKM is InGaAs Avalanche Photodiode with a hybrid 200MHz Preamplifier, in hermetically-sealed TO8 package.

Custom versions with all other APD chip size, various gain, Bandwith etc. are available on request.

Features

* Low noise
* Fast response speed
* High sensitivity
* High reliability

Applications

* Range finding
* Laser alarming
* Lidar
* Low light level detection

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 Ratings (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Active diameter	A	Φ200				um
Active area		0.03				mm^2
Nominal field of view	FOV	140				degrees
System bandwidth	f_{-3dB}	M=10 , R_L=50Ω, AC input	0.30	200		MHz
APD Operating Gain	M		1	15	20	
Excess Noise Factor	F(M, k)	M=5		2.1		
		M=10		3.4		
		M=15		4.3		
Rise/ Fall time (10%~90% points)	tr	λ_p=1.55um,f=1MHz,R_L=50Ω, M=10		5.2	9	nS
Dark current	I_D	M=10	60	80	96	nA
Reverse breakdown voltage	$V_{(BR)}$	I_R=100μA Ev=0lx	45	50	55	V
Operating voltage	V_R	M=10	V_R=V_{BR}*0.9			
Photo sensitivity	S_R	λ_p=1.55um, Ev=100nw, M=20	300	370		kV/W
		λ_p=1.55um, Ev=100nw, M=20		220		
Spectral Application Range	λ_{range}	V_R=10mV	950	1064-1550	1700	nm
Spectral Response-Peak	λ_p	V_R=0V		1550		nm
Noise Equivalent Power	NEP	M=10, f_{-3dB}=100KHz,R_L=50Ω		0.15	1	Pw/√Hz
Output impedance	Routput	M=10, Pin=100nW	60	75	90	Ω
Output Voltage Swing	Vo	λ_p=1.55um,R_L=50Ω, M=10	0.7			V
Offset Voltage	Voffset	Vcc=+3.3V, Vee=-5V, M=10, ,R_L=50Ω		0	0.4	V
Concentricity	ΔD		30	40	50	um
Power supply of this module	VCC	±3.3V				
Temperature sensor operate voltage	Vt	+30V				
Power dissipation	P_D	250mW				
Operating temperature		-50~+80℃				
Storage temperature		-50~+125℃				

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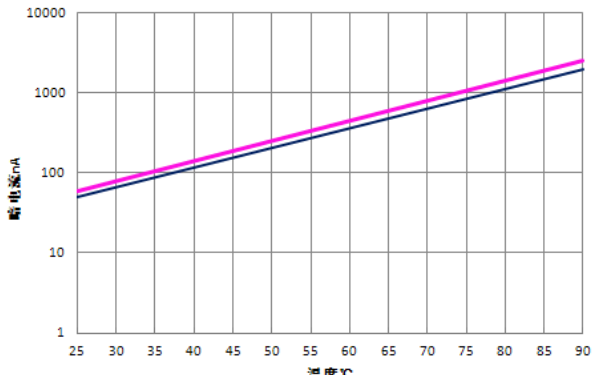
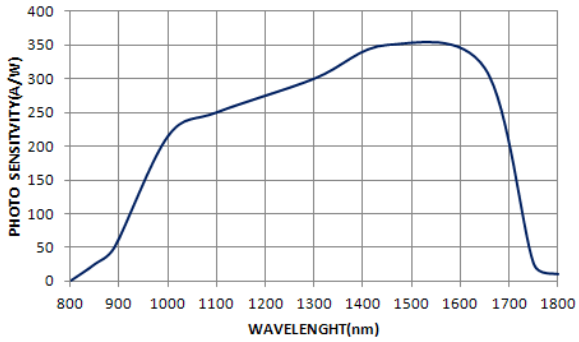
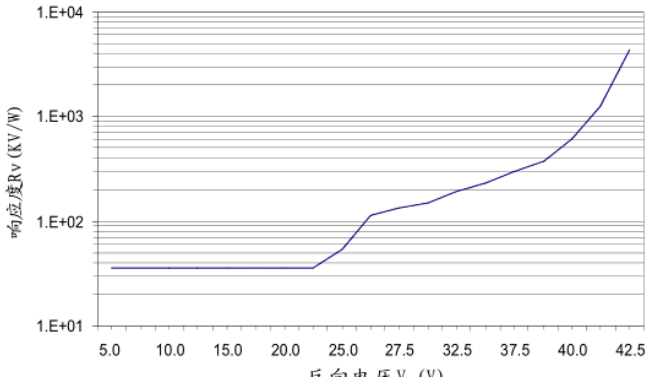
■Dark current vs. Temperature



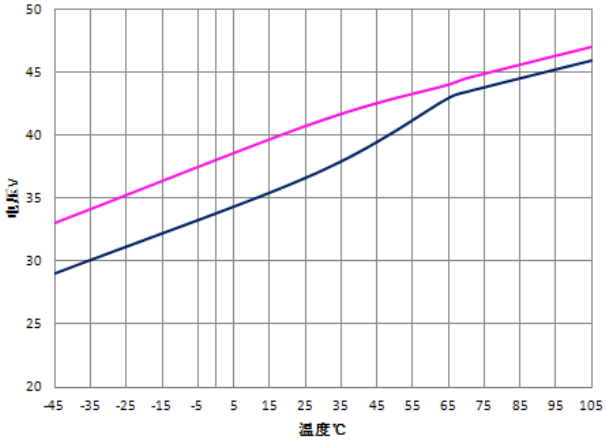
■ Spectral response （ M=10)



■Response VS. Reverse Voltage



■Constant Gain Voltage VS. Temperature



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