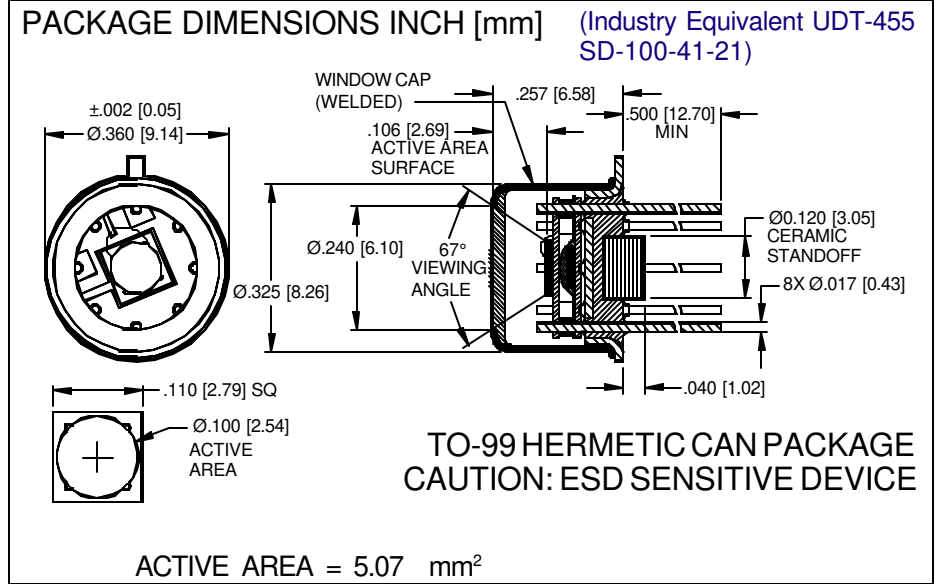


PHOTONIC DETECTORS INC.

Detector Amplifier Hybrid, Blue Enhanced Type PDB-706



FEATURES

- Low input bias current
- Low offset voltage
- 1 MHz bandwidth

DESCRIPTION

The **PDB-706** is a low noise, medium speed, blue enhanced silicon photodiode integrated with a low noise JFET monolithic trans-impedance op-amp. The feedback capacitor & resistor circuit are externally connected.

APPLICATIONS

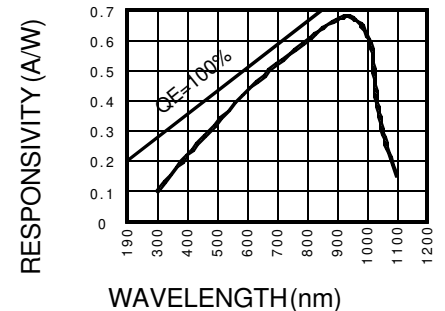
- Medical diagnostic
- Low signal level applications
- Spectroscopy

ABSOLUTE MAXIMUM RATING (TA=25°C unless otherwise noted)

SYMBOL	PARAMETER	MIN	MAX	UNITS
V _{BR}	Reverse Voltage		15	V
T _{STG}	Storage Temperature	-55	+125	°C
T _O	Operating Temperature Range	0	+70	°C
T _S	Soldering Temperature*		+240	°C
I _L	Light Current		500	mA

*1/16 inch from case for 3 secs max

SPECTRAL RESPONSE



PHOTODIODE ELECTRO-OPTICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I _{SC}	Short Circuit Current	H = 100 fc, 2850 K	45	65		μA
I _D	Dark Current	H = 0, V _R = 10 V		1.0	5.0	nA
R _{SH}	Shunt Resistance	H = 0, V _R = 10 mV	.5	2		GΩ
TC R _{SH}	RSH Temp. Coefficient	H = 0, V _R = 10 mV		-8		% / °C
C _J	Junction Capacitance	H = 0, V _R = 10 V**		15		pF
λ _{range}	Spectral Application Range	Spot Scan	350		1100	nm
λ _p	Spectral Response - Peak	Spot Scan		950		nm
V _{BR}	Breakdown Voltage	I = 10 μA	100	125		V
NEP	Noise Equivalent Power	V _R = 10 V @ Peak		2.5x10 ⁻¹⁴		W/√Hz
tr	Response Time	R _L = 1 KΩ V _R = 10 V		15		nS

Information in this technical data sheet is believed to be correct and reliable. However, no responsibility is assumed for possible inaccuracies or omission. Specifications are subject to change without notice. ** f = 1 MHz

AMPLIFIER SPECIFICATION TA=25° C and VS = ±15vdc UNLESS OTHERWISE NOTED

CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
FEEDBACK NETWORK EXTERNAL		-	-	-	Ω
V _{IO} INPUT OFFSET VOLTAGE	INITIAL OFFSET FULL RANGE		0.6	3.9	mV
	LONG TERM OFFSET STABILITY		.04		μV/MONTH
I _{IB} INPUT BIAS CURRENT	OFFSET CURRENT, V _{CM} =0		4		pA
R _i INPUT RESISTANCE	DIFFERENTIAL		1 X 10 ¹²		Ω
	COMMONMODE		1 X 10 ¹²		
V _{ICR} INPUT VOLTAGE RANGE	COMMONMODE	-12	+16		V
	COMMONMODE REJECTION V _{CM} ±10V	72	90		
V _{N(PP)} INPUT VOLTAGE NOISE	VOLTAGE 0, f=1 KHz		2		μV _{PP}
	VOLTAGE 0, f=10 KHz		40		nV ² /Hz
I _N INPUT CURRENT NOISE	f=1 KHz		1		fA / √Hz
B _{OM} FREQUENCY RESPONSE	UNITY GAIN, SMALL SIGNAL R _L = 10 KΩ C _L = 100 pF		2		MHz
	SLEW RATE, UNITY GAIN	2.6	3.4		V/μs
A _{VD} OPEN LOOP GAIN	v _o = ±10 V, R _L =10 KΩ	20	230		V/mV
V _{OM±} OUTPUT CHARACTERISTICS	VOLTAGE @ R _L =10 KΩ	±13.2	±13.7		V
	VOLTAGE @ R _L = 600 Ω	±12.5	±13		V
V _{CC±} POWER SUPPLY	OPERATING RANGE	±3.5	±15	±18	V

AMPLIFIER ABSOLUTE MAXIMUM RATING (TA=25°C UNLESS OTHERWISE NOTED)

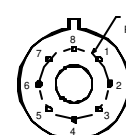
PARAMETER	MIN	MAX	UNITS
SUPPLY VOLTAGE	±4.5	±18	V
INTERNAL POWER DISSIPATION		500	mW
STORAGE TEMPERATURE	-55	+150	°C
OPERATING TEMPERATURE	0	+70	°C

WARNING: ESD SENSITIVE DEVICE

PIN CONNECTIONS

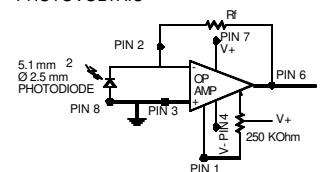
- 1- OFFSET ADJUSTMENT
- 2- INVERTING INPUT/ CATHODE OF PHOTODIODE
- 3- NON-INVERTING INPUT/ CASE GROUND
- 4- NEGATIVE SUPPLY VOLTAGE
- 5- OFFSET ADJUSTMENT
- 6- OUTPUT
- 7- POSITIVE SUPPLY VOLTAGE
- 8- ANODE OF PHOTODIODE

POWER SUPPLY RATED @ ±15 V
RANGE ±3.5 V - ±18 V
QUIESCENT CURRENT 200 μA MAX



BOTTOM VIEW

PHOTOVOLTAIC



PHOTOCONDUCTIVE

