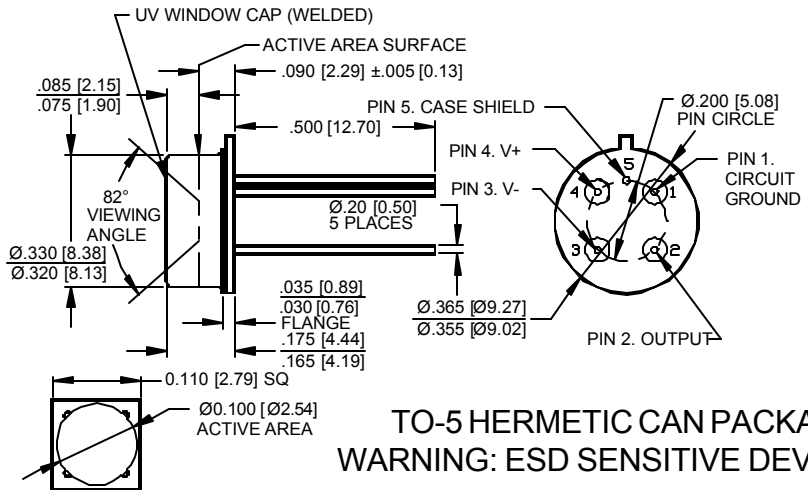
PHOTONIC DETECTORS INC.

Detector Amplifier Hybrid, U.V. Enhanced
Type PDU-716-100

PACKAGE DIMENSIONS INCH [mm]



TO-5 HERMETIC CAN PACKAGE
WARNING: ESD SENSITIVE DEVICE

ACTIVE AREA = 5.07 mm²

FEATURES

- 10 Khz bandwidth
- Internal100 MOhm gain
- Low offset voltage
- Low input bias current

DESCRIPTION: The **PDU-716-100** is a low noise, medium speed, U.V. enhanced silicon photodiode integrated with a low noise JFET monolithic transimpedance op-amp. There is an internal 100 MOhm feedback gain resistor which limits the bandwidth to 10KHz.

APPLICATIONS

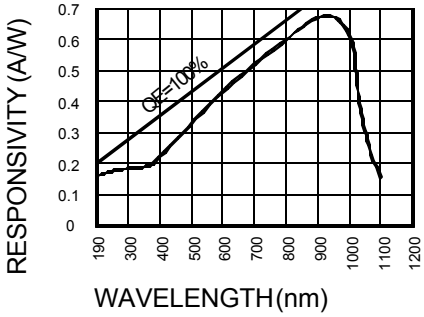
- Medical diagnostic
- Low signal applications
- Color analysis
- Analytical chemistry

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
λrange	Spectral Application Range	Spot Scan	190		1100	nm
R	Responsivity	V_R = 0 V, λ = 254 nm	1.2	1.8		A/W
V_{BR}	Breakdown Voltage	I = 10 μA	5	10		V
NEP	Noise Equivalent Power	VR = 10 V @ Peak		$2.5x10^{-14}$		W/$\sqrt{Hz}$
tr	Response Time	RL = 1 KΩ V_R = 10 V		15		nS

 ** f = 1 MHz

[FORM NO. 100-PDU-716-100 REV A]

PHOTONIC DETECTORS INC.

Detector Amplifier Hybrid, U.V. Enhanced
Type PDU-716-100

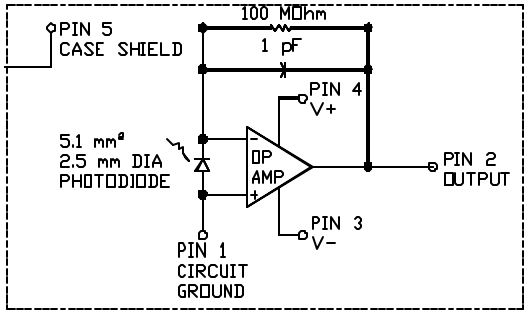
AMPLIFIER SPECIFICATION TA = 25° C and VS = ± 15 vdc UNLESS OTHERWISE NOTED

CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
FEEDBACK NETWORK 100 MEG Ω RESISTOR, 1 pF CAPACITOR*	THIN FILM RESISTOR TRIMMED TO ±5% *TOL ±5%		100		MEG 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, VCM=0		4		pA
R_i INPUT RESISTANCE	DIFFERENTIAL		1×10^{-12}		Ω
	COMMON MODE		1×10^{-12}		
V_{ICR} INPUT VOLTAGE RANGE	COMMON MODE	–12	+16		V
CMRR COMMON MODE REJECTION RATIO	COMMON MODE REJECTION, R_S = 50 Ω	72	90		dB
$V_{N(PP)}$ INPUT VOLTAGE NOISE	VOLTAGE 0, f=1 KHz		2		μV_{PP}
	VOLTAGE 0, f=10 KHz		40		nV/√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	vo= ±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



[FORM NO. 100-PDU-716-100 REV A]