



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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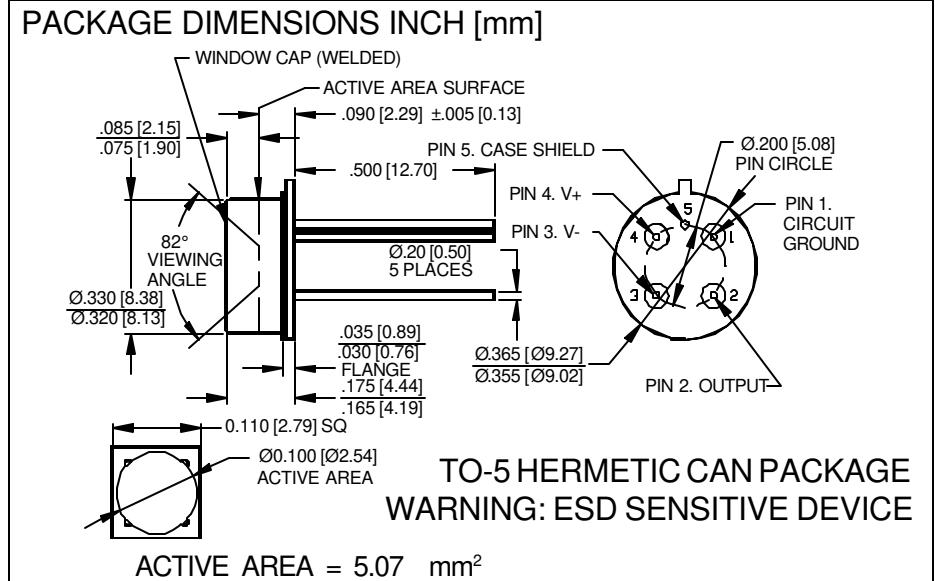
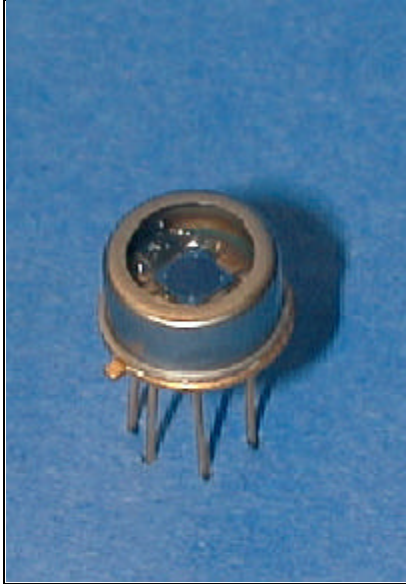
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# PHOTONIC DETECTORS INC.

## Detector Amplifier Hybrid, Blue Enhanced Type PDB-716-100



### FEATURES

- 10 KHz bandwidth
- Internal 100 MOhm gain
- Low offset voltage
- Low input bias current

### DESCRIPTION:

The **PDB-716-100** is a low noise, medium speed, blue 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

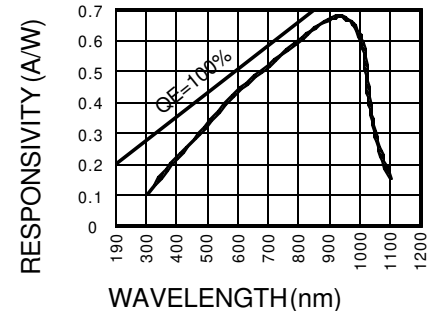
- Medical diagnostic
- Low signal applications
- Color analysis
- Analytical chemistry

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

SYMBOL	PARAMETER	MIN	MAX	UNITS
V <sub>BR</sub>	Reverse Voltage		15	V
T <sub>STG</sub>	Storage Temperature	-55	+125	°C
T <sub>O</sub>	Operating Temperature Range	0	+70	°C
T <sub>S</sub>	Soldering Temperature*		+240	°C
I <sub>L</sub>	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 <sub>SC</sub>	Short Circuit Current	H = 100 fc, 2850 K	45	65		μA
I <sub>D</sub>	Dark Current	H = 0, V <sub>R</sub> = 10 V		1.0	5.0	nA
R <sub>SH</sub>	Shunt Resistance	H = 0, V <sub>R</sub> = 10 mV	.5	2		GΩ
TC R <sub>SH</sub>	RSH Temp. Coefficient	H = 0, V <sub>R</sub> = 10 mV		-8		% / °C
C <sub>J</sub>	Junction Capacitance	H = 0, V <sub>R</sub> = 10 V**		15		pF
λ <sub>range</sub>	Spectral Application Range	Spot Scan	350		1100	nm
λ <sub>p</sub>	Spectral Response - Peak	Spot Scan		950		nm
V <sub>BR</sub>	Breakdown Voltage	I = 10 μA	100	125		V
NEP	Noise Equivalent Power	V <sub>R</sub> = 10 V @ Peak		2.5x10 <sup>-14</sup>		W/√Hz
tr	Response Time	R <sub>L</sub> = 1 KΩ V <sub>R</sub> = 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  $T_A = 25^\circ\text{C}$  and  $V_S = \pm 15\text{Vdc}$  UNLESS OTHERWISE NOTED

CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
FEEDBACK NETWORK 100 MEG $\Omega$ RESISTOR, 1pF* CAPACITOR	THINFILMRESISTOR TRIMMED TO $\pm 5\%$ *TOL $\pm 5\%$		100		MEG $\Omega$
$V_{IO}$ INPUT OFFSET VOLTAGE	INITIAL OFFSET FULL RANGE		0.6	3.9	mV
	LONG TERM OFFSET STABILITY		.04		$\mu\text{V}/\text{MONTH}$
$I_{IB}$ INPUT BIAS CURRENT	OFFSET CURRENT, $V_{CM}=0$		4		pA
$R_i$ INPUT RESISTANCE	DIFFERENTIAL		$1 \times 10^{-12}$		$\Omega$
	COMMONMODE		$1 \times 10^{-12}$		
$V_{ICR}$ INPUT VOLTAGE RANGE	COMMONMODE	-12	+16		V
	COMMONMODE REJECTION $V_{CM} \pm 10\text{V}$	72	90		
$V_{N(PP)}$ INPUT VOLTAGE NOISE	VOLTAGE 0, $f=1\text{KHz}$		2		$\mu\text{V}_{PP}$
	VOLTAGE 0, $f=10\text{KHz}$		40		nV/ $\sqrt{\text{Hz}}$
$I_N$ INPUT CURRENT NOISE	$f=1\text{KHz}$		1		fA / $\sqrt{\text{Hz}}$
$B_{OM}$ FREQUENCY RESPONSE	UNITY GAIN, SMALL SIGNAL $R_i = 10\text{K}\Omega$ $C_i = 100\text{pF}$		2		MHz
	SLEW RATE, UNITY GAIN	2.6	3.4		V/ $\mu\text{s}$
$A_{VD}$ OPEN LOOP GAIN	$v_o = \pm 10\text{V}$ , $R_L = 10\text{K}\Omega$	20	230		V/mV
$V_{OM\pm}$ OUTPUT CHARACTERISTICS	VOLTAGE @ $R_L = 10\text{K}\Omega$	$\pm 13.2$	$\pm 13.7$		V
	VOLTAGE @ $R_L = 600\Omega$	$\pm 12.5$	$\pm 13$		V
$V_{CC\pm}$ POWER SUPPLY	OPERATING RANGE	$\pm 3.5$	$\pm 15$	$\pm 18$	V

AMPLIFIER ABSOLUTE MAXIMUM RATING ( $T_A = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)

PARAMETER	MIN	MAX	UNITS
SUPPLY VOLTAGE	$\pm 4.5$	$\pm 18$	V
INTERNAL POWER DISSIPATION		500	mW
STORAGE TEMPERATURE	-55	+150	$^\circ\text{C}$
OPERATING TEMPERATURE	0	+70	$^\circ\text{C}$

