



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!



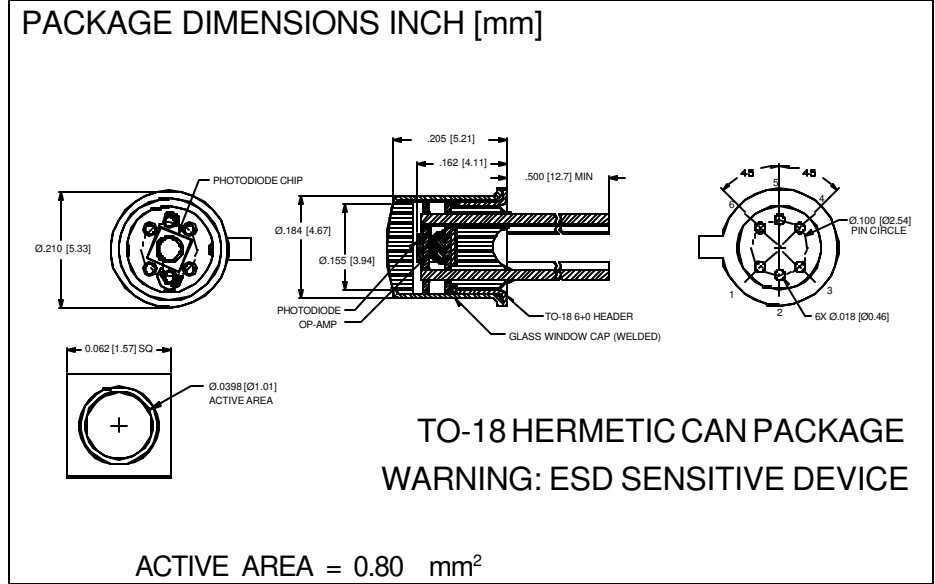
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### FEATURES

- 24 MHz bandwidth
- single supply operation
- Wide dynamic range
- Low power: 5 V @ 25 mA

### DESCRIPTION

The **PDB-708** is a high speed PIN photo-diode integrated with a wide band differential output transimpedance amplifier. It is packaged in a TO-18, 6 leaded hermetic package. Options include, SMA, ST & FC type fiber optic ADMs.

### APPLICATIONS

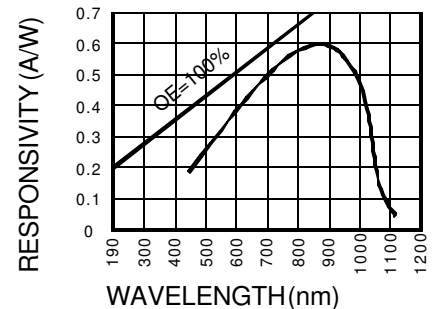
- Fiber optic receivers
- Industrial controls
- High speed optical coupling
- Local area network

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

SYMBOL	PARAMETER	MIN	MAX	UNITS
V <sub>BR</sub>	Reverse Voltage		300	V
T <sub>STG</sub>	Storage Temperature	-55	+125	°C
T <sub>O</sub>	Operating Temperature Range	-40	+80	°C
T <sub>S</sub>	Soldering Temperature*		+260	°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	7	8.5		μA
I <sub>D</sub>	Dark Current	H = 0, V <sub>R</sub> = 10 V		2	10	nA
R <sub>SH</sub>	Shunt Resistance	H = 0, V <sub>R</sub> = 10 mV		500		MΩ
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> = 45 V**		2.2	2.4	pF
λ <sub>range</sub>	Spectral Application Range	Spot Scan	400		1100	nm
λ <sub>p</sub>	Spectral Response - Peak	Spot Scan		900		nm
V <sub>BR</sub>	Breakdown Voltage	I = 1 μA	100	300		V
NEP	Noise Equivalent Power	V <sub>R</sub> = 45 V @ Peak		1x10 <sup>-14</sup>		W/√Hz
tr	Response Time	R <sub>L</sub> = 50Ω V <sub>R</sub> = 45 V λ = 900nm		3		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 (SO PACKAGE @T<sub>A</sub> = 25° C and V<sub>S</sub> = +5vdc UNLESS OTHERWISE NOTED)

CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>DYNAMIC PERFORMANCE</b>					
BANDWIDTH	3 dB	180			MHz
PULSE WIDTH MODULATION	10 μA TO 200 μA PEAK		500		ps
RISE AND FALL TIME	10% TO 90% TO 3%,		1.5		ns
SETTLING TIME	0.5 V DIFF OUTPUT STEP		3		ns
<b>INPUT</b>					
LINEAR INPUT CURRENT RANGE			±30		μA
MAX INPUT CURRENT RANGE		±200	±350		μA
OPTICAL SENSITIVITY			-36		dBm
INPUT STRAY CAPACITANCE	DIE, BY DESIGN SOIC, BY DESIGN		0.2 0.4		pF pF
INPUT BIAS VOLTAGE	+V <sub>S</sub> TO I <sub>IN</sub> AND V <sub>BYP</sub>	1.6		2.0	V
<b>NOISE</b>					
INPUT CURRENT NOISE	DIE, SINGLE ENDED AT P <sub>OUT</sub> , OR DIFFERENTIAL (P <sub>OUT</sub> - N <sub>OUT</sub> ), C <sub>STRAY</sub> = 0.3 pF		3.0		pA/√Hz
TOTAL INPUT RMS NOISE	f = 100 MHz DC TO 100 MHz		26.5		nA
<b>TRANSFER CHARACTERISTICS</b>					
TRANSRESISTANCE	SINGLE ENDED DIFFERENTIAL	8 16	10 20	12 24	KΩ KΩ
POWER SUPPLY REJECTION RATIO	SINGLE ENDED DIFFERENTIAL		37.0 40		dB dB
<b>OUTPUT</b>					
DIFFERENTIAL OFFSET			6	20	mV
OUTPUT COMMON-MODE VOLTAGE	FROM POSITIVE SUPPLY	-1.5	-1.3	-1.1	V
VOLTAGE SWING (DIFFERENTIAL)	POSITIVE INPUT CURRENT, R <sub>L</sub> = ∞ POSITIVE INPUT CURRENT, R <sub>L</sub> = 50 Ω		1.0 600		V <sub>P-P</sub> mV <sub>P-P</sub>
OUTPUT IMPEDANCE		40	50	60	Ω
<b>POWER SUPPLY</b>					
OPERATING RANGE	T <sub>MIN</sub> TO T <sub>MAX</sub> SINGLE SUPPLY	+4.5	+5	+11	V
CURRENT	DUAL SUPPLY	±2.25	25	±5.5 26	V mA

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

PARAMETER	MIN	MAX	UNITS
SUPPLY VOLTAGE	±4.5	±12	V
POWER DISSIPATION		.9	μV
STORAGE TEMPERATURE	-55	+125	° C
OPERATING TEMPERATURE	-40	+85	° C

PIN CONNECTIONS	
1	OUTPUT (+)
2	PHOTODIODE CATHODE
3	OUTPUT (-)
4	GROUND/CASE
5	PHOTODIODE ANODE
6	Vcc (5V)

WARNING:  
ESD SENSITIVE DEVICE

