

# Low Noise Adjustable Gain SI PIN Balance Detector

## ZKPD-150M-CG-DC

ZKPD-150M-CG-DC is a low noise high bandwidth SI PIN balance detector consisting of two balanced photodiodes with ultra-low noise. Sound high-speed adjustable gain amplification circuit and low-noise power supply. The two photodiodes are matched to achieve an excellent common-mode rejection ratio (CMRR) for better noise reduction. It is mainly used in laser wind measurement, laser vibration measurement, optical fiber sensing and other ultra-low and weak light coherent detection.

### ■ Features

- Multi-stop adjustable transimpedance :10<sup>3</sup>/10<sup>4</sup>/10<sup>5</sup>/10<sup>6</sup>/10<sup>7</sup>V/A
- High bandwidth : DC-150/45/4/0.3/0.1Mhz
- Response range:320~1080nm
- Low output noise and high common-mode rejection ratio

### ■ Application

- Laser wind measurement
- Laser vibrometry
- Fiber optic sensing
- Ultra-low weak optical coherence detection

### ■ Maximum absolute rating

Parameter	Unit	Symbol	Value
Operating temperature	°C	T <sub>C</sub>	-40~+55
Storage temperature	°C	T <sub>STG</sub>	-55~+100
Saturation input optical power	mW	P <sub>in</sub>	9(@Peak wavelength)
Module operating voltage	V	V <sub>cc</sub>	5
Module power consumption	mW	P <sub>w</sub>	1500

### ■ Photoelectric performance (T=25°C, 5V power supply)

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Spectral response range	λ	320~1080			nm
Detector surface diameter	D	800			um
-3dB bandwidth	BW	DC-150/45/4/0.3/0.1			Mhz
Detector peak responsivity	R <sub>v</sub>		0.53		A/W
Transimpedance gain	G	10 <sup>3</sup> /10 <sup>4</sup> /10 <sup>5</sup> /10 <sup>6</sup> /10 <sup>7</sup>			V/A
Output responsiveness	G		0.53 × 10 <sup>3</sup> 0.53 × 10 <sup>4</sup> 0.53 × 10 <sup>5</sup> 0.53 × 10 <sup>6</sup> 0.53 × 10 <sup>7</sup>		V/W
Saturation input optical power (@820nm)	P <sub>in</sub>		9		mW
Equivalent noise	NEP		1.4 (DC~0.1MHz) 1.1 (DC~0.3MHz) 3.3 (DC~4MHz) 28.9 (DC~45MHz) 123 (DC~150MHz)		pW/vHz

Output bias	$V_{\text{offset}}$	$\leq \pm 15$	mV
Supply voltage	$V_{\text{CC}}$	5	V
Supply current	$I_{\text{CC}}$	0.25	A
Optical input		FC (removable)	
Signal output		SMA	

## ■ Dimensions

