

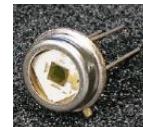


PDT-F39x1850-922

0.9~2.2um Dia. 1850um InGaAs PIN Photodiode in TO-39 Package

Overview

The Lasermate PDT-F39x1850-922 is a high responsivity in 0.9um~2.2um wavelength spectral range, low leakage current InGaAs PIN photodiode in TO-39 package with large active area of 1850um diameter.



Features

- High reliability
- Low leakage current
- Low stray absorption
- High responsivity in 0.9~2.2um spectral range
- Aperture size \varnothing 1850um
- Package type: TO-39

Applications

- Power monitoring
- Spectral analysis
- Light Detection and Ranging (LIDAR)
- Remote temperature sensors
- Ice/slush/moisture detection
- Gas leak detection
- Single-photodiode SWIR camera
- Covert IR sensing

Product Overview

The following table lists the available part numbers, as well as the spectral range, aperture size, and package type of each of the part numbers.

Part Number	Spectral Range	Aperture Size	Package Type
PDT-F39A1850-922	0.9-2.2um	\varnothing 1850um	TO-39, 3-pin
PDT-F39B1850-922	0.9-2.2um	\varnothing 1850um	TO-39, 8-pin



Specifications

Electro-Optical Characteristics (T _{AMB} =23°C)							
Parameters		Symbol	Min.	Typ.	Max.	Unit	Conditions
Aperture size		∅		1850		um	
Spectral Range		λ	0.9		2.2	um	
Responsivity	PDT-F39A1850-922	R _e	0.9	0.95		A/W	V _R =0V, λ=1.55um
			1.0	1.05			V _R =0V, λ=1.9um
	PDT-F39B1850-922		0.95	1.0			V _R =0V, λ=1.55um
			1.05	1.1			V _R =0V, λ=1.9um
Dark Current		I _d		10	20	uA	V _R =-0.5V
Capacitance		C		1800	2300	pF	f=1MHz, V _R =0V
				1400	1800		f=1MHz, V _R =-0.5V
Saturation Power ⁽¹⁾		P _{sat}	0.5	1.0		mW	V _R =0V, λ=1.55um, -0.2dB
Shunt Resistance		R _{sh}	5	10		kΩ	V _R =-10mV
NEP				6	10	10 ⁻¹² W/√Hz	V _R =0V, λ=1.9um, f=1kHz
3dB Bandwidth			1.5	2		MHz	V _R =-0.5V, 50Ω
Max Cooling	PDT-F39A1850-922		-	-	-	°C	T _{Heatsink} =20°C
Capability, ΔT _{MAX} ⁽²⁾	PDT-F39B1850-922		55	60	-		

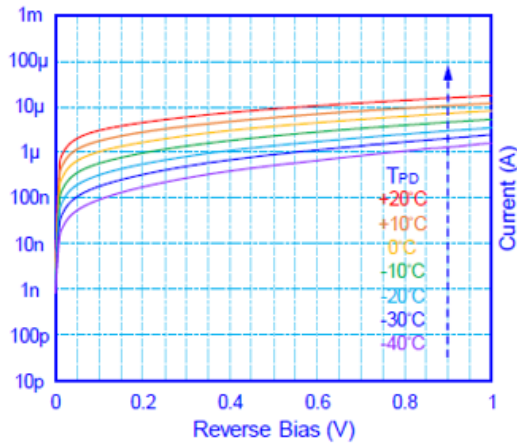
(1) Measured at the aperture center with a 1/e² beam diameter of 250um.

(2) Adequate heatsink and thermal interface material are the prerequisites for stable operation.

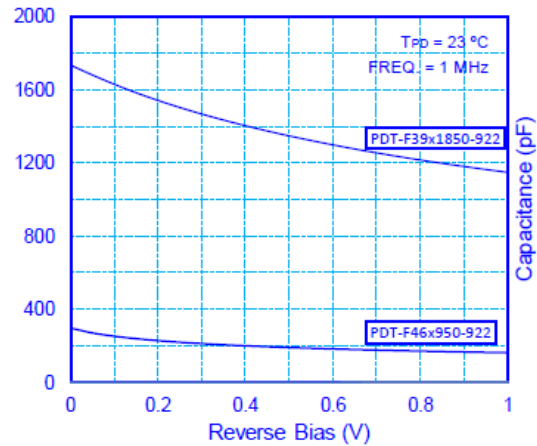
Absolute Maximum Ratings					
Parameters		Min.	Max.	Unit	Conditions
Storage Temperature		-40	85	°C	Non-condensing environment.
Operating Temperature		-40	85	°C	Non-condensing environment.
Forward Current			10	mA	
Reverse Current			10	mA	
Reverse Voltage			1	V	
TEC Current	PDT-F39A1850-922	-	-	A	
	PDT-F39B1850-922	-	0.9	A	

Typical Characteristics

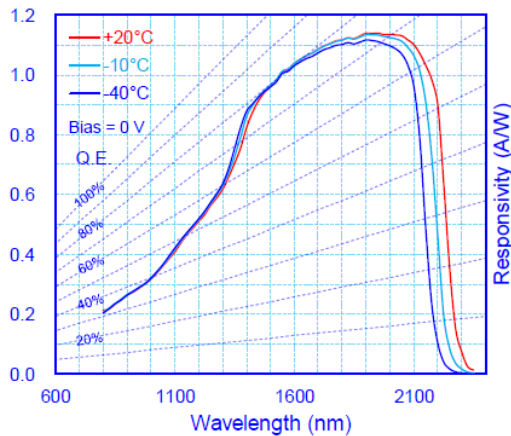
Dark Current



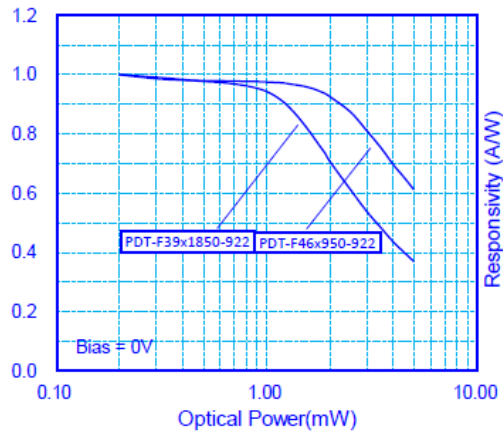
Dark Capacitance



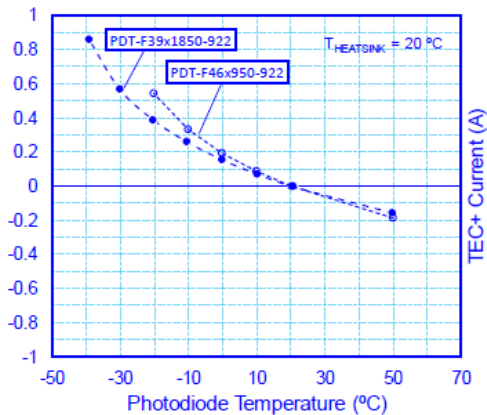
Responsivity Spectrum



Normalized Response Linearity



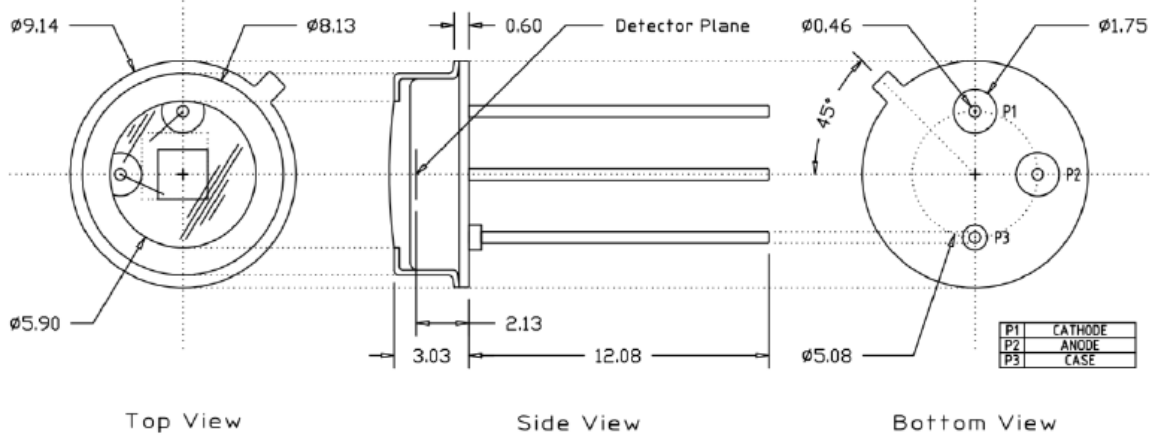
TEC Performance



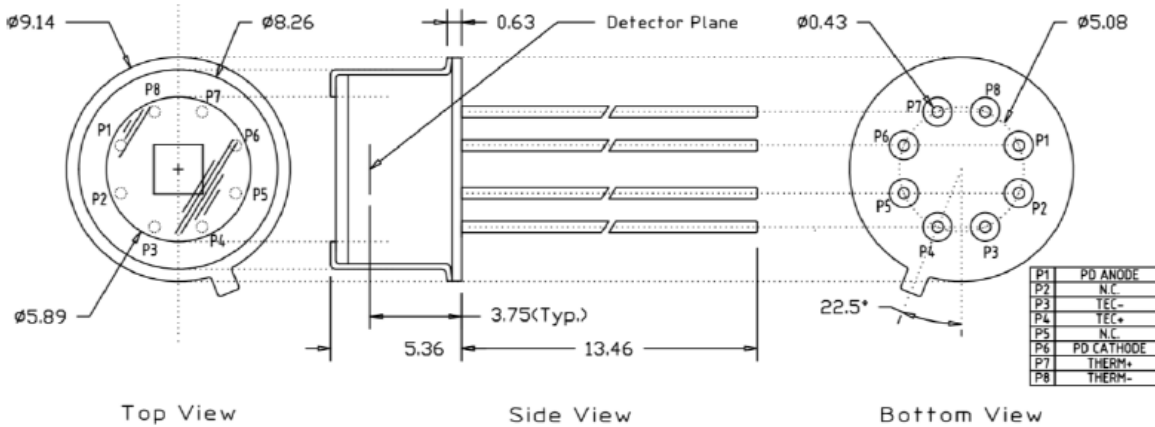
*Non-condensing environment

Outline Dimensions (unit: mm)

PDT-F39A1850-922:



PDT-F39B1850-922:



Additional Notes

1. Specifications are subject to change without notice.
2. The suitable ESD protective measures are needed in storage, transportation, and handling.