Cooled PbSe Photoconductive Detector



Description

The Cooled Lead Selenide (PbSe) Photoconductive Detectors by LD-PD PTE.LTD. are high-performance sensors specifically engineered for the Mid-Infrared (MWIR) spectral range. By integrating advanced Thermo-Electric Coolers (TEC), these detectors achieve superior sensitivity and reduced thermal noise, making them the industry standard for gas analysis, flame detection, and spectroscopic applications.

Features

● Broad Spectral Coverage: Optimized response from 1.5 μm to 5.2 μm, with peak sensitivity concentrated between 3.8 μm and 4.4 μm.
● Dual Cooling Configurations: Available in both 1-stage and 2-stage TEC versions to meet specific Signal-to-Noise Ratio (SNR) and power consumption requirements.
● High Detectivity: Exceptional peak normalized detectivity in the Jones range, enabling the detection of extremely weak infrared signals.
● Precision TO-Packaging: Hermetically sealed TO-style headers with an integrated Thermistor for real-time temperature monitoring and precise closed-loop feedback control.

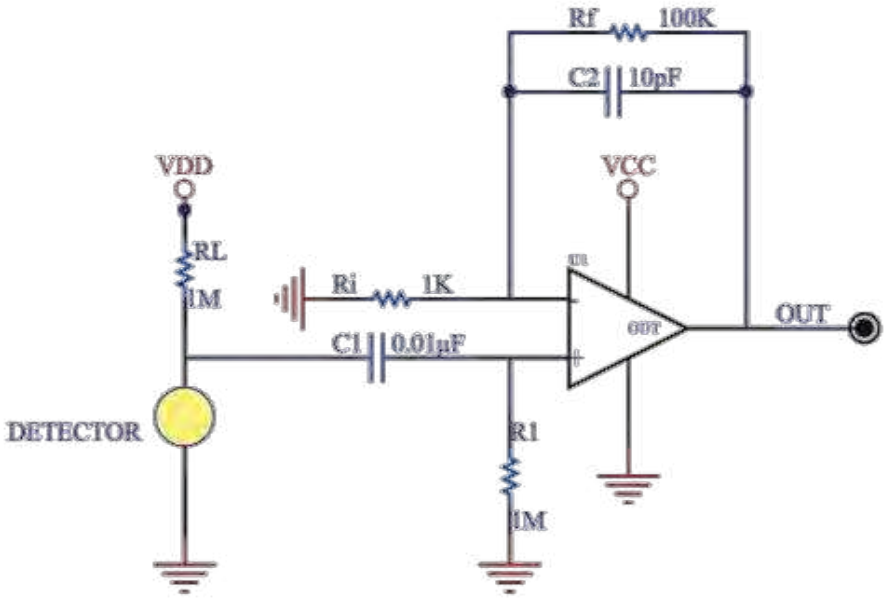
Specifications

Parameter	Symbol	Value (Typical)	Unit
Active Area Size	A	2X2(Customizable)	mm
Peak Wavelength	λ	3.8 – 4.4	μm

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Peak Detectivity	D*	≥1X1010	cm*√Hz/w
Responsivity	Rv	≥1X105	V/W
Dark Resistance	Rd	0.2 – 2.0	MΩ
Time Constant	T.	≤50	μs

Typical Amplified Circuit



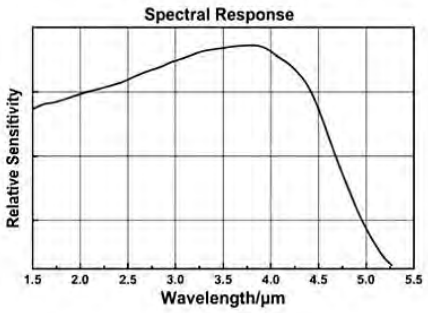
One stage Cooled PbSe Detector

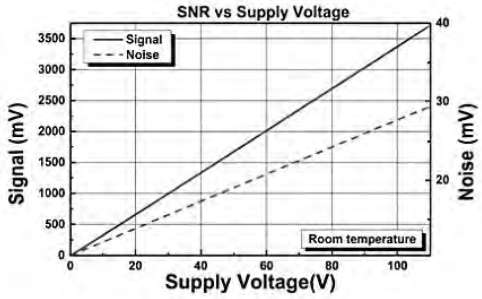
PN#	Package	Cool type	Active Area (mm^2)	TEC Imax (A)	Operate Temp(°C)	Store Temp(°C)
LPT1-18TO8	TO-8	One Stage	1×1	1.5	-30-+50	-55-+80
LPT1-28TO8	TO-8	One Stage	2×2	1.5	-30-+50	-55-+80

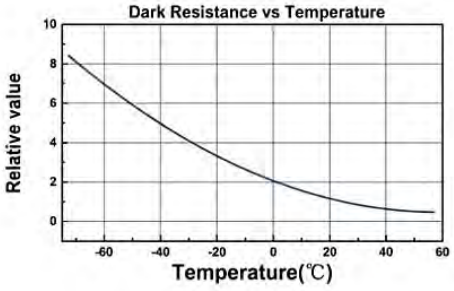
Two stages Cooled PbSe Detector

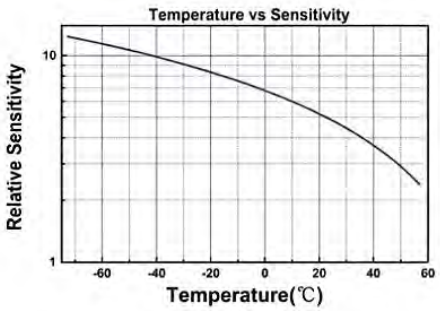
PN#	Package	Cool type	Active Area (mm^2)	TEC Imax (A)	Operate Temp (°C)	Store Temp(°C)
LPT2-17TO37	TO-37	Two stage	1×1	1.2	-30~+60	-55-+80
LPT2-27TO37	TO-37	Two stage	2×2	1.2	-30-+60	-55-+80
LPT2H-18TO8	TO-8	Two stage	1×1	1.2	-30-+60	-55-+80
LPT2H-28TO8	TO-8	Two stage	2×2	1.2	-30-+60	-55-+80

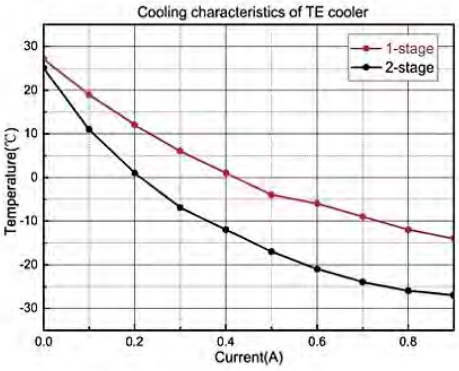
Related Curve

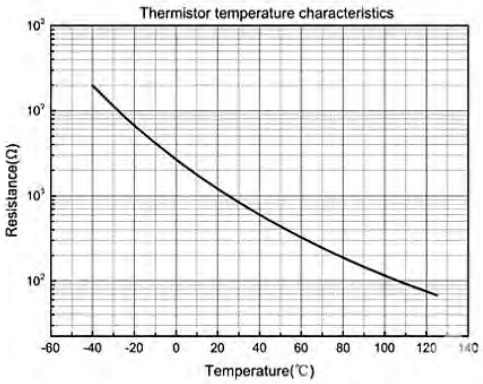








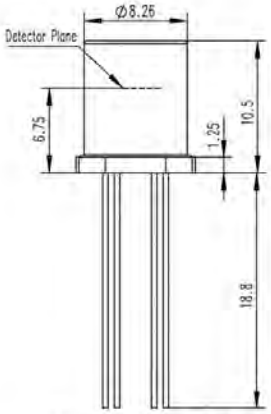


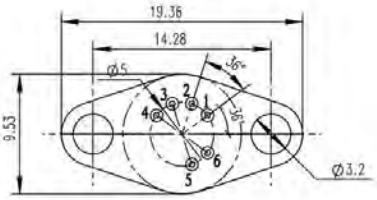


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Package with TEC--TO37



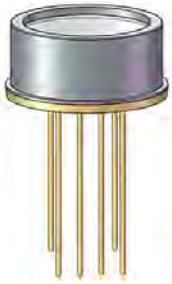


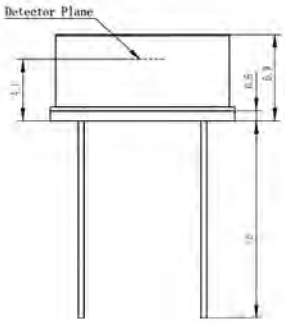


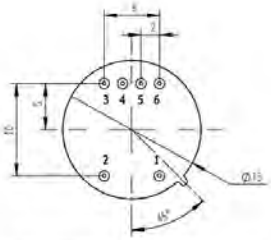
Pin No.	Function	Pin No.	Function
1	Cooler(+)	4	Detector
2	Cooler(-)	5	Thermistor
3	Detector	6	Thermistor

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Package with TEC--TO8

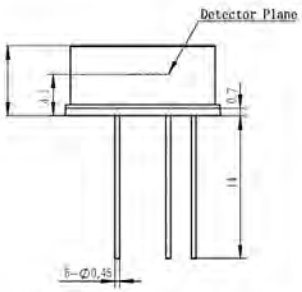


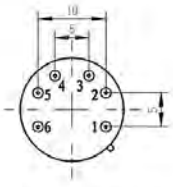




Pin No.	Function	Pin No.	Function
1	Cooler(-)	4	Thermistor
2	Cooler(+)	5	Thermistor
3	Detector	6	Detector







Pin No.	Function	Pin No.	Function
1	Thermistor	4	Cooler(-)
2	Thermistor	5	Detector
3	Cooler(+)	6	Detector

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Application

- Gas Sensing: NDIR (Non-Dispersive Infrared) detection for CO2, CH4, and NO.
- Industrial Safety: Flame and spark detection.
- Medical: Capnography and anesthesia gas monitoring.
- Environmental: Moisture and hydrocarbon analysis.