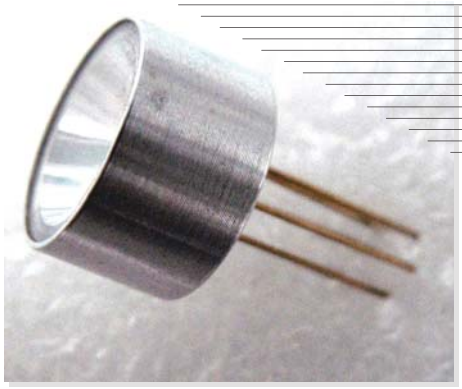
LIGHT EMITTING DIODE

4.1 - 4.3 µm

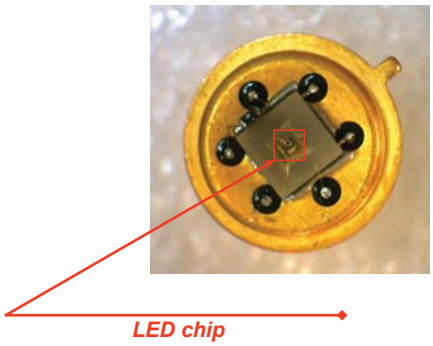
LED43-TEC-PRW

Mid infrared IBSG Optoelectronics



Features

- High reliability
- Spectral Selectivity
- Easy to use in lock-in circuits
- Temperature stabilization
- Parabolic reflector with window



Applications

- Measuring equipment
- Gas analysis (CO_2, C_2H_6)
- Analytical spectral devices

Options

- Power supply: LED Driver DLT-27M
- Power supply: LED Driver DLT-37M

Description

Light emitting diode **LED43-TEC-PRW** demonstrates typical maximum of emitting wavelength of **λ_P= 4.15 µm** (I = 150 mA, f = 0.5 KHz, duty cycle: 50%).

Light emitting diode **LED43-TEC-PRW** is equipped with sapphire window, thermo-electrical cooler (TEC) and thermistor for stabilizing of temperature.

The components is mounted in a standard 9.2 mm TO-5 package with parabolic reflector (PR).

LED heterostructure is grown on InAs substrate.

Related products:**LED43-TEC-PRW** can be used in optical pair with our PD48-05-WS photodiodes.

General characteristics

Package	Parameter	Symbol	Value	Unit
TO-5 with TEC-PRW	Maximum operating current	I^*_{QCW}	220	mA
		I^{**}_{Pulsed}	2000	
	Soldering temperature	T_s	+ 230	°C
	Operating temperature	T_{opr}	− 30…+ 50	°C
	Storage temperature	T_{stg}	− 55…+ 60	°C
	Weight	m	3.65	g
	Size	D	15.0	mm
		H	23.0	

* Quasi-CW mode: Repetition rate: 0.5 kHz, pulse duration: 1 ms, duty cycle: 50%

** Pulse mode: Repetition rate: 0.5 kHz, pulse duration: 2 µs, duty cycle: 0.1%

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Electrical and optical characteristics

Parameter	Symbol	Condition	Min	Max	Unit
Peak emission wavelength	λ_p	I_F = 150 mA	λ_{typ}= 4.15		µm
			4.1	4.3	
Spectral FWHM	$\Delta\lambda$	I_F = 150 mA	700	1000	nm
Pulse optical power	P^*_{QCW}	I_F = 200 mA	8	26	µW
	P^{**}_{Pulsed}	I_F = 1000 mA	35	120	
Forward voltage	V_F	(*)	0.2	0.8	V
Switching time	τ		10	30	ns

* Quasi-CW mode: repetition rate: 0.5 kHz, pulse duration: 1 ms, duty cycle: 50%, current: 200 mA
** Pulse mode: repetition rate: 0.5 kHz, pulse duration: 2 µs, duty cycle: 0.1%, current: 1 A

TEC TO506.1MC0400710.TB103 parameters (without load)

Parameter	Symbol	Condition	Value	Unit
Maximum Current	I_{max}	ΔT_{max}	1.50	A
Maximum Voltage	U_{max}	ΔT_{max}	0.80	V
Cooling power	q_{max}	-	1.30	W
Temperature range	ΔT_{max}	vacuum	70	K
Thermistor resistance	R_t	T = + 20 °C	10.00	kOhm

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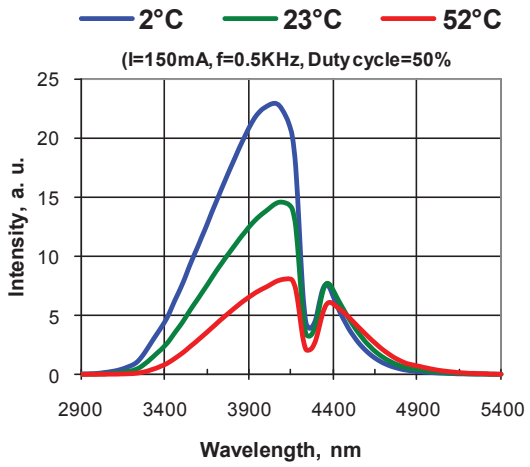
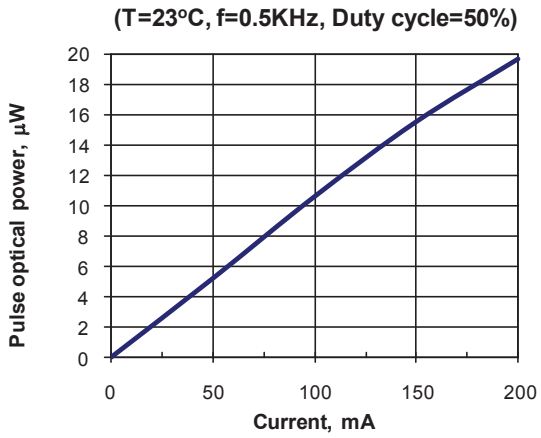
LED43-TEC-PRW

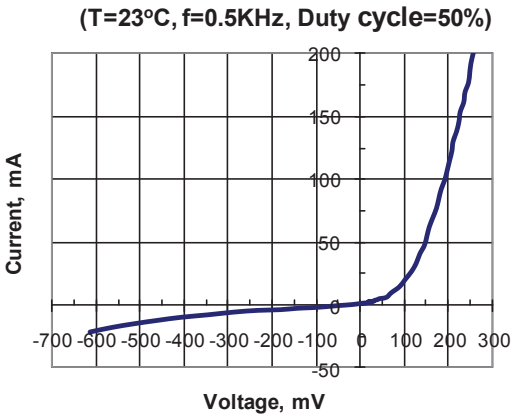
Electroluminescence spectra



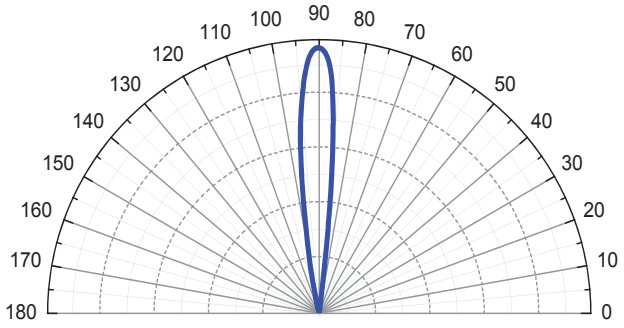
Pulse optical power vs. current



Current vs. voltage



Field pattern



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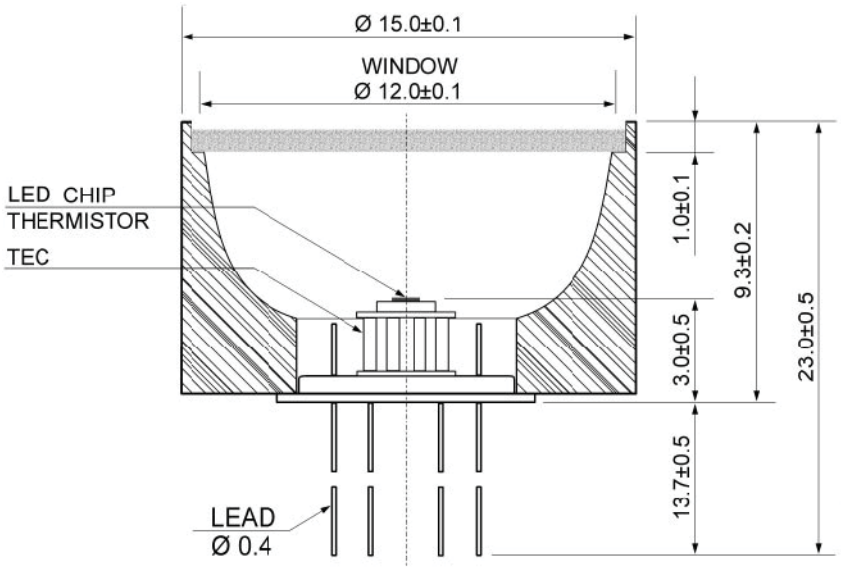
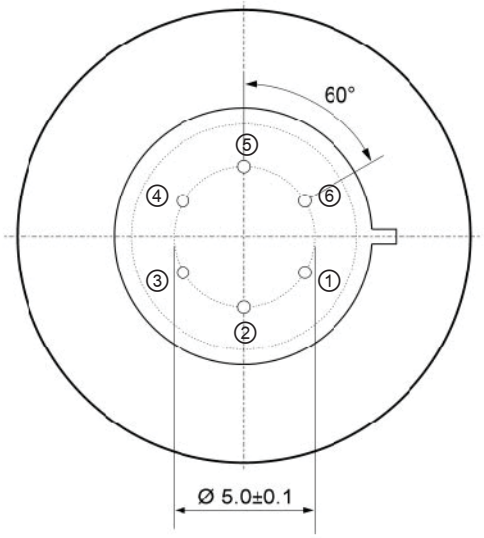
TO-5 package with PR — dimensions （mm ）





Pin	Description
①	TEC (anode)
②	Diode (anode)*
③	Diode (cathode)*
④	Thermistor TC103
⑤	
⑥	TEC (cathode)

* **Attention**: Pin polarity can be changed on request.

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