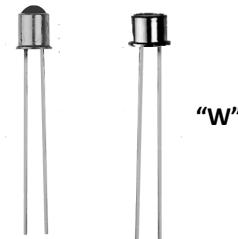


Hermetic Infrared Diode

OP130 Series



Features:

- TO-46 hermetically sealed package
- Focused and non-focused optical light pattern
- Enhanced temperature range
- Mechanically and spectrally matched to other OPTEK devices
- Choice of power ranges
- Choice of narrow or wide irradiance pattern

Description:

Each **OP130** series device is a 935 nm gallium arsenide (GaAs) infrared LED mounted in a hermetically sealed TO-46 package that provides an enhanced temperature range with a variety of power ranges. The TO-46 housing also offers high power dissipation and superior protection for hostile environments.

Each **OP130** device has a narrow beam with an inclusive angle at half power points of 18°. Each **OP130W** series device has a broad irradiance pattern of 50° at half power points, providing relatively even illumination over a large area. *These devices are designed to efficiently operate with OP800, OP593, OP598 and OP599 phototransistors or the OP830 photodarlington.*

Please refer to Application Bulletin 210 for additional thermal design information.

Custom electrical, wire and cabling and connectors are available. Contact your local representative or OPTEK for more information.

Applications:

- Non-contact reflective object sensor
- Assembly line automation
- Machine automation
- Machine safety
- End of travel sensor
- Door sensor

Ordering Information						
Part Number	LED Peak Wavelength	Output Power (mW/cm ²) Min / Max	Lens Type	Total Beam Angle	Lead Length (Min)	
OP130	935 nm	1.0 / NA	Dome	18°	0.50"	
OP131		3.0 / NA				
OP132		4.0 / NA				
OP133		5.0 / NA				
OP130W		1.0 / NA	Flat	50°		
OP133W		5.0 / NA				



General Note
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Rev E 07/2025 Page 1

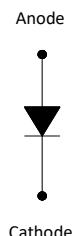
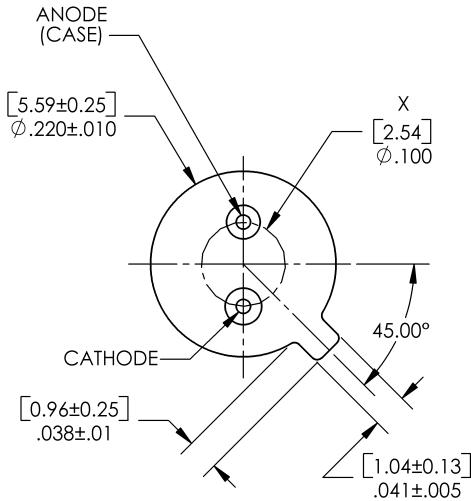
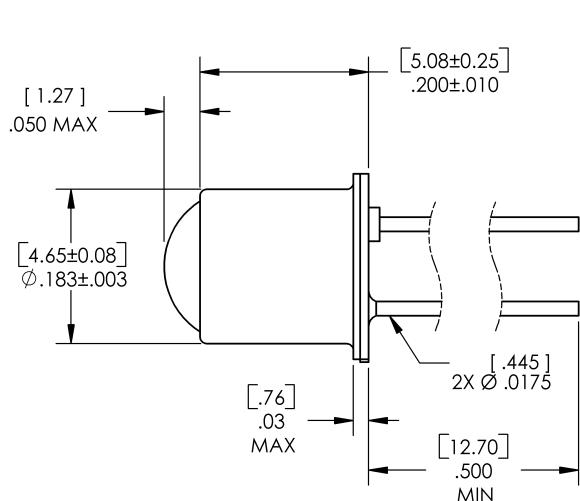
Hermetic Infrared Diode

OP130 Series



Electrical Specifications

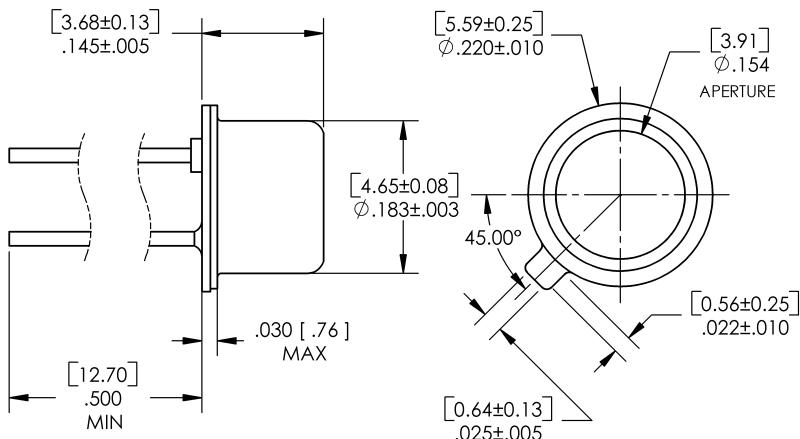
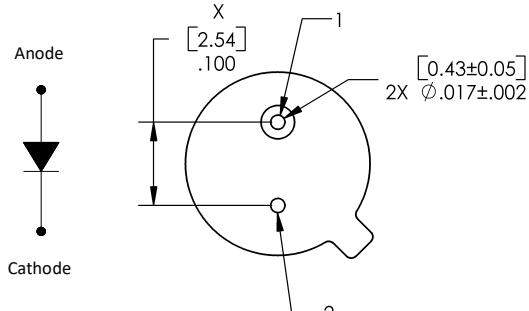
OP130, OP131, OP132, OP133



X THIS DIMENSION CONTROLLED AT HOUSING SURFACE.

DIMENSIONS ARE IN: [MILLIMETERS] INCHES

OP130W and OP133W



X THIS DIMENSION CONTROLLED AT HOUSING SURFACE.

DIMENSIONS ARE IN: [MILLIMETERS] INCHES

Pin #	LED
1	Anode
2	Cathode

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Hermetic Infrared Diode

OP130 Series



Electrical Specifications

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

Storage Temperature Range	-65° C to +150° C
Operating Temperature Range	-65° C to +125° C
Reverse Voltage	2.0 V
Continuous Forward Current	100 mA
Peak Forward Current (2 μ s pulse width, 0.1% duty cycle)	10.0 A
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron] ⁽¹⁾	260° C
Power Dissipation ⁽²⁾	200 mW

Electrical Characteristics ($T_A = 25^\circ C$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$P_O^{(3)}$	Radiant Power Output OP130, OP130W OP131 OP132 OP133, OP133W	1.0 3.0 4.0 5.0	- - - -	- - - -	mW	$I_F = 100$ mA
$V_F^{(3)}$	Forward Voltage	1.0	-	1.75	V	$I_F = 100$ mA
I_R	Reverse Current	-	-	100	μ A	$V_R = 2.0$ V
λ_p	Wavelength at Peak Emission	-	935	-	nm	$I_F = 10$ mA
β	Spectral Bandwidth between Half Power Points	-	80	-	nm	$I_F = 10$ mA
$\Delta\lambda_p/\Delta T$	Spectral Shift with Temperature	-	+0.30	-	nm/°C	$I_F = \text{Constant}$
θ_{HP}	Emission Angle at Half Power Points OP130 series OP130W series	- -	18 50	- -	Degree	$I_F = 100$ mA
t_r	Output Rise Time	-	1000	-	ns	$I_{F(PK)} = 100$ mA, PW = 10 μ s, and D.C. = 10.0%
t_f	Output Fall Time	-	500	-	ns	$I_{F(PK)} = 100$ mA, PW = 10 μ s, and D.C. = 10.0%

Notes:

1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
2. Derate linearly 1.8 mW/° C above 25° C.
3. Measurement made with 100 μ s pulse measured at the trailing edge of the pulse with a duty cycle of 0.1% and an $I_F = 100$ mA.

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Hermetic Infrared Diode

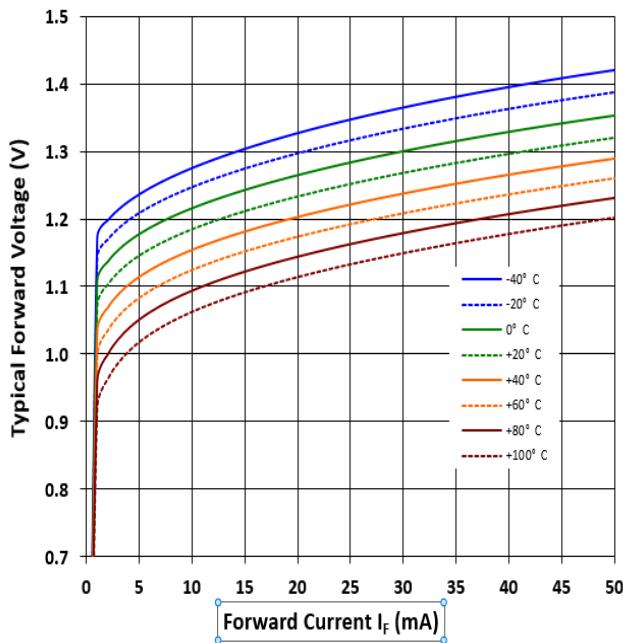
OP130 Series



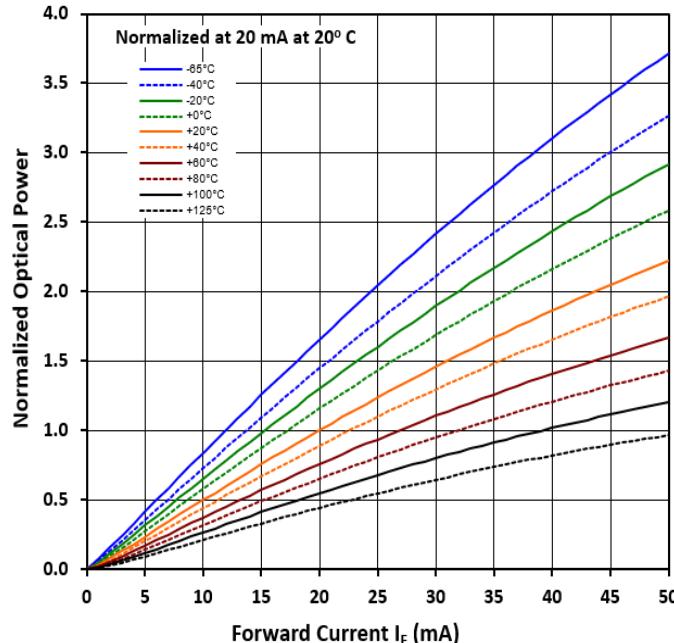
Typical Performance

OP130 Series (including "W" devices)

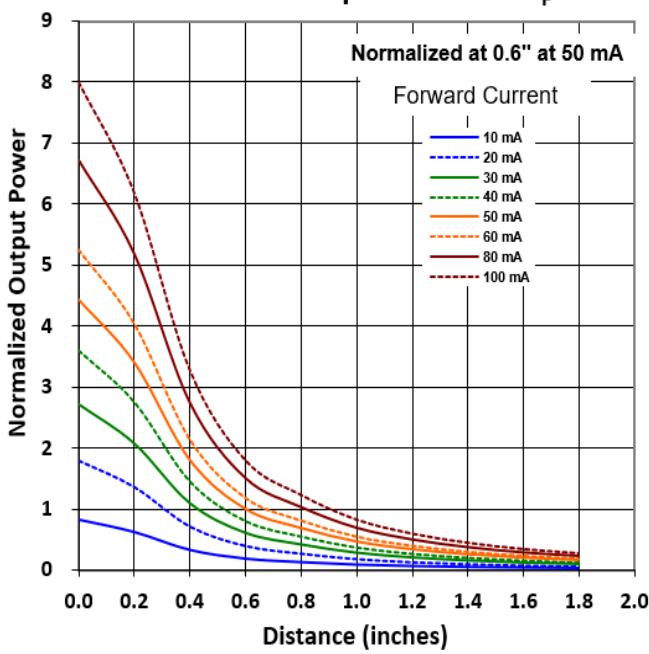
LED Forward Current vs Forward Voltage vs Temp



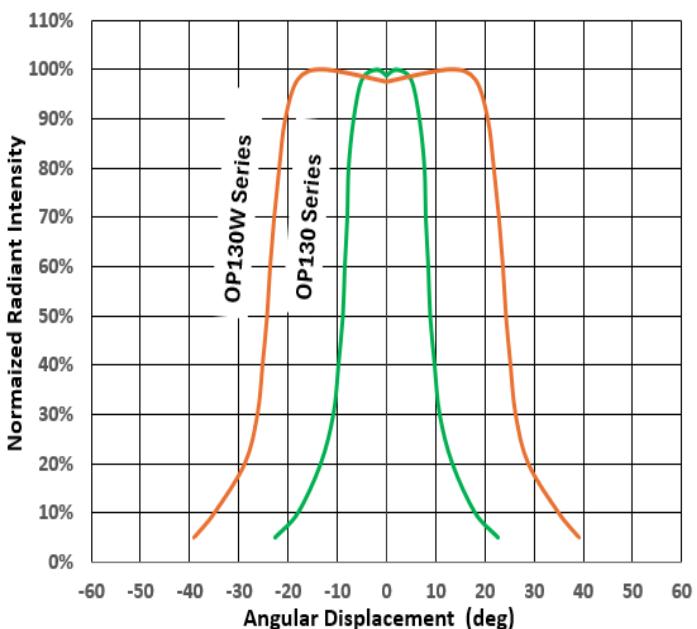
Optical Power vs I_F vs Temperature



Distance vs Output Power vs I_F



Radiant Intensity vs Angular Displacement



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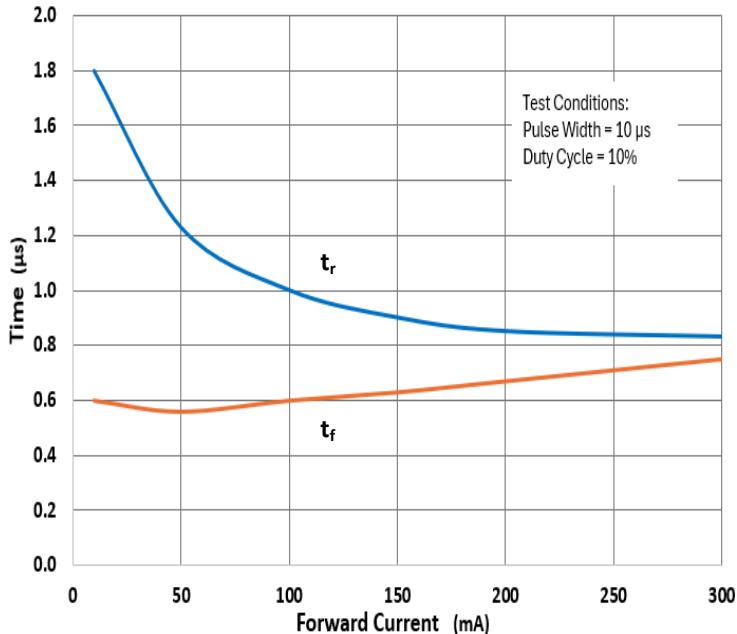
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Rev E 07/2025 Page 4

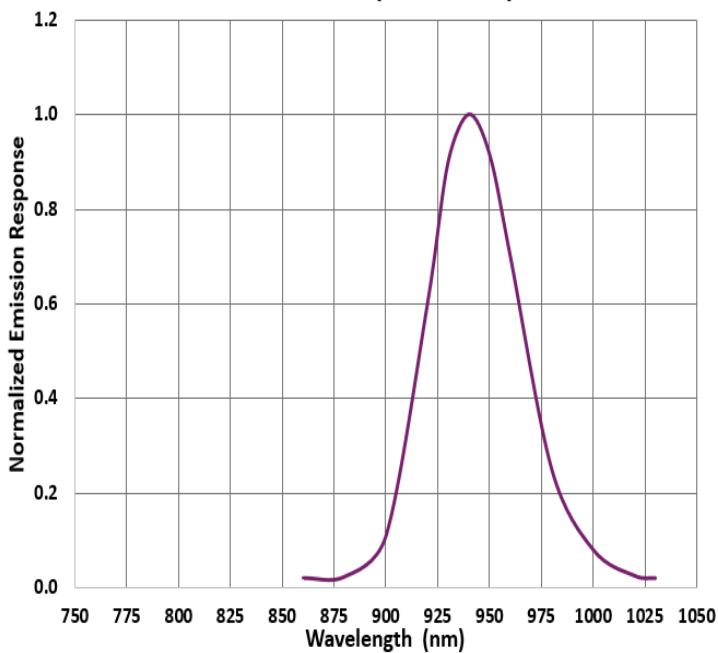
Typical Performance

OP130 Series (including "W" devices)

Rise and Fall Time vs Forward Current



GaAs LED Spectral Output



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