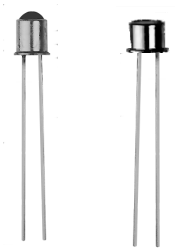
Hermetic Infrared Diode

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



"W"

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 Bulletins 208 and 210 for additional design information and reliability (degradation) data.

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°	
OP131W		3.0 / NA			
OP132W		4.0 / NA			
OP133W		5.0 / NA			

RoHS

General Note
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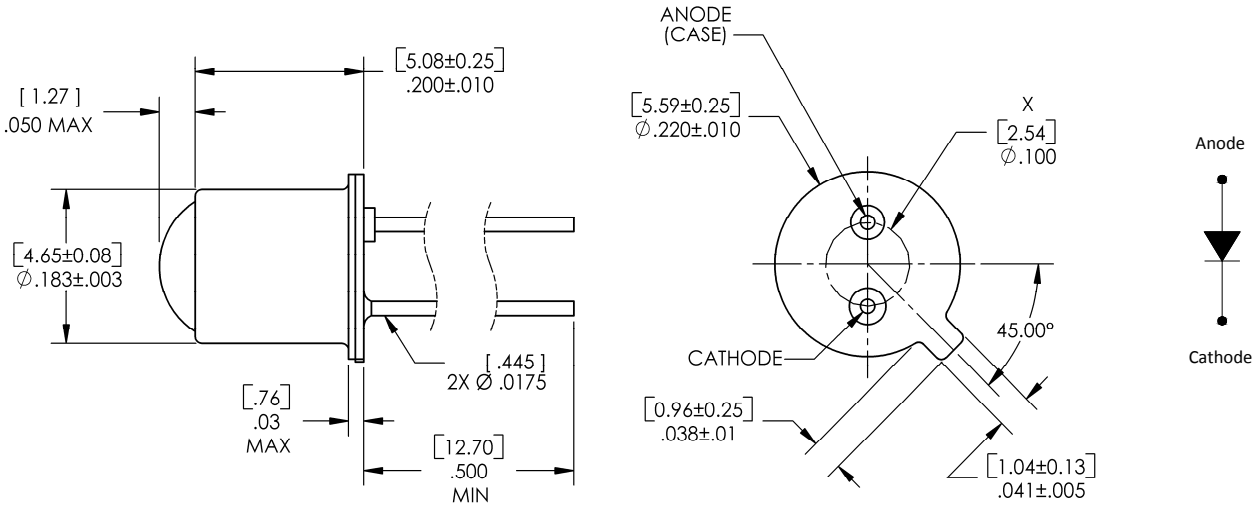
Electrical Specifications

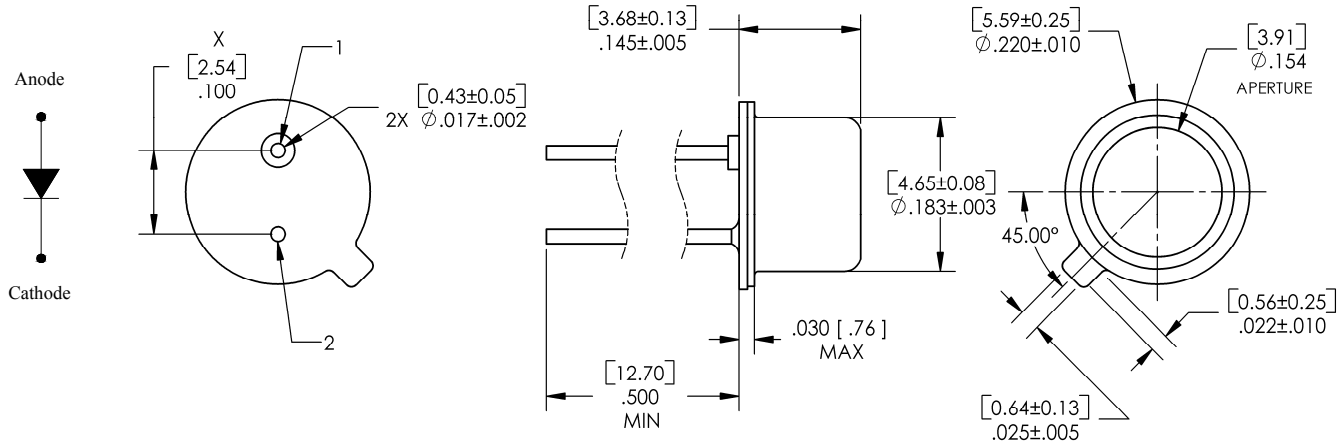
OP130, OP131, OP132, OP133



X THIS DIMENSION CONTROLLED AT HOUSING SURFACE.

DIMENSIONS ARE IN: **[MILLIMETERS]**
INCHES

OP130W, OP131W, OP132W, OP133W



X THIS DIMENSION CONTROLLED AT HOUSING SURFACE.

DIMENSIONS ARE IN: **[MILLIMETERS]**
INCHES

Pin #	LED
1	Anode
2	Cathode

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Electrical Specifications

Absolute Maximum Ratings (T_A = 25° 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 us 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]	260° C(1)(2)
Power Dissipation	200 mW(3)

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
P_O	Radiant Power Output OP130, OP130W OP131, OP131W OP132, OP132W OP133, OP133W	 1.0 3.0 4.0 5.0	 - - - -	 - - - -	mW	I_F = 100 mA(3)
V_F	Forward Voltage	-	-	1.75	V	I_F = 100 mA (3)
I_R	Reverse Current	-	-	100	µA	V_R= 2.0 V
λ_P	Wavelength at Peak Emission	-	935	-	nm	I_F = 10 mA
β	Spectral Bandwidth between Half Power Points	-	50	-	nm	I_F = 10 mA

Notes:
1. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
2. Derate linearly 2.0 mW/° C above 25° C.
3. Measurement made with 100 µs pulse measured at the trailing edge of the pulse with a duty cycle of 0.1% and an I_F = 100 mA.

Electrical Characteristics (T_A = 25° C unless otherwise noted—for reference only)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$\Delta\lambda_P/\Delta T$	Spectral Shift with Temperature	-	+0.30	-	nm/°C	I_F = 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 µs, and D.C.=10.0%
t_f	Output Fall Time	-	500	-	ns	

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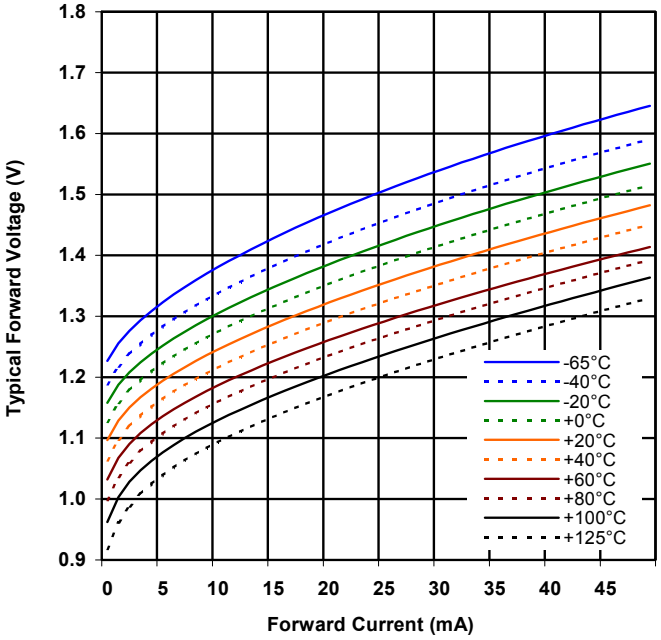
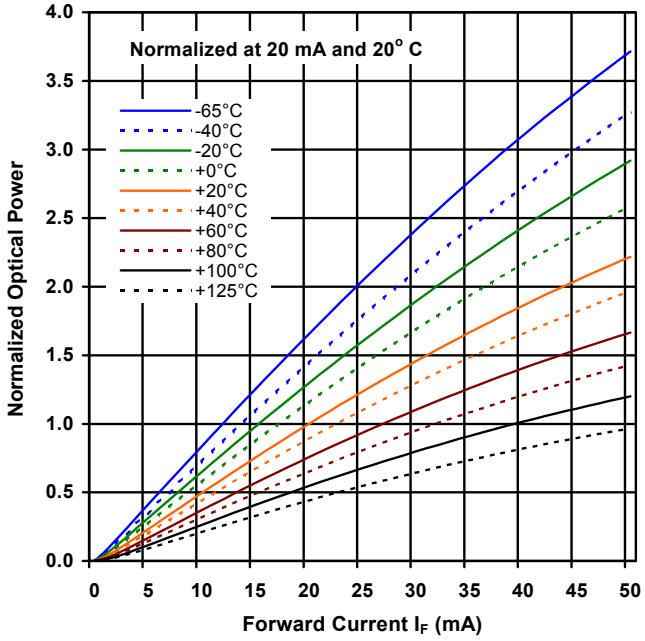
Performance

OP130 Series (including "W" devices)

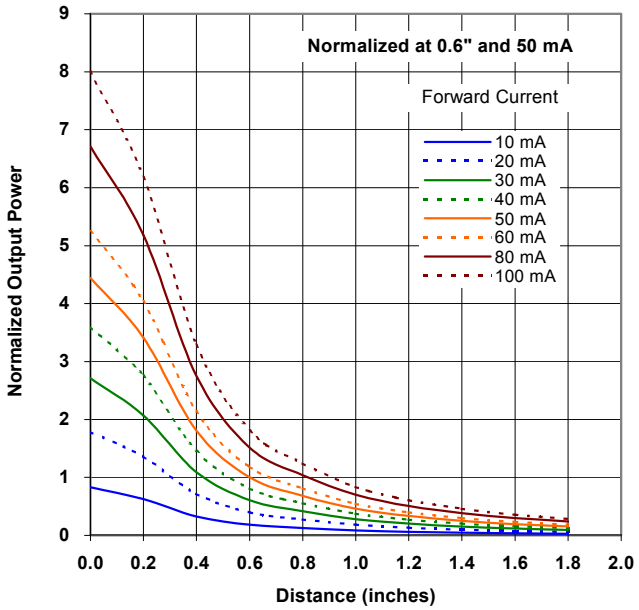
Forward Voltage vs Forward Current vs Temperature



Optical Power vs I_F vs Temp



Distance vs Output Power vs Forward Current



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