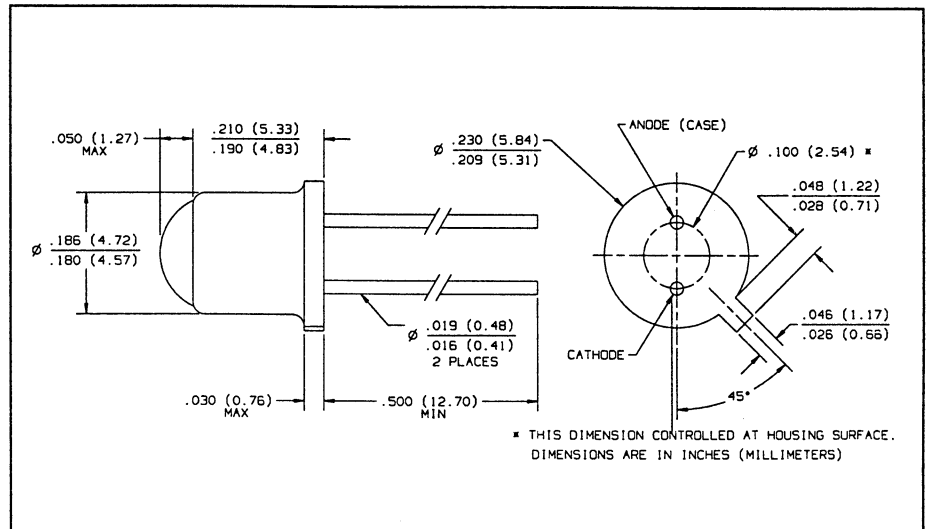
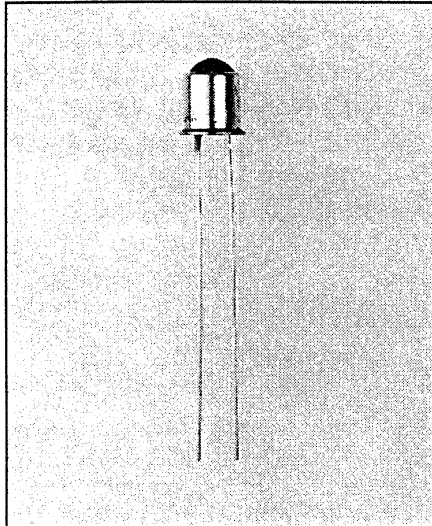


# GaAs Hermetic Infrared Emitting Diodes Types OP130, OP131, OP132, OP133



## Features

- TO-46 hermetically sealed package
- Mechanically and spectrally matched to the OP800 and OP593 phototransistors or OP830 photodarlington
- Variety of power ranges
- Enhanced temperature range

## Description

The OP130 series are high intensity gallium arsenide infrared emitting diodes mounted in hermetic TO-46 housings. The narrow beam allows ease of design in beam interrupt applications in conjunction with the OP800 or OP598 series phototransistors. TO-46 housings offer high power dissipation and superior hostile environment operation.

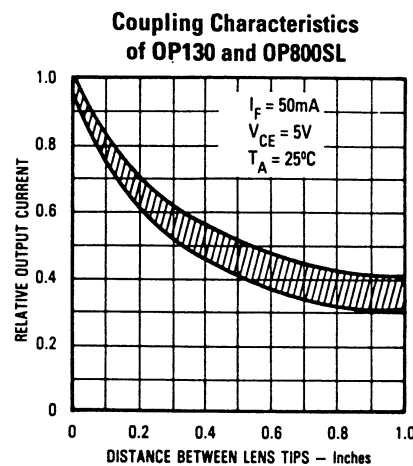
## Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

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

### Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 seconds max. when flow soldering.
- (2) Derate linearly  $2.0\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$ .
- (3) Measurement made with  $100\ \mu\text{s}$  pulse measured at the trailing edge of the pulse with a duty cycle of 0.1% and an  $I_F = 100\text{ mA}$ .

## Typical Performance Curves



# Types OP130, OP131, OP132, OP133

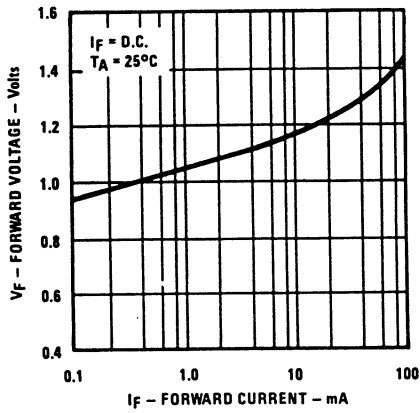
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

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

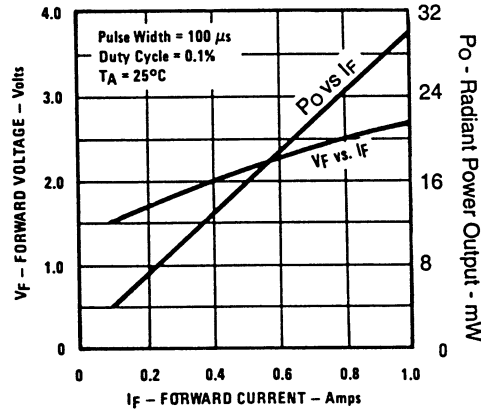
INFRARED  
EMITTING  
DIODES

## Typical Performance Curves

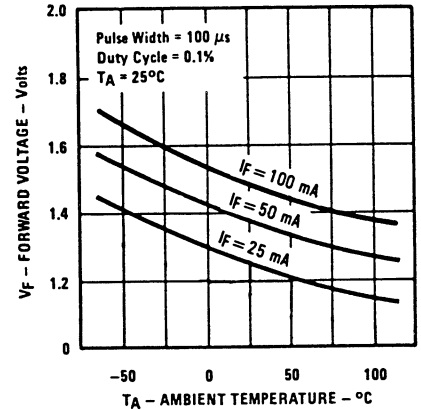
**Forward Voltage vs. Forward Current**



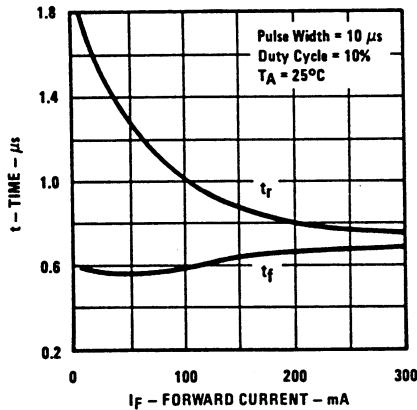
**Forward Voltage and Radiant Incidence vs. Forward Current**



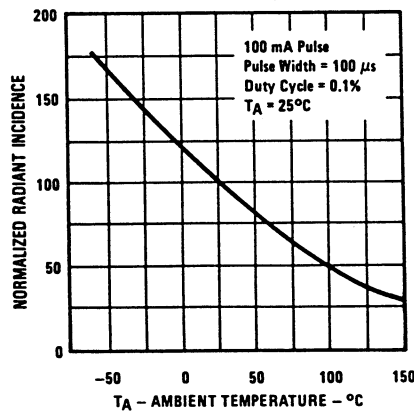
**Forward Voltage vs. Ambient Temperature**



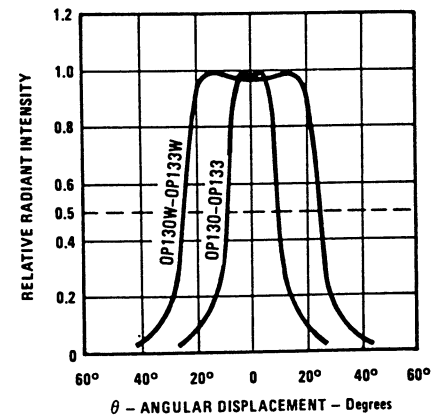
**Rise and Fall Time vs. Forward Current**



**Normalized Radiant Incidence vs. Ambient Temperature**



**Relative Radiant Intensity vs. Angular Displacement**



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.  
 Optek Technology, Inc. 1215 W. Crosby Road Carrollton, Texas 75006 (972)323-2200 Fax (972)323-2396