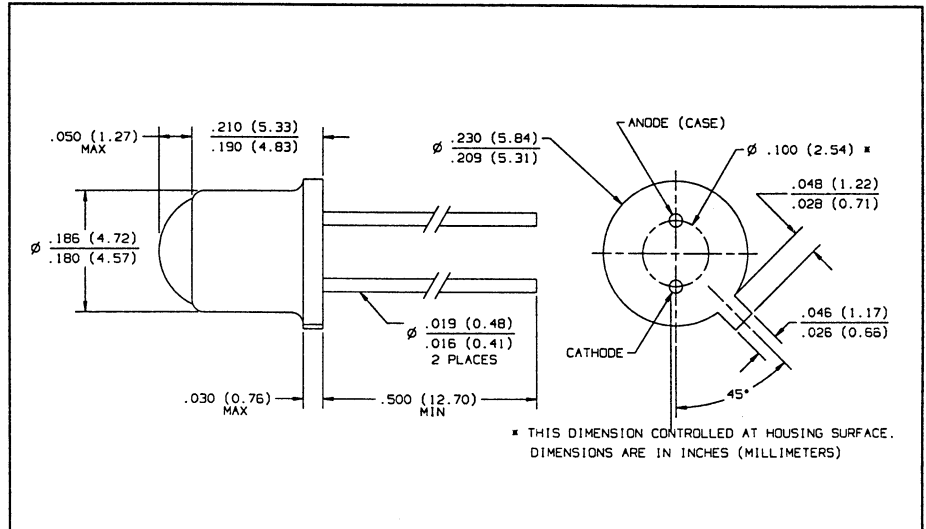
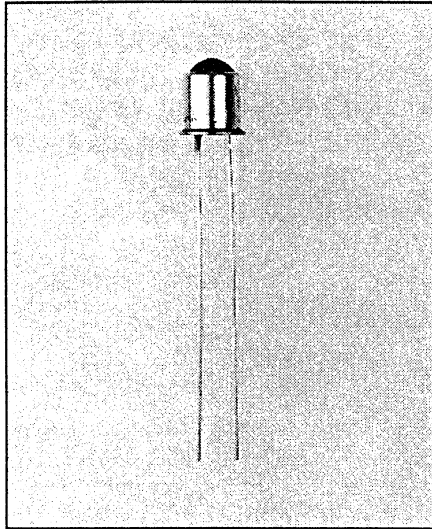


Product Bulletin OP130  
May 1996

# 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.

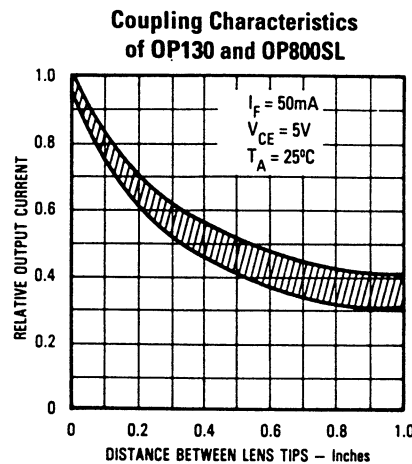
### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

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

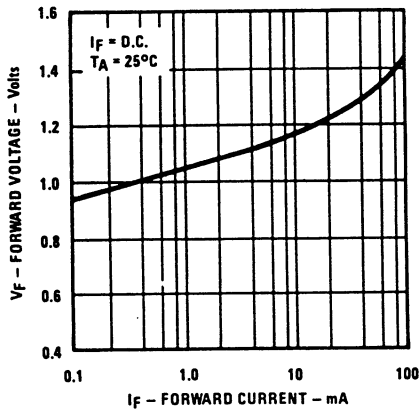
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

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	$I_{F(PK)} = 100 \text{ mA}$ , $PW = 10 \mu\text{s}$ , D.C. = 10%

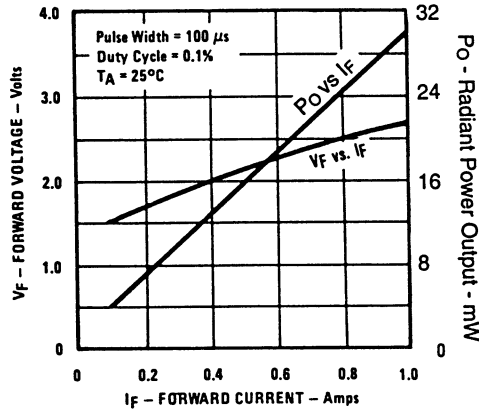
INFRARED  
EMITTING  
DIODES

## Typical Performance Curves

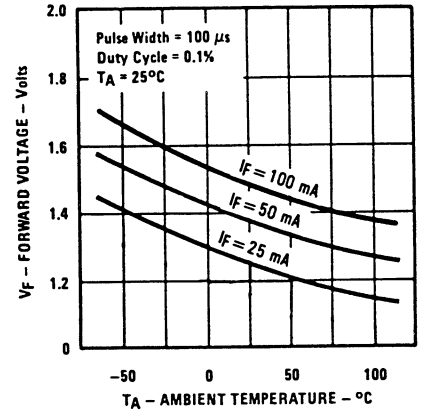
**Forward Voltage vs. Forward Current**



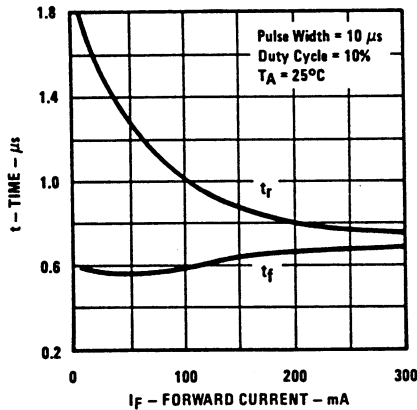
**Forward Voltage and Radiant Incidence vs. Forward Current**



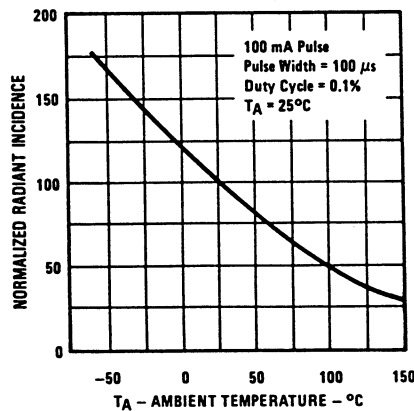
**Forward Voltage vs. Ambient Temperature**



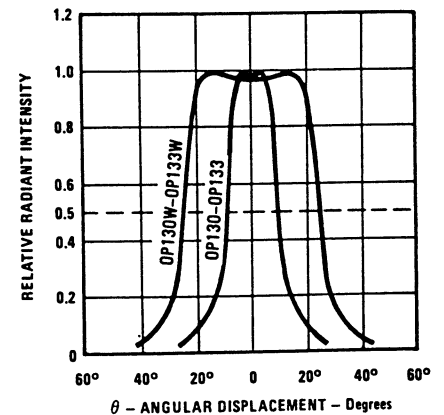
**Rise and Fall Time vs. Forward Current**



**Normalized Radiant Incidence vs. Ambient Temperature**



**Relative Radiant Intensity vs. Angular Displacement**



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