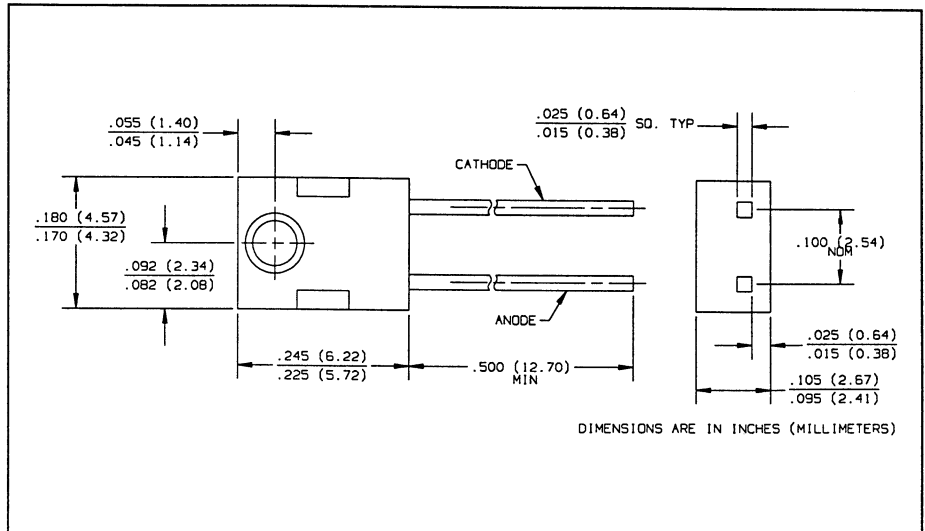
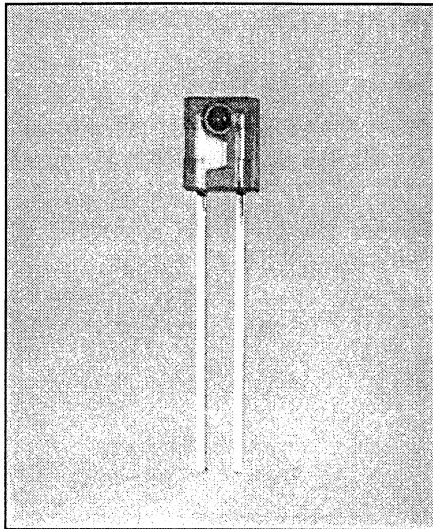


# GaAs Plastic Infrared Emitting Diodes Types OP145A, OP145B, OP145C, OP145D



### Features

- Wide irradiance pattern
- Mechanically and spectrally matched to the OP555 and OP565 series devices
- Variety of power ranges

### Description

The OP145 series devices are 935nm high intensity gallium arsenide infrared emitting diodes molded in IR transmissive amber tinted epoxy packages. The side-looking packages are for use in PC board slotted switches or as an easy mounted PC board interrupter.

### Replaces

K6550 series

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

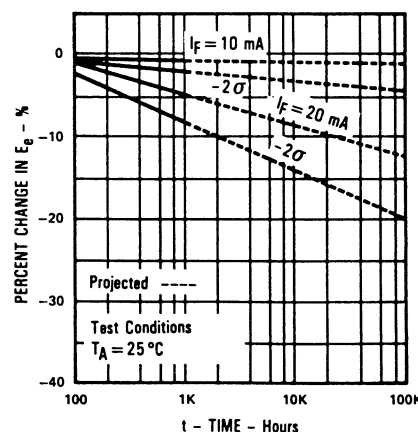
Reverse Voltage	2.0 V
Continuous Forward Current	50 mA
Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps)	3.0 A
Storage and Operating Temperature Range	$-40^\circ\text{C}$ to $+100^\circ\text{C}$
Lead Soldering Temperature [1/16 inch (1.6mm) from case for 5 sec. with soldering iron]	$260^\circ\text{C}^{(1)}$
Power Dissipation	$100\text{ mW}^{(2)}$

#### Notes:

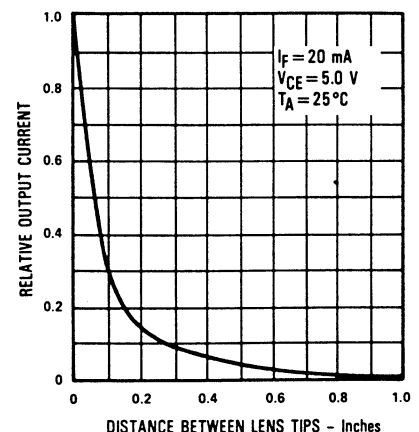
- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. A max. of 20 grams force may be applied to the leads when soldering.
- (2) Derate linearly  $1.33\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$ .
- (3)  $E_{e(\text{APT})}$  is a measurement of the average apertured radiant incidence upon a sensing area  $0.180"$  (4.57 mm) in diameter, perpendicular to and centered on the mechanical axis of the lens, and  $0.653"$  (16.6 mm) from the lens tip.  $E_{e(\text{APT})}$  is not necessarily uniform within the measured area.

### Typical Performance Curves

Percent Changes in Radiant Intensity vs Time



Coupling Characteristics of OP145 and OP555



# Types OP145A, OP145B, OP145C, OP145D

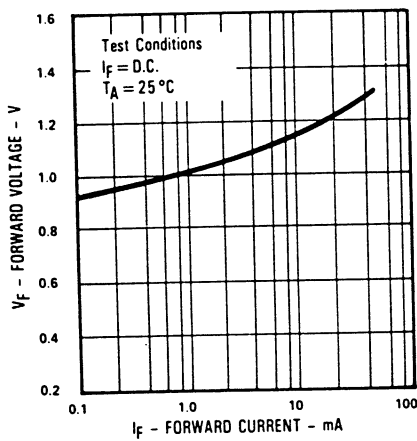
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$E_e(\text{APT})$	Apertured Radiant Incidence	OP145D 0.10		0.40	$\text{mW}/\text{cm}^2$	$I_F = 20 \text{ mA}^{(3)}$
		OP145C 0.20		0.55	$\text{mW}/\text{cm}^2$	$I_F = 20 \text{ mA}^{(3)}$
		OP145B 0.30			$\text{mW}/\text{cm}^2$	$I_F = 20 \text{ mA}^{(3)}$
		OP145A 0.40			$\text{mW}/\text{cm}^2$	$I_F = 20 \text{ mA}^{(3)}$
$V_F$	Forward Voltage			1.60	V	$I_F = 20 \text{ mA}$
$I_R$	Reverse Current			100	$\mu\text{A}$	$V_R = 2.0 \text{ V}$
$\lambda_p$	Wavelength at Peak Emission		935		nm	$I_F = 10 \text{ mA}$
B	Spectral Bandwidth Between Half Power Points		50		nm	$I_F = 10 \text{ mA}$
$\Delta\lambda_p/\Delta T$	Spectral Shift with Temperature		+0.30		$\text{nm}/^\circ\text{C}$	$I_F = \text{Constant}$
$\theta_{HP}$	Emission Angle at Half Power Points		40		Deg.	$I_F = 20 \text{ mA}$
$t_r$	Output Rise Time		1000		ns	$I_{F(\text{PK})} = 100 \text{ mA}$ , PW = 10 $\mu\text{s}$ , D.C. = 10.0%
$t_f$	Output Fall Time		500		ns	$I_{F(\text{PK})} = 100 \text{ mA}$ , PW = 10 $\mu\text{s}$ , D.C. = 10.0%

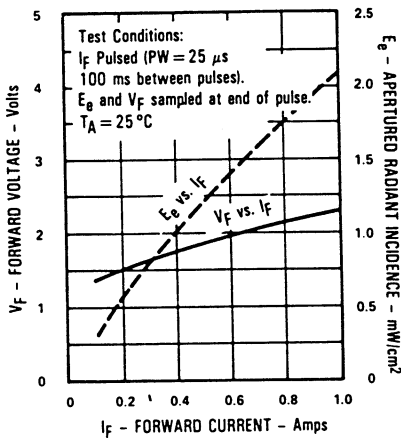
INFRARED  
EMITTING  
DIODES

## Typical Performance Curves

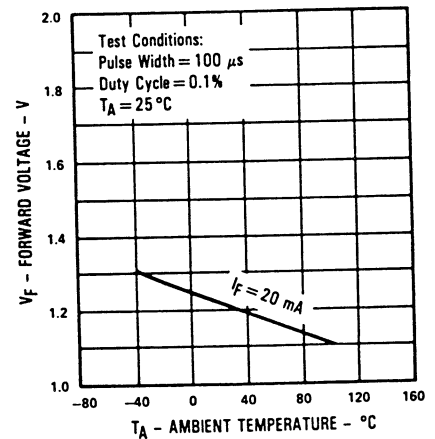
**Forward Voltage vs Forward Current**



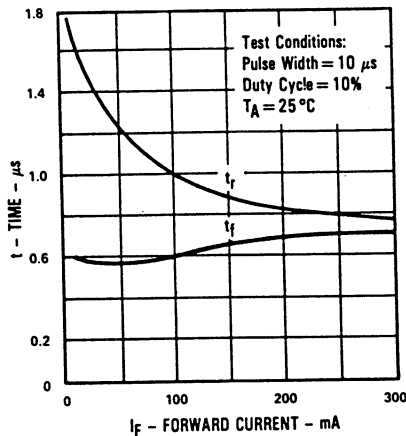
**Forward Voltage and Radiant Incidence vs Forward Current**



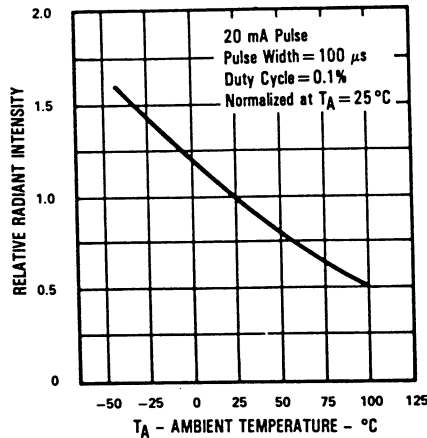
**Forward Voltage vs Ambient Temperature**



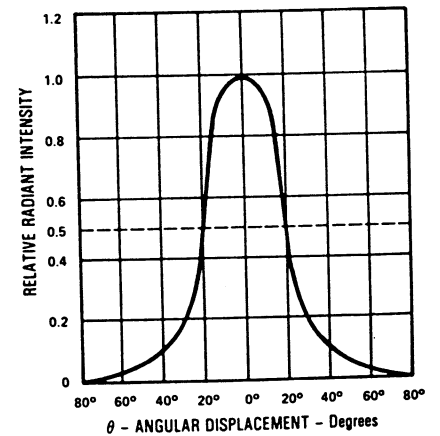
**Rise Time and Fall Time vs Forward Current**



**Relative Radiant Intensity 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.

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