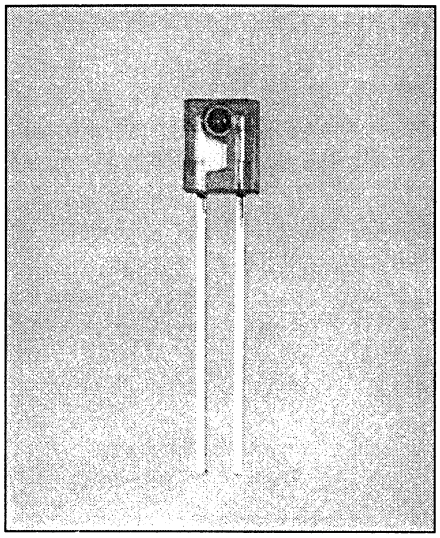
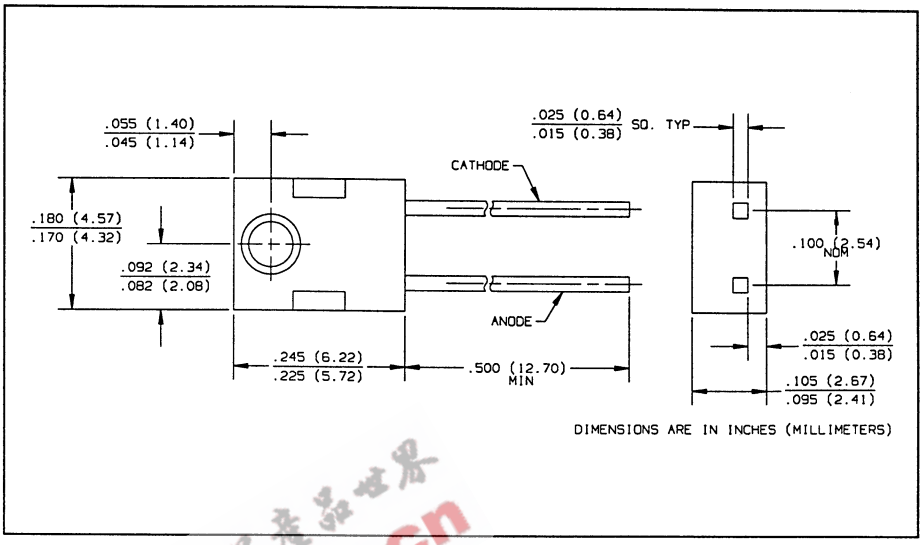
Product Bulletin OP145A
June 1996

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

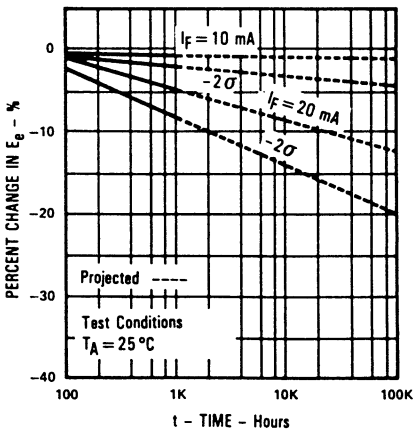
Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

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

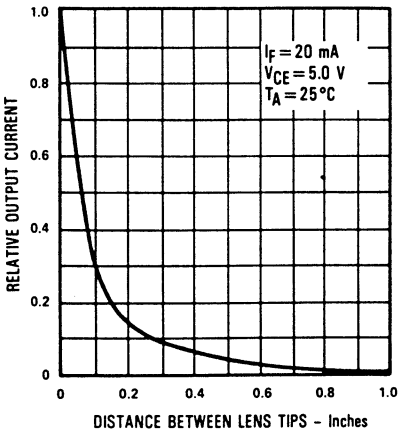
Notes:
(1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. A max. of 20 grams force may be applied to the leads when soldering.
(2) Derate linearly 1.33 mW/° C above 25° C.
(3) $E_{e(APT)}$ is a measurement of the average apertured radiant incidence upon a sensing 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. $E_{e(APT)}$ is not necessarily uniform within the measured area.

Typical Performance Curves

Percent Changes in Radiant Intensity vs Time



Coupling Characteristics of OP145 and OP555



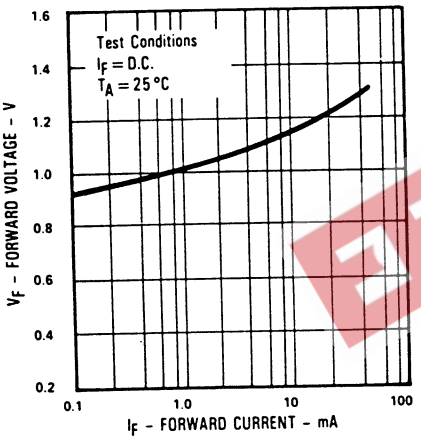
Types OP145A, OP145B, OP145C, OP145D

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

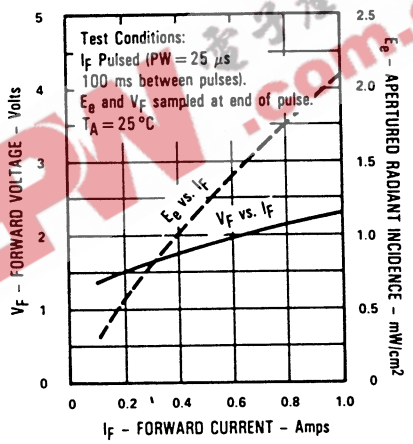
SYMBOL	PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITIONS
$E_{e(APT)}$	Apertured Radiant Incidence	OP145D	0.10			mW/cm^2	I_F = 20 mA(3)
		OP145C	0.20		0.40	mW/cm^2	I_F = 20 mA(3)
		OP145B	0.30		0.55	mW/cm^2	I_F = 20 mA(3)
		OP145A	0.40			mW/cm^2	I_F = 20 mA(3)
V_F	Forward Voltage				1.60	V	I_F = 20 mA
I_R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

Typical Performance Curves

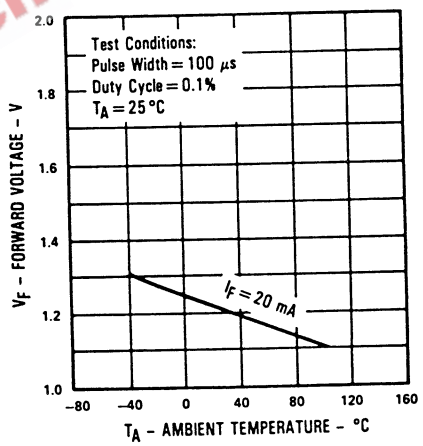
Forward Voltage vs Forward Current



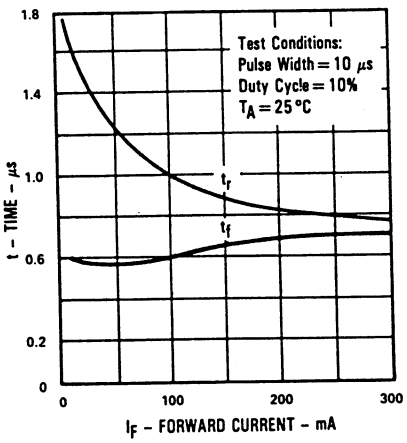
Forward Voltage and Radiant Incidence vs Forward Current



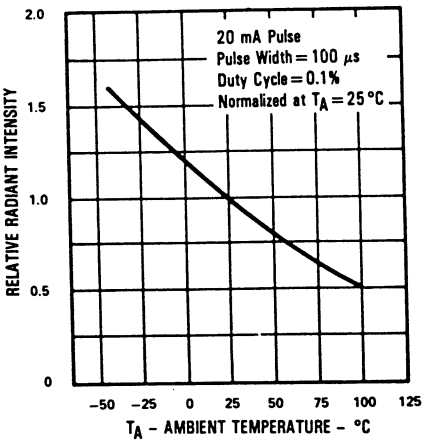
Forward Voltage vs Ambient Temperature



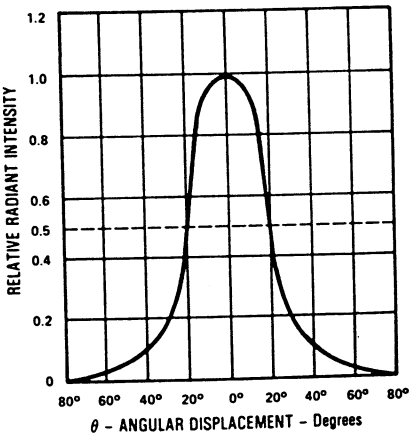
Rise Time and Fall Time vs Forward Current



Relative Radiant Intensity vs Ambient Temperature



Relative Radiant Intensity vs Angular Displacement



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