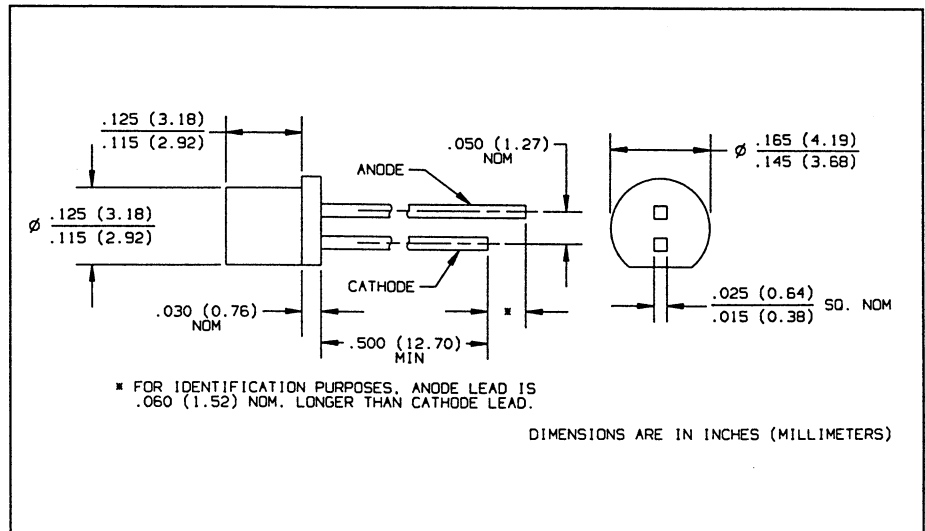
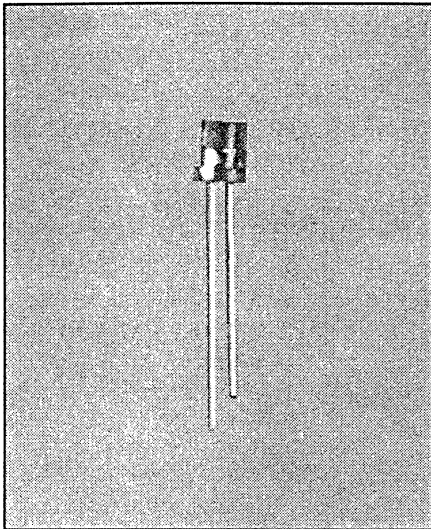


# GaAs Plastic Infrared Emitting Diode Type OP165W



## Features

- Wide irradiance pattern
- Mechanically and spectrally matched to the OP505W
- Small package size for space limited applications
- T-1 package style

## Description

The OP165W is a 935nm high intensity gallium arsenide infrared emitting diode molded in an IR transmissive amber tinted epoxy package. The broad irradiance pattern provides relatively even illumination over a large area. This package is a T-1 style in all respects except for the length of the plastic package.

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

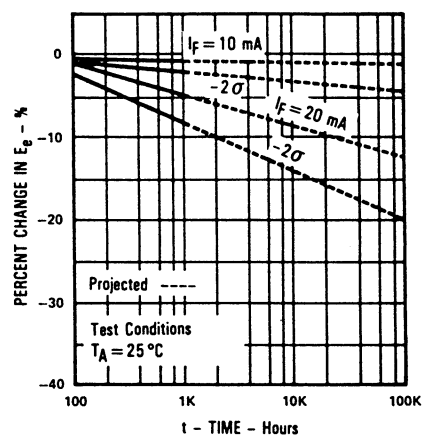
Reverse Voltage	2.0 V
Continuous Forward Current	50 mA
Peak Forward Current (1 $\mu\text{s}$ pulse width, 300 pps)	3.0 A
Storage and Operating Temperature Range	$-40^\circ\text{C}$ to $+100^\circ\text{C}$
Lead Soldering Temperature [1/16 inch (1.6mm) from case for 5 sec. with soldering iron]	$260^\circ\text{C}$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

### Notes:

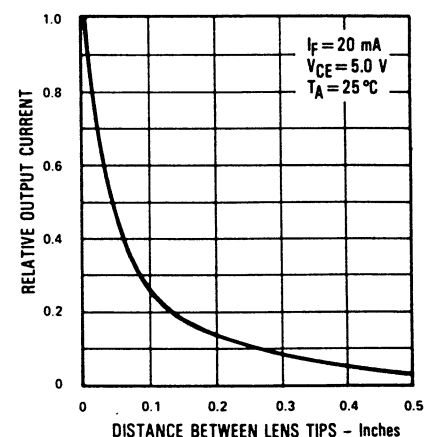
- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. A max. of 20 grams force may be applied to the leads when soldering.
- (2) Derate linearly  $1.33\text{ mW}/^\circ\text{C}$  above  $25^\circ\text{C}$ .

## Typical Performance Curves

### Percent Changes in Power Output vs Time



### Coupling Characteristics of OP165W and OP505W



# Type OP165W

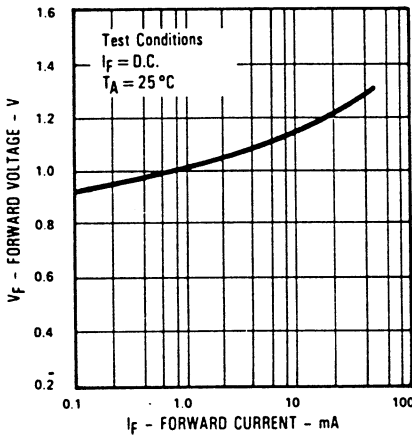
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
$P_O$	Radiant Power Output	0.50			mW	$I_F = 20\text{ mA}$
$V_F$	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		90		Deg.	$I_F = 20\text{ mA}$
$t_r$	Output Rise Time		1000		ns	$I_{F(PK)} = 100\text{ mA}$ , $PW = 10\ \mu\text{s}$ , D.C. = 10.0%
$t_f$	Output Fall Time		500		ns	

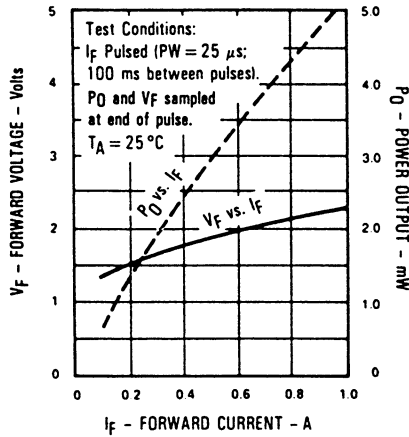
INFRARED  
EMITTING  
DIODES

## Typical Performance Curves

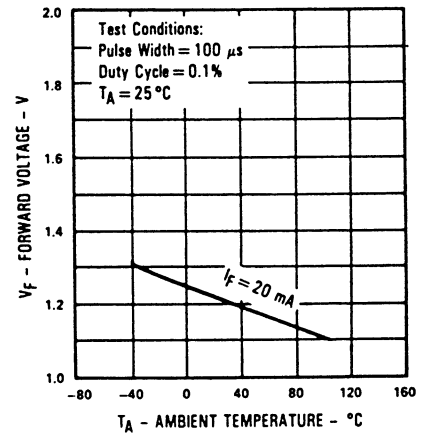
**Forward Voltage vs Forward Current**



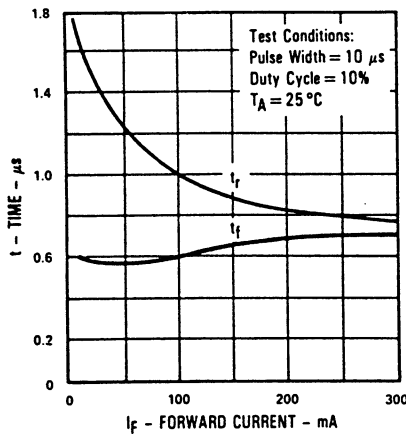
**Forward Voltage and Power Output vs Forward Current**



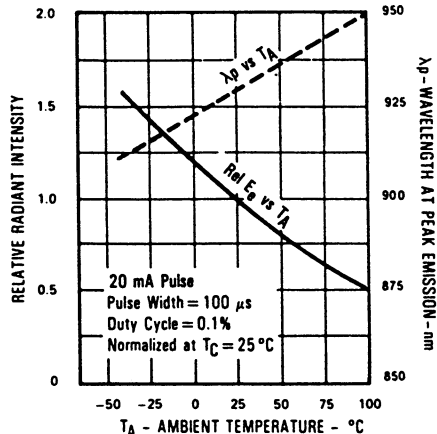
**Forward Voltage vs Ambient Temperature**



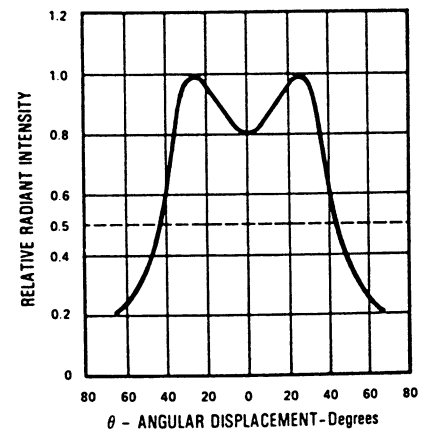
**Rise Time and Fall Time vs Forward Current**



**Normalized Power Output and Wavelength at Peak Emission 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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