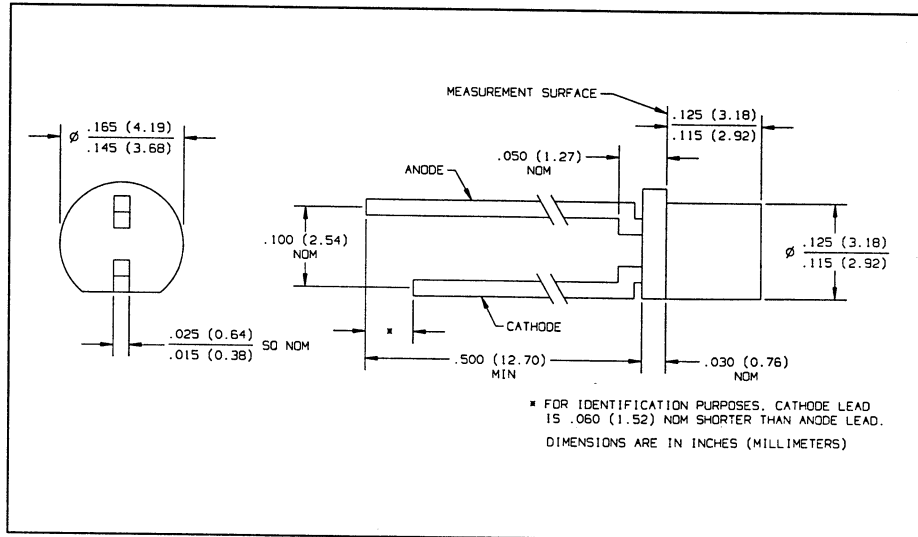
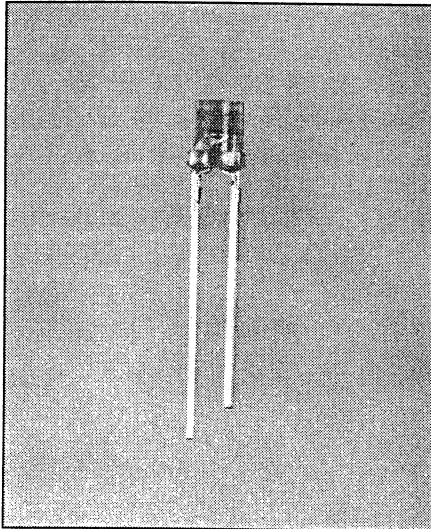


# GaAs Plastic Infrared Emitting Diode Type OP166W



## Features

- Wide irradiance pattern
- Mechanically and spectrally matched to the OP506W
- Small package size for space limited applications
- T-1 package style

## Description

The OP166W is a 935nm high intensity gallium arsenide infrared emitting diode molded in an IR transmissive amber tinted epoxy package. This package is a T-1 style in all respects except for the length of the plastic package. Lead spacing on this part is .100 inch (2.54mm).

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

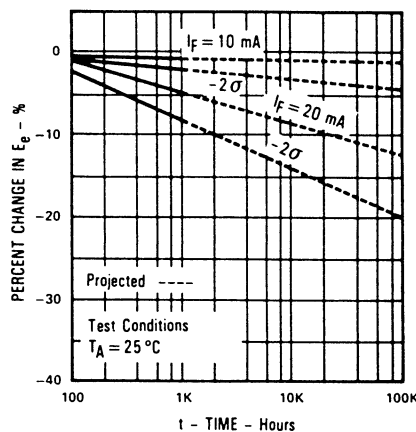
Reverse Voltage .....	2.0 V
Continuous Forward Current .....	50 mA
Peak Forward Current (1 $\mu\text{sec}$ pulse width, 300 pps) .....	3.0 A
Storage and Operating Temperature Range .....	$-40^\circ\text{C}$ to $+100^\circ\text{C}$
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 Sec. with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

### Notes:

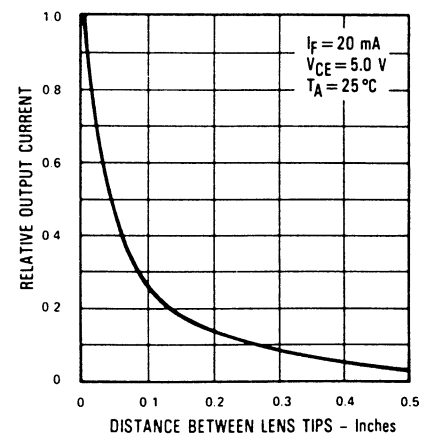
- (1) RMA flux is recommended. Duration can be extended to 10 sec. max when flow soldering. A max. of 20 grams force may be applied to the leads when soldering.
- (2) Derate linearly  $1.33\text{ mW}/^\circ\text{C}$ .
- (3) For identification purposes, cathode lead is 0.060" (1.52 mm) nom shorter than anode lead.

## Typical Performance Curves

Percent Changes in Power Output vs Time



Coupling Characteristics of OP166W and OP506W



# Type OP166W

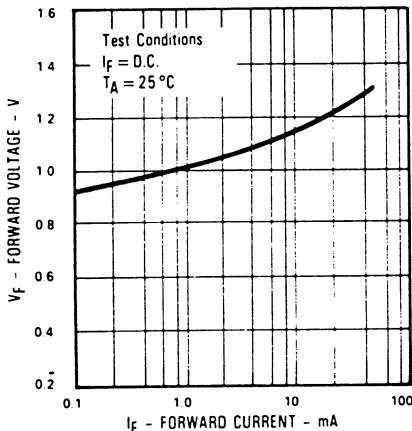
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

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		950		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	$I_F(\text{PK}) = 100\text{ mA}$ , $\text{PW} = 10\ \mu\text{s}$ , D.C. = 10%
$t_f$	Output Fall Time		500		ns	$I_F(\text{PK}) = 100\text{ mA}$ , $\text{PW} = 10\ \mu\text{s}$ , D.C. = 10%

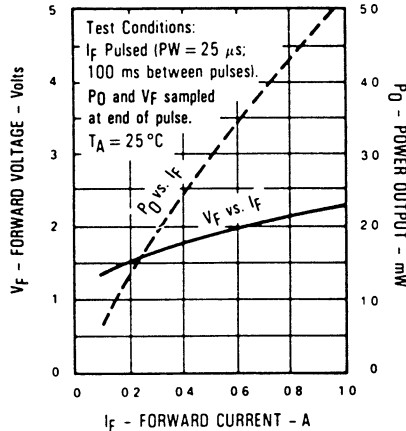
INFRARED  
EMITTING  
DIODES

## Typical Performance Curves

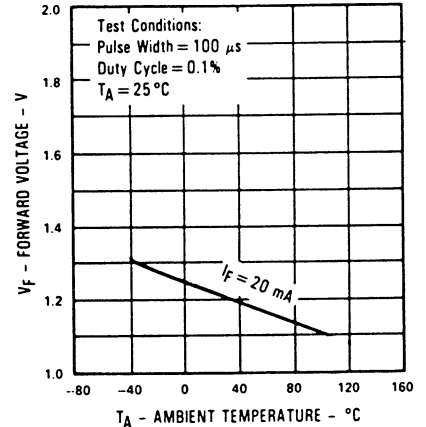
**Forward Voltage vs Forward Current**



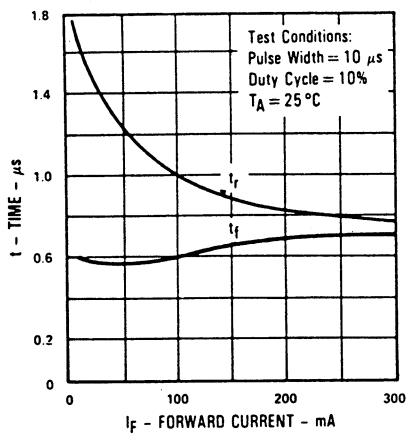
**Forward Voltage and Power Output vs Forward Current**



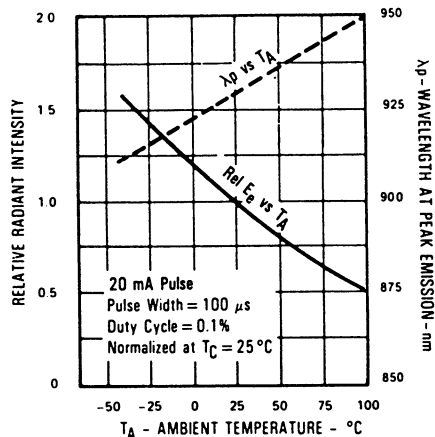
**Forward Voltage vs Ambient Temperature**



**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**

