

# Point Source Hermetic Infrared Emitting Diode

OP230WPS



## Features:

- Point source
- Symmetrical beam pattern
- Flat lens for wide beam angle
- Ideal for use with collimating lenses
- Wide operating temperature range
- TO-46 metal can package

## Description:

The **OP230WPS** is an 850 nm GaAlAs point source infrared emitting diode that is mounted in a hermetic flat lens TO-46 metal can package.

The main advantage of this emitter is that it emits photons from a 0.004" area that is aligned with the package's optical centerline. Unlike other GaAlAs emitters, this device performs more like an ideal point source and is suitable for use with lenses to create collimated light sources that can be used in a variety of sensing applications.

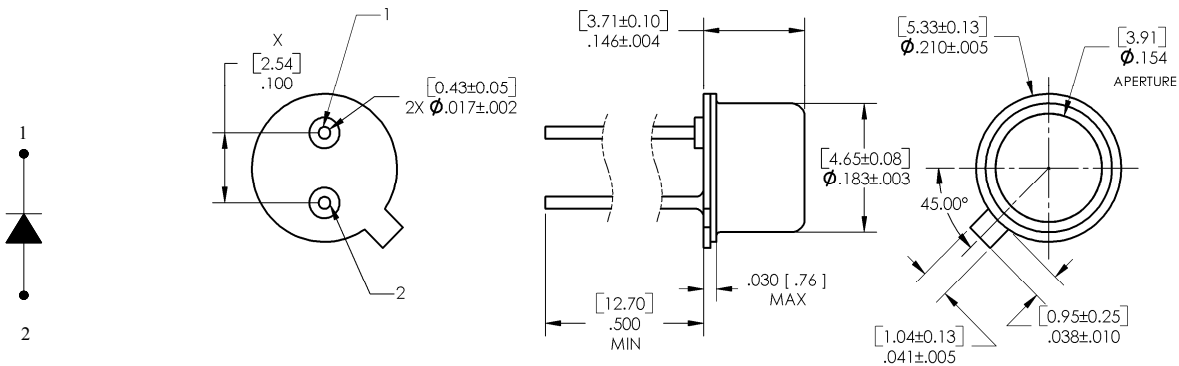
Another advantage is that the GaAlAs feature provides a higher radiated output than gallium arsenide at the same forward current.

*Please refer to Application Bulletins 208 and 210 for additional design information and reliability (degradation) data.*

## Applications:

- Optical encoders
- Light curtains
- Optical triangulation systems
- Bar code readers

Ordering Information				
Part Number	LED Peak Wavelength	Output Power (mW/cm <sup>2</sup> ) Min / Max	Total Beam Angle	Lead Length
OP230WPS	850 nm	0.5 / NA	±45°	0.50"



DIMENSIONS ARE IN: [MILLIMETERS] INCHES  
 X THIS DIMENSION CONTROLLED AT HOUSING SURFACE.

Pin #	LED
1	Cathode
2	Anode



General Note  
 TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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## Electrical Specifications

Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)	
Storage Temperature Range	-55° C to +150° C
Operating Temperature Range	-40° C to +125° C
Reverse DC Voltage	2.0 V
Forward Current	100 mA
Peak Forward Current (2 $\mu\text{s}$ pulse width, 0.1% duty cycle)	3.0 A
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 seconds with soldering iron]	260° C <sup>(1)</sup>
Power Dissipation	100 mW <sup>(2)</sup>

Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b>						
$E_{E(APT)}$	Apertured Irradiance	0.50	-	-	mW/cm <sup>2</sup>	$I_F = 100\text{ mA}^{(3)}$
$V_F$	Forward Voltage	-	-	2.2	V	$I_F = 100\text{ mA}$
$I_R$	Reverse Current	-	-	10	$\mu\text{A}$	$V_R = 2.5\text{ V}$
$\lambda_P$	Peak Wavelength	-	850	-	nm	$I_F = 20\text{ mA}$
$\beta$	Spectral Bandwidth @ 50% $I_F = 20\text{ mA}$	-	15	-	nm	$I_F = 20\text{ mA}$
$\theta_{HP}$	Emission Angle at Half Power Points	-	$\pm 45$	-	Degree	$I_F = 20\text{ mA}$
$t_r$	Output Rise Time	-	20	-	ns	$I_{F(PK)} = 100\text{ mA}$ , PW=10 $\mu\text{s}$ , and D.C.=10%
$t_f$	Output Fall Time	-	20	-	ns	$I_{F(PK)} = 100\text{ mA}$ , PW=10 $\mu\text{s}$ , and D.C.=10%

Notes:

1. All parameters tested using pulse technique.
2. RMA flux is recommended. Duration can be extended to 10 seconds maximum when flow soldering.
3. Derate linearly 1 mW/° C above 25° C.
4.  $E_{E(APT)}$  is a measurement of the average apertured radiant energy incident upon a sensing area 0.250" (6.35 mm) in diameter and perpendicular to and centered to the mechanical axis of the emitting surface at a distance of 0.466" (11.84 mm).  $E_{E(APT)}$  is not necessarily uniform within the measured area.

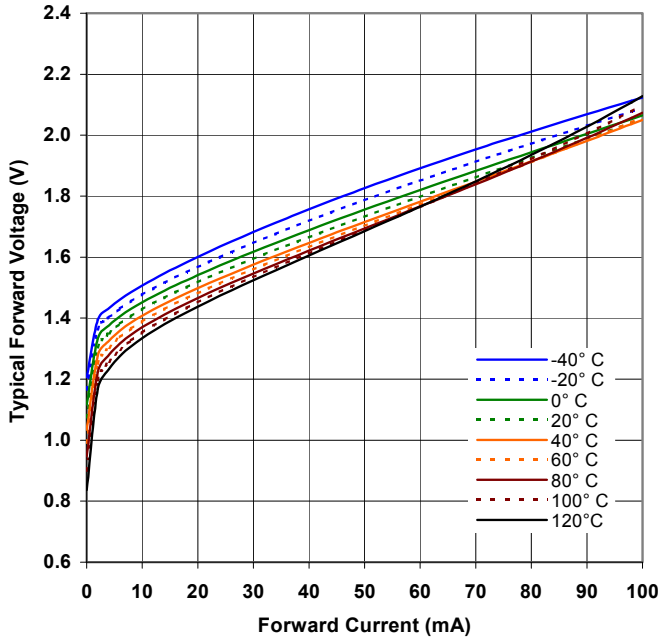
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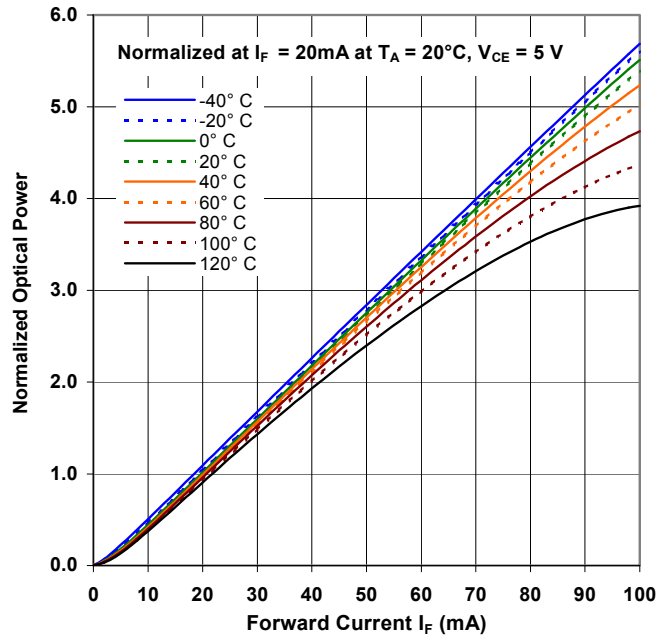


## Performance OP230WPS

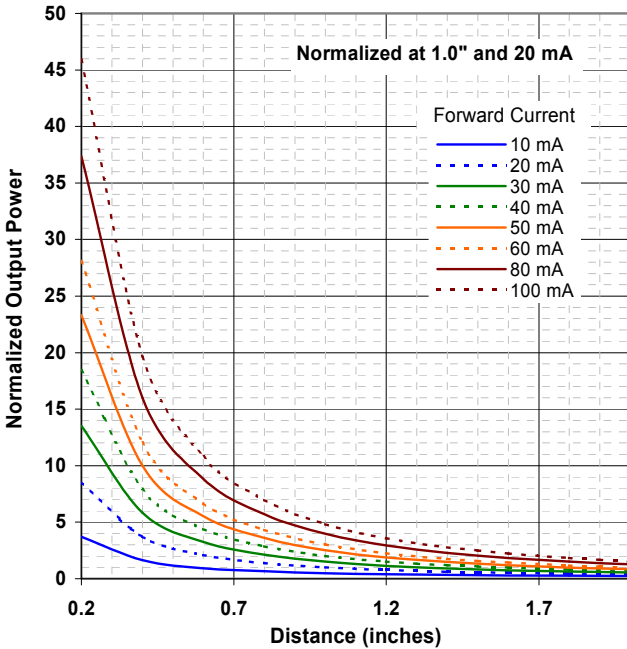
Forward Voltage vs Forward Current vs Temperature



Optical Power vs Forward Current vs Temperature



Distance vs Power vs Forward Current



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