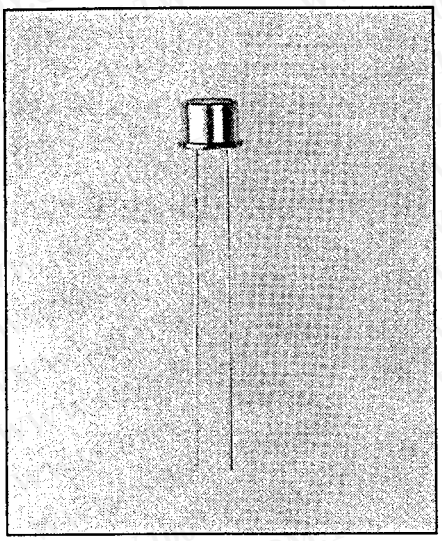
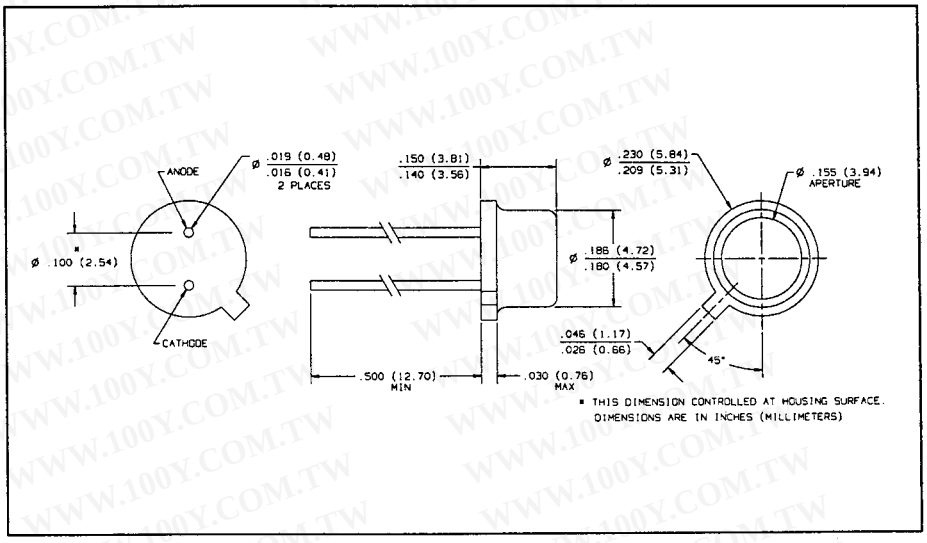
Product Bulletin OP231W
June 1996

GaAlAs Hermetic Infrared Emitting Diodes
Types OP231W, OP232W, OP233W





Features

- Wide irradiance pattern
- Enhanced temperature range
- Mechanically and spectrally matched to the OP800WSL and OP830SL series devices
- Significantly higher power output than GaAs at equivalent drive currents
- TO-46 hermetically sealed package

Description

The OP231W series devices are 890nm gallium aluminum arsenide infrared emitting diodes mounted in hermetically sealed packages. The broad irradiance pattern provides relatively even illumination over a large area.

Replaces

K6300 series

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

Reverse Voltage	2.0 V
Continuous Forward Current	100 mA
Peak Forward Current (2 µs pulse width, 0.1% duty cycle)	10.0 A
Storage Temperature Range	-65° C to +150° C
Operating Temperature Range	-65° C to +125° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron]	260° C(1)
Power Dissipation	200 mW(2)

Notes:
(1) RMA flux is recommended. Duration can be extended to 10 seconds max. when flow soldering.
(2) Derate linearly 2.0 mW/° C above 25° C.
(3) $E_{e(APT)}$ is a measurement of the average radiant intensity within the cone formed by the measurement surface, a radius of 0.466" (11.84 mm) measured from the lens side of the tab to the sensing surface, and a sensing surface of 0.250" (6.35 mm) in diameter forming a 30° cone. $E_{e(APT)}$ is not necessarily uniform within the measured area.
(4) Measurement made with 100µs pulse measured at the trailing edge of the pulse with a duty cycle of 0.1% and an I_F = 100 mA.

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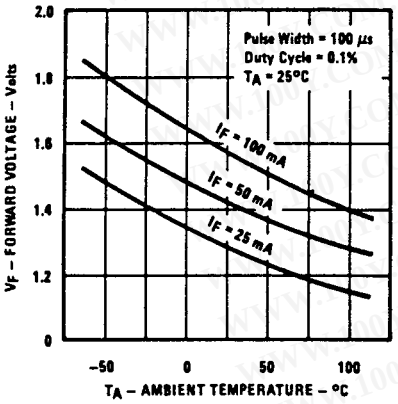
Types OP231W, OP232W, OP233W

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

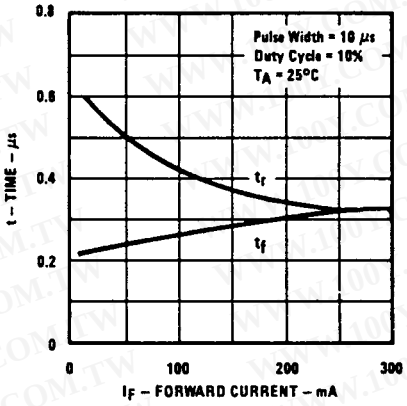
SYMBOL	PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITIONS
$E_{e(APT)}$	Apertured Radiant Incidence	OP231W OP232W OP233W	1.5 3.5 5.0		7.0	mW/cm^2 mW/cm^2 mW/cm^2	I_F = 100 mA(3)(4) I_F = 100 mA(3)(4) I_F = 100 mA(3)(4)
V_F	Forward Voltage				2.0	V	I_F = 100 mA(4)
I_R	Reverse Current				100	µA	V_R = 2.0 V
λp	Wavelength at Peak Emission			890		nm	I_F = 10 mA
B	Spectral Bandwidth Half Power Points			80		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			50		Deg.	I_F = 100 mA
t_r	Output Rise Time			500		ns	$I_{F(PK)}$ = 100 mA,
t_f	Output Fall Time			250		ns	PW = 10 µs, D.C. = 10%

Typical Performance Curves

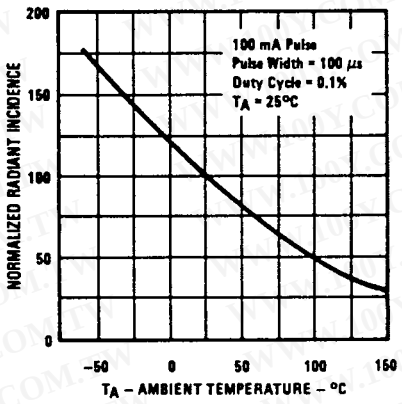
Forward Voltage vs. Ambient Temperature



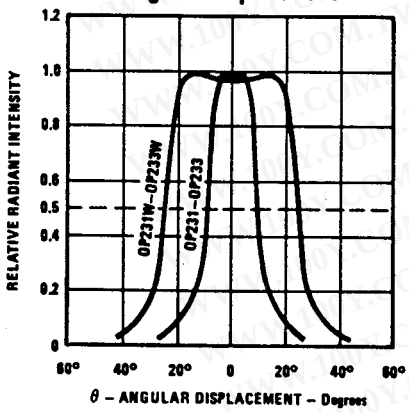
Rise Time and Fall Time vs. Forward Current



Normalized Radiant Incidence vs. Ambient Temperature



Relative Radiant Intensity vs. Angular Displacement



Coupling Characteristics of OP231W and OP800WSL