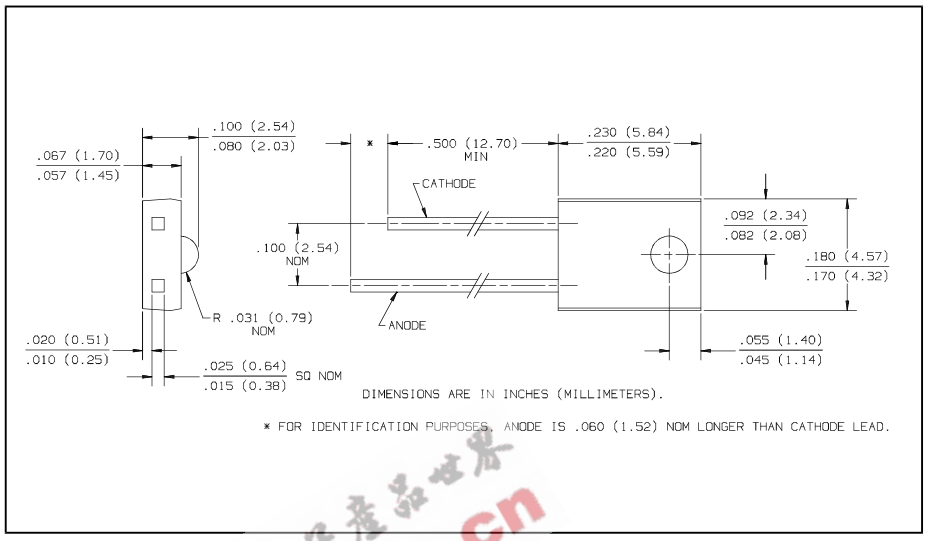
**Product Bulletin OP140A**
**May 1996**

# GaAs Plastic Infrared Emitting Diodes
# Types OP140A, OP140B, OP140C, OP140D




## Features

- Wide irradiance pattern
- Selected to specific on-line intensity ranges
- Low cost, miniature plastic side-looking package
- Mechanically and spectrally matched to the OP550 series of phototransistors and the OP560 series of photodarlingtons

## Description

The OP140 series devices are 935nm high intensity gallium arsenide infrared emitting diodes molded in IR transmissive plastic side-looking packages. The side looking packages are for use in PC board mounted slotted switches or as an easy mount PC board interrupter.

## Replaces

OP140SL 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 (1.6 mm) 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.

# Types OP140A, OP140B, OP140C, OP140D

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

| SYMBOL | PARAMETER | | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|---|---|---|---|---|---|---|---|
| $E_{e(APT)}$ | Apertured Radiant Incidence | OP140D<br>OP140C<br>OP140B<br>OP140A | 0.10<br>0.20<br>0.30<br>0.40 | | <br><br>0.40<br>0.55 | $mW/cm^2$<br>$mW/cm^2$<br>$mW/cm^2$<br>$mW/cm^2$ | $I_F$ = 20 mA(3)<br>$I_F$ = 20 mA(3)<br>$I_F$ = 20 mA(3)<br>$I_F$ = 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 |
| $\theta_{HP}$ | 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% |
| $t_f$ | Output Fall Time | | | 500 | | ns | |