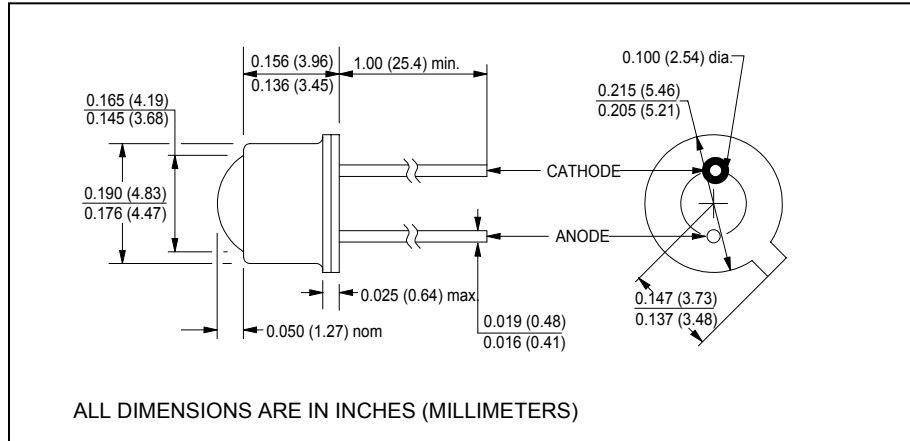
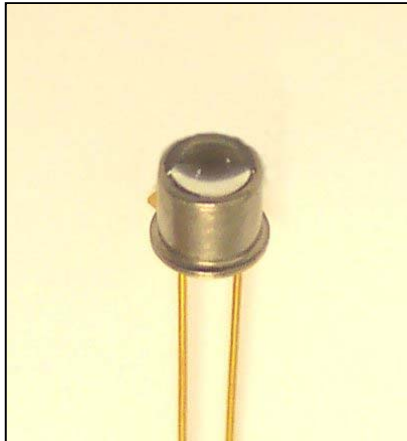




## MCDE-333

### 850nm Point Source Emitter Collimated Radiation



#### features

- $< \pm 1^\circ$  beam angle
- TO-46 hermetic package
- anode connected to case
- high power output
- RoHS compliant

#### Description

The MCDE333 contains a N side up, AlGaAs, 850nm, point source die. A special lens provides a sharply focused beam pattern capable of projecting a spot, 3" (76mm) in diameter on a surface 10 feet (3.05m) away. Designed primarily for the encoder industry, the CLE333 has wide application anywhere a very narrow beam pattern is required.

#### absolute maximum ratings ( $T_A = 25^\circ\text{C}$ unless otherwise stated)

storage temperature	-65°C to +150°C
operating temperature	-65°C to +125°C
lead soldering temperature <sup>(1)</sup>	260°C
continuous forward current <sup>(2)</sup>	100mA
peak forward current (1.0ms pulse width, 10% duty cycle)	1A
reverse voltage	5V
continuous power dissipation <sup>(3)</sup>	200mW

#### notes:

1. 0.06" (1.5mm) from the header for 5 seconds maximum.
2. Derate linearly 0.80mA/°C free air temperature to  $T_A = +125^\circ\text{C}$ .
3. Derate linearly 1.60mW/°C free air temperature to  $T_A = +125^\circ\text{C}$ .
4. This device is sensitive to transients. Use series resistor or power supply load resistor when applying power.

electrical characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
symbol	parameter	min	typ	max	units	test conditions
$P_O$	Total power output	-	3.0	-	mW	$I_F = 100\text{mA}$
$E_e$	Irradiance <sup>(5)</sup>	0.35	0.45	-	mW/cm <sup>2</sup>	$I_F = 50\text{mA}$
$\lambda_P$	Peak emission wavelength	830	850	870	nm	$I_F = 50\text{mA}$
$I_R$	Reverse current	-	-	10	μA	$V_R = 5\text{V}$
$V_F$	Forward voltage	-	1.8	2.2	V	$I_F = 100\text{mA}$
$\theta_{HP}$	Emission angle at half power points	-	2.0	-	deg.	$I_F = 50\text{mA}$
$t_r, t_f$	Radiation rise and fall time	-	5.0	6.0	ns	$I_F = 50\text{mA}$ , 10% - 90%, 5mA prebias

**NOTE:** 5.  $E_e$  is a measure of irradiance (power/unit area) within a 0.444" (1.128cm) diameter area, centered on the mechanical axis of the device and spaced 2.54" (6.45cm) from the lens side of the tab. This is geometrically equivalent to a 10° cone.