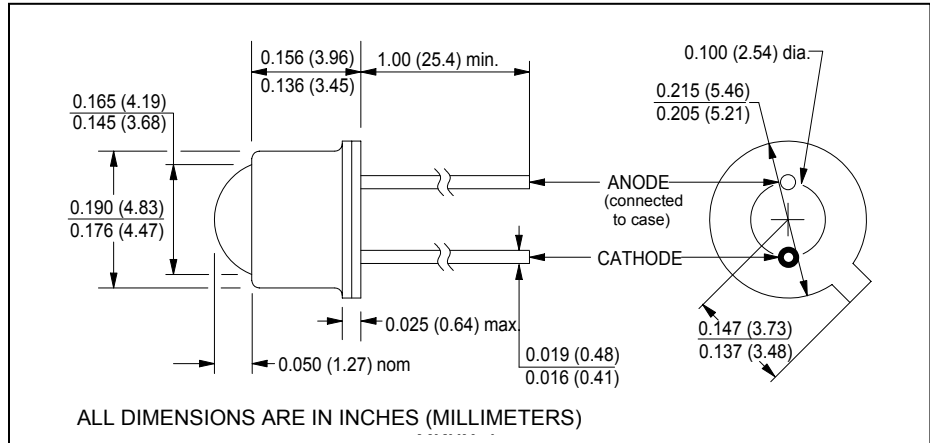


CLE235

Aluminum Gallium Arsenide IRED



March, 2001



features

- wide usable temperature range
- 880nm wavelength
- TO-46 hermetic package

description

The CLE235 is an AlGaAs infrared-emitting diode designed for illuminating functions in high resolution encoders. The TO-46 header provides the thermal environment for reliable operation over a wide temperature range. The lens is designed to provide a collimated radiation pattern from 0.10" to 0.20" from the lens tip. Call Clairex for applications assistance.

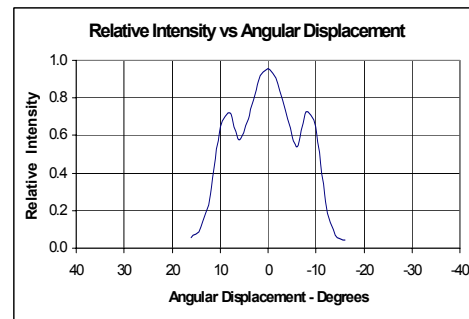
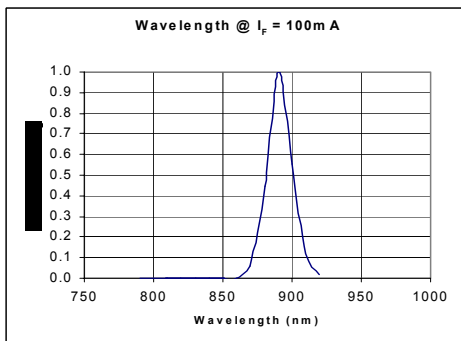
absolute maximum ratings ($T_A = 25^\circ\text{C}$ unless otherwise stated)

storage temperature	-65°C to $+150^\circ\text{C}$
operating temperature	-55°C to $+125^\circ\text{C}$
junction temperature ⁽¹⁾	$+150^\circ\text{C}$
lead soldering temperature ⁽²⁾	240°C
continuous forward current ⁽³⁾	100mA
peak forward current ⁽⁴⁾	3A
reverse voltage	5V
power dissipation ⁽⁵⁾	200mW

notes:

1. Maximum operating temperature of the metallurgical junction.
2. 0.06" (1.5mm) from the header for 5 seconds maximum. Maximum temperature can be 260°C if wave soldering.
3. Derate linearly $0.80\text{mA}/^\circ\text{C}$ from 25°C free air temperature to $T_A = +125^\circ\text{C}$.
4. Pulsed condition only. Maximum pulse width is $2.0\mu\text{s}$ at 2% duty cycle. Use good judgement when operating this device under these conditions. Thermal transients exceeding these restrictions can cause irreversible damage.
5. Derate linearly $1.6\text{mW}/^\circ\text{C}$ from 25°C free air temperature to $T_A = +125^\circ\text{C}$.

fundamental characteristics



Clairex reserves the right to make changes at any time to improve design and to provide the best possible product.

Revised 12/01/04

CLE235

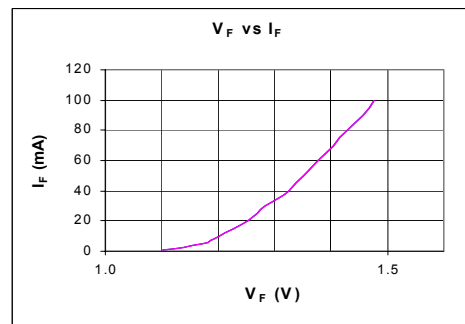
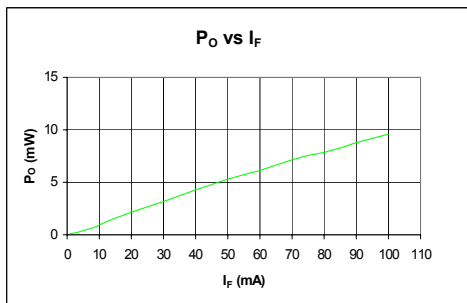
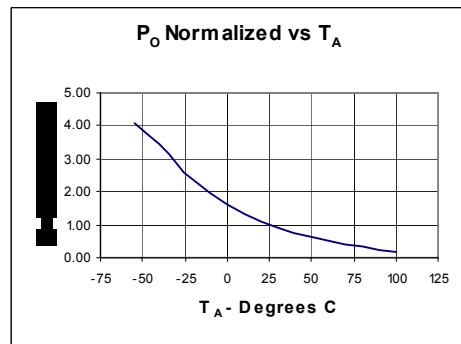
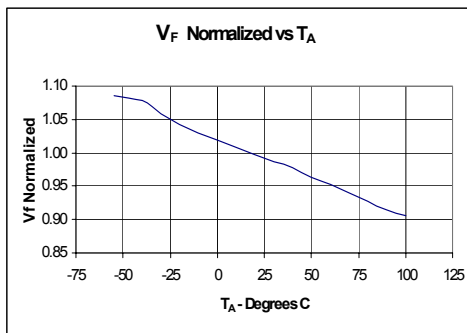
Aluminum Gallium Arsenide



electrical characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
symbol	parameter	min	max	units	test conditions
P_O	Total power output ⁽⁶⁾	6.0	-	mW	$I_F = 100\text{mA}$
E_e	Irradiance ⁽⁷⁾	400	-	$\mu\text{W}/\text{cm}^2$	$I_F = 20\text{mA}$
V_F	Forward voltage	-	1.5	V	$I_F = 20\text{mA}$
I_R	Reverse current	-	10	μA	$V_R = 3\text{V}$

- notes:** 6. Total power output measured in an integrating sphere.
 7. 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.

typical characteristics at $T_A = 25^\circ\text{C}$ (not guaranteed by test)				
symbol	parameter	value	units	conditions
P_O	Total power output ⁽⁶⁾	10.0	mW	$I_F = 100\text{mA}$
E_e	Typical irradiance ⁽⁷⁾	2.4	mW/cm^2	$I_F = 100\text{mA}$
λ_P	Peak emission wavelength	880	nm	$I_F = 100\text{mA}$
BW	Spectral bandwidth at half power points	30	nm	$I_F = 100\text{mA}$
Θ_{HP}	Emission angle at half power points	22	deg.	$I_F = 100\text{mA}$
V_F	Forward voltage	1.45	V	$I_F = 100\text{mA}$
t_r	Radiation rise time	600	ns	$I_{F(PK)}=100\text{mA}$, $f=1\text{kHz}$, $\text{DC}=50\%$
t_f	Radiation fall time	700	ns	$I_{F(PK)}=100\text{mA}$, $f=1\text{kHz}$, $\text{DC}=50\%$



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