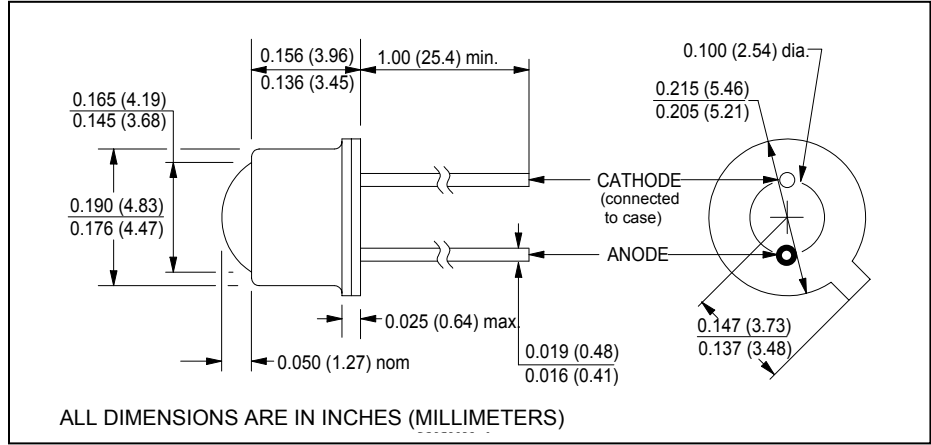


CLE335

Super-efficient Aluminum Gallium Arsenide IRED



March, 2001



features

- 150°C operating temperature
- exceptionally high power output
- 845nm wavelength
- TO-46 hermetic package
- cathode connected to case

description

The CLE335 is an advanced, high-efficiency, high speed AlGaAs infrared emitting diode. Output power typically exceeds standard AlGaAs emitters by 50%. 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 in the range of 0.10" to 0.20" from the tip of the lens. Call Clairex for applications assistance.

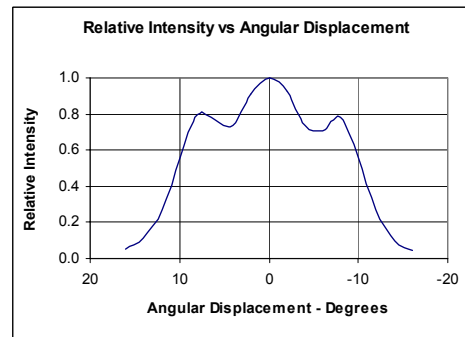
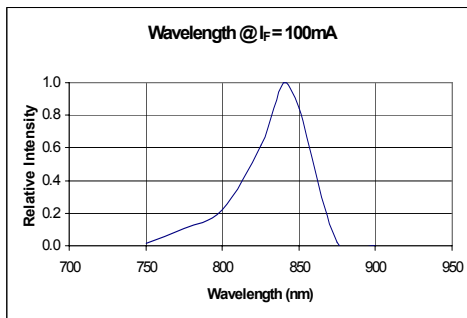
absolute maximum ratings ($T_A = 25^\circ\text{C}$ unless otherwise stated)

storage temperature	-65°C to +150°C
operating temperature	-65°C to +150°C
junction temperature ⁽¹⁾	+165°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 1.56mA/°C from 25°C free air temperature to $T_A = +150^\circ\text{C}$.
4. Pulsed condition only. Maximum pulse width is 2.0µs 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 0.78mW/°C from 25°C free air temperature to $T_A = +150^\circ\text{C}$.

fundamental characteristics



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

Revised 02/26/04

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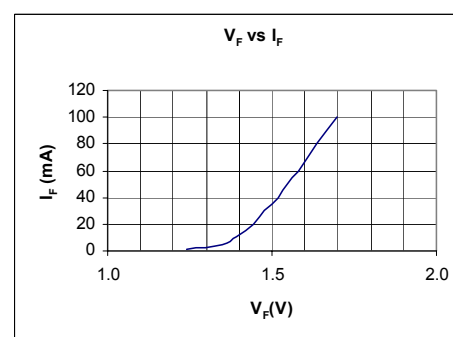
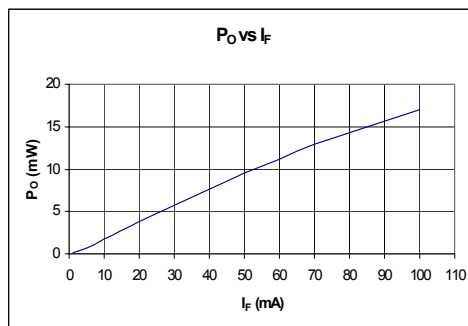
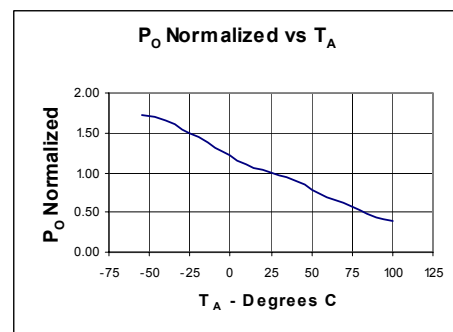
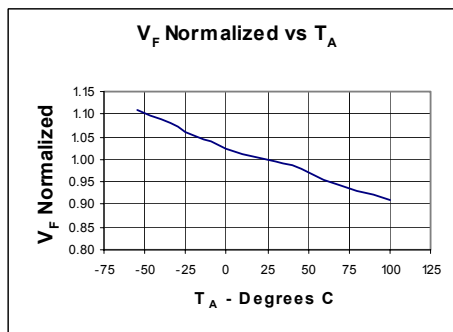


electrical characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
symbol	parameter	min	max	units	test conditions
P_O	Total power output ⁽⁶⁾	10	-	mW	$I_F = 100\text{mA}$
E_e	Irradiance ⁽⁷⁾	500	-	$\mu\text{W}/\text{cm}^2$	$I_F = 20\text{mA}$
V_F	Forward voltage	-	1.6	V	$I_F = 20\text{mA}$
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⁾	17	mW	$I_F = 100\text{mA}$
E_e	Typical irradiance ⁽⁷⁾	3.5	mW/cm^2	$I_F = 100\text{mA}$
λ_P	Peak emission wavelength	845	nm	$I_F = 100\text{mA}$
BW	Spectral bandwidth at half power points	40	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	1.7	V	$I_F = 100\text{mA}$
t_r	Radiation rise time	20	ns	$I_{F(PK)}=100\text{mA}$, $f=1\text{kHz}$, $\text{DC}=50\%$
t_f	Radiation fall time	40	ns	$I_{F(PK)}=100\text{mA}$, $f=1\text{kHz}$, $\text{DC}=50\%$



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