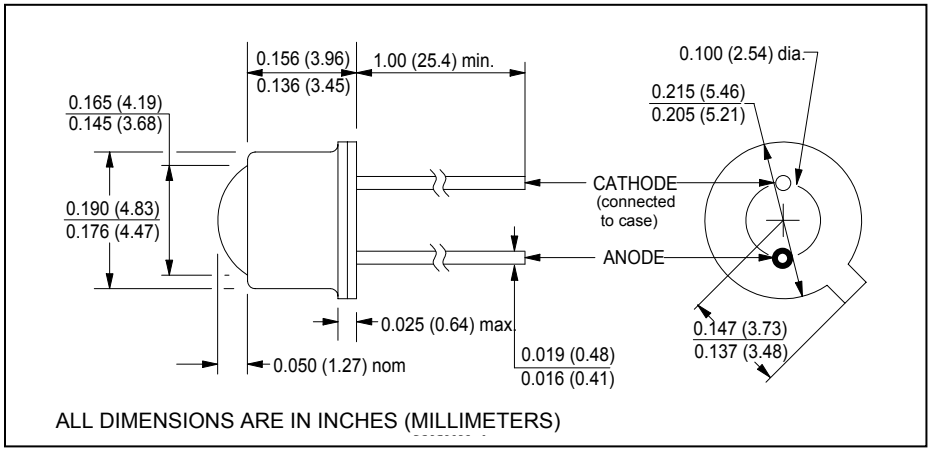
CLE135

High Efficiency Gallium Arsenide IRED

Clairex® Technologies, Inc.

March, 2001



features

- high power output
- 945nm wavelength
- TO-46 hermetic package
- cathode connected to case

description

The CLE135 is an advanced, high-efficiency, GaAs infrared emitting diode. Output power is comparable to standard AlGaAs emitters. 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.

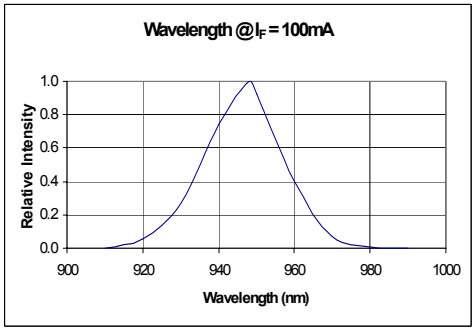
absolute maximum ratings (T_A = 25°C unless otherwise stated)

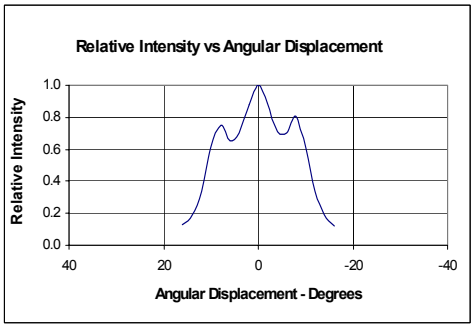
storage temperature	-65°C to +150°C
operating temperature	-55°C to +125°C
junction temperature(1)	+150°C
lead soldering temperature(2)	240°C
continuous forward current(3)	100mA
peak forward current(4)	3A
reverse voltage	5V
power dissipation(5)	200mW

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 0.80mA/°C from 25°C free air temperature to T_A = +125°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 1.60mW/°C from 25°C free air temperature to T_A = +125°C.

fundamental characteristics





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electrical characteristics (T_A = 25°C unless otherwise noted)

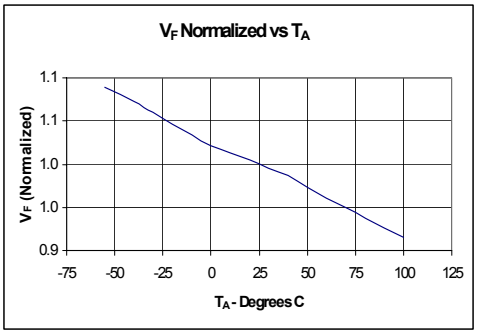
symbol	parameter	min	max	units	test conditions
P_O	Total power output(6)	7.0	-	mW	I_F = 100mA
E_e	Irradiance(7)	450	-	μW/cm²	I_F = 20mA
V_F	Forward voltage	-	1.4	V	I_F = 20mA
I_R	Reverse current	-	10	μA	V_R = 3V

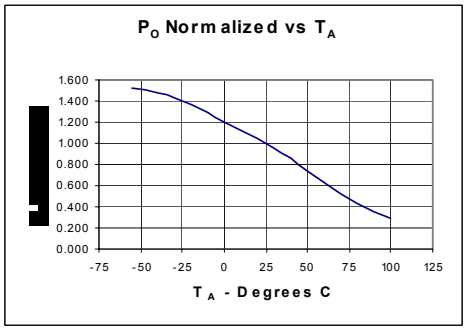
notes: 6. Total power output measured in an integrating sphere.

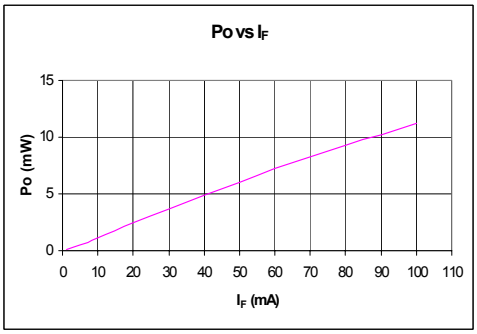
7. E_e is a measure of irradiance (power/unit area) within a 0.444" (1.128cm) diameter area, centered on the mechanical axis of the device and spaced 2.54" (6.45cm) from the lens side of the tab. This is geometrically equivalent to a 10° cone.

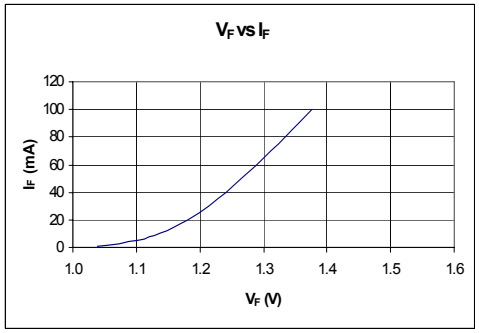
typical characteristics at T_A = 25°C (not guaranteed by test)

symbol	parameter	value	units	conditions
P_O	Total power output(6)	11	mW	I_F = 100mA
E_e	Typical irradiance(7)	2.5	mW/cm²	I_F = 100mA
λ_P	Peak emission wavelength	945	nm	I_F = 100mA
BW	Spectral bandwidth at half power points	30	nm	I_F = 100mA
Θ_{HP}	Emission angle at half power points	22	deg.	I_F = 100mA
V_F	Forward voltage	1.35	V	I_F = 100mA
t_r	Radiation rise time	500	ns	$I_{F(PK)}$=100mA, f=1kHz, D.C.=50%
t_f	Radiation fall time	500	ns	$I_{F(PK)}$=100mA, f=1kHz, D.C.=50%









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

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