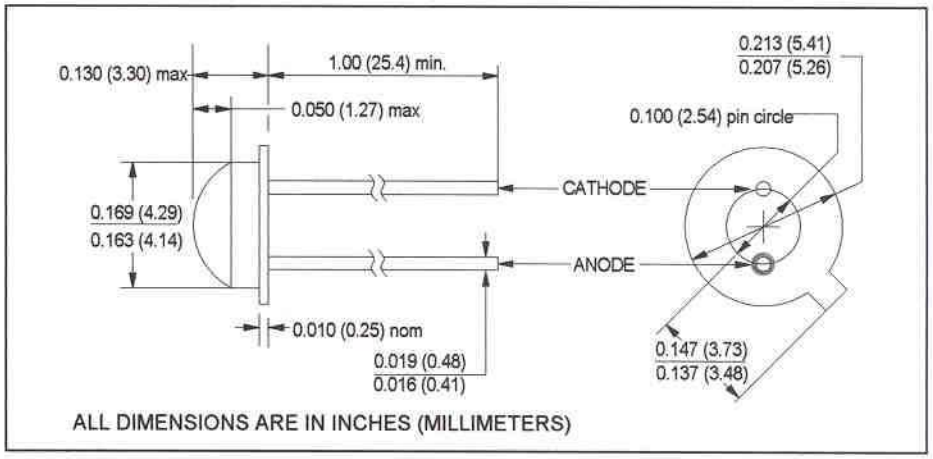
CLE330E

Super-efficient Aluminum Gallium Arsenide IRED

Clairex® Technologies, Inc.

March, 2001



features

- exceptionally high power output
- 850nm wavelength
- >10MHz operation
- TO-46 epoxy-dome lens
- wide beam angle

description

The CLE330E 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 epoxy-dome lens provides a broad radiation pattern. Call Clairex for applications assistance

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

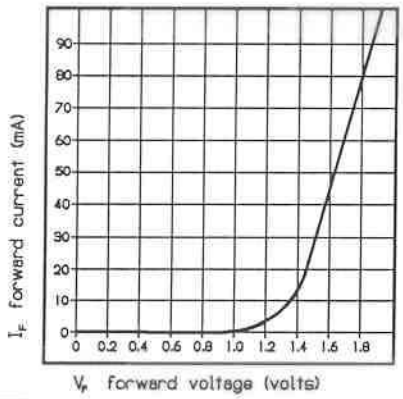
storage temperature	-65°C to +100°C
operating temperature	-65°C to +100°C
junction temperature(1)	+125°C
lead soldering temperature(2)	240°C
continuous forward current(3)	100mA
peak forward current(4)	3A
reverse voltage	3V
power dissipation(5)	200mW

notes:

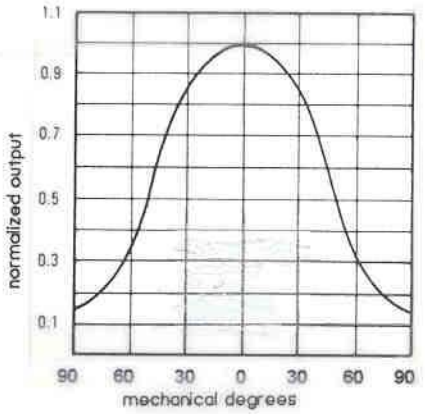
1. Maximum operating temperature of the metallurgical junction.
2. 0.06" (1.5mm) from the header for 5 seconds maximum. Maximum temperature can be 260°C if wave soldering.
3. Derate linearly 1.07mA/°C from 25°C free air temperature to T_A = +100°C.
4. Pulsed condition only. Maximum pulse width is 2.0µs at 2% duty cycle. Use good judgment when operating this device under these conditions. Thermal transients exceeding these restrictions can cause irreversible damage.
5. Derate linearly 2.13mW/°C from 25°C free air temperature to T_A = +100°C.

fundamental characteristics

forward characteristics



beam angle



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

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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[1, 2]	2.5	-	mW	I_F = 20mA
V_F	Forward voltage	-	1.6	V	I_F = 20mA
I_R	Reverse current	-	10	µA	V_R = 3V

notes: 1. Power output is measured with a total integrating sphere.
2. Other ranges of power output and test conditions can be specified. Call Clairex for applications assistance.

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

symbol	parameter	value	units	conditions
P_O	Total power output[(note 1 above)]	15.0	mW	I_F = 100mA
λ_P	Peak emission wavelength	850	nm	I_F = 100mA
BW	Spectral bandwidth at half power points	60	nm	I_F = 100mA
Θ_{HP}	Emission angle at half power points	100	deg.	I_F = 100mA
V_F	Forward voltage	1.9	V	I_F = 100mA
t_r	Radiation rise time	20	ns	$I_{F(PK)}$ = 100mA, f = 1kHz, **D.C. = 50%**
t_f	Radiation fall time	40	ns	$I_{F(PK)}$ = 100mA, f = 1kHz, **D.C. = 50%**

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