

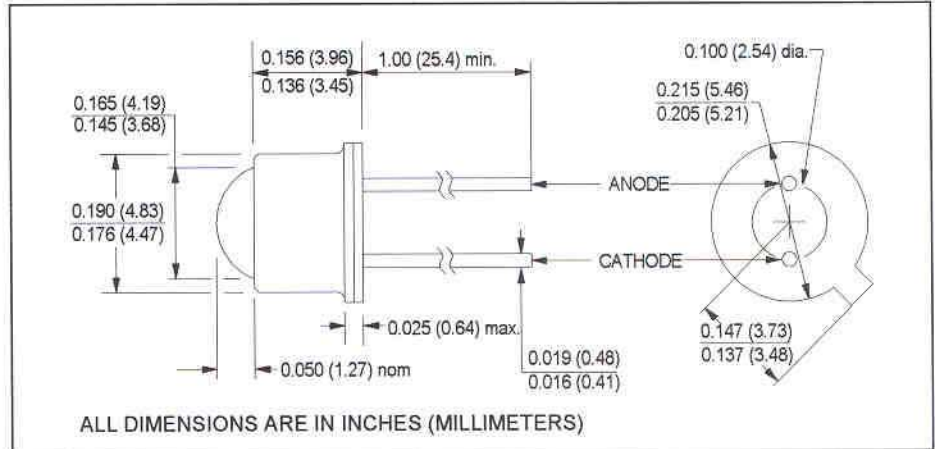
CLE435

Super-efficient Aluminum Gallium Arsenide Red LED



Clairex
Technologies, Inc.

March, 2001



features

- exceptionally high power output
- 660nm wavelength
- TO-46 hermetic package
- narrow, collimated beam

description

The CLE435 is an advanced, high-efficiency, high speed, AlGaAs light emitting diode. The TO-46 header provides the thermal environment for reliable operation over an extremely wide temperature range. The lens is designed to provide a highly 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)

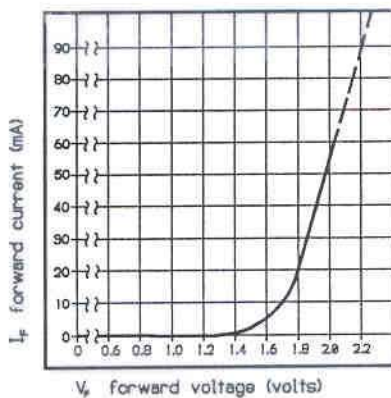
storage temperature.....	-65°C to +150°C
operating temperature.....	-55°C to +125°C
junction temperature ⁽¹⁾	+125°C
lead soldering temperature ⁽²⁾	240°C
continuous forward current ⁽³⁾	60mA
peak forward current ⁽⁴⁾	1A
reverse voltage.....	5V
power dissipation.....	200mW ⁽⁵⁾

notes:

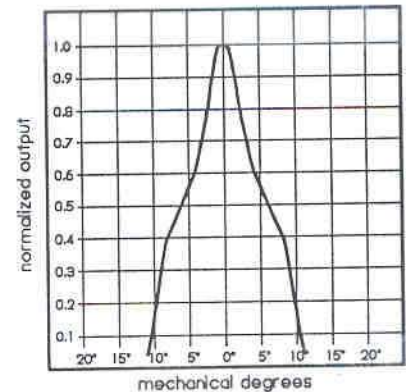
1. Maximum operating temperature of the metallurgical junction.
2. 0.06" (1.5mm) from the header for 5 seconds maximum. Maximum temperature can be 260°C if wave soldering.
3. Derate linearly 0.48mA/°C from 25°C free air temperature to $T_A = +125^\circ\text{C}$.
4. Pulsed condition only. Maximum pulse 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 1.6mW/°C from 25°C free air temperature to $T_A = +125^\circ\text{C}$.

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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CLE435

Super-efficient Aluminum Gallium Arsenide IRED



Clairex[®]
Technologies, Inc.

electrical characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)					
symbol	parameter	min	max	units	test conditions
E_e	Irradiance ^(1,2)	300	-	$\mu\text{W}/\text{cm}^2$	$I_F = 20\text{mA}$
V_F	Forward voltage	-	2.4	V	$I_F = 20\text{mA}$
I_R	Reverse current	-	10	μA	$V_R = 3\text{V}$

- notes:** 1. 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.
2. Other ranges of power output and test conditions can be specified. Call Clairex for applications assistance.

typical characteristics at $T_A = 25^\circ\text{C}$ (not guaranteed by test)				
symbol	parameter	value	units	conditions
E_e	Typical irradiance ^(note 1 above)	375	$\mu\text{W}/\text{cm}^2$	$I_F = 20\text{mA}$
λ_P	Peak emission wavelength	660	nm	$I_F = 20\text{mA}$
BW	Spectral bandwidth at half power points	60	nm	$I_F = 20\text{mA}$
Θ_{HP}	Emission angle at half power points	12	deg.	$I_F = 20\text{mA}$
t_r, t_f	Radiation rise and fall time	70	ns	$I_{F(PK)} = 100\text{mA}, f = 1\text{kHz}, \text{DC} = 50\%$

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