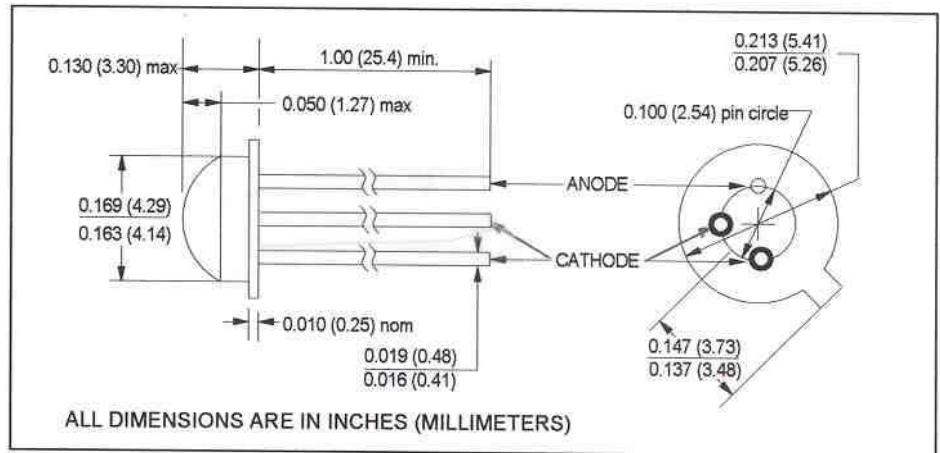


# CLE234E

## Super-efficient Aluminum Gallium Arsenide Quad chip IRED



March, 2001



### features

- exceptionally high power output
- 880nm wavelength
- TO-46 epoxy-dome lens
- very broad beam angle
- chip size 0.030" x 0.030"

### description

The CLE234E is an advanced, high-efficiency, AlGaAs infrared-emitting diode. It consists of four IRED elements on one chip with anodes internally connected in parallel. Cathodes are bonded in pairs, each pair bonded to a separate lead. The TO-46 header provides the thermal environment for reliable operation over a wide temperature range.

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

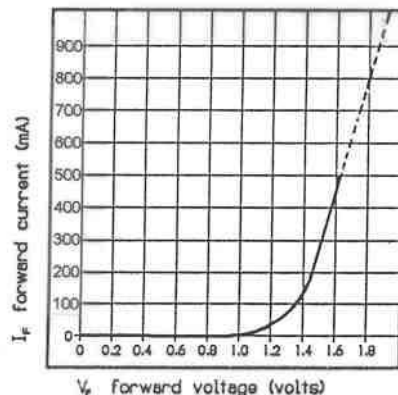
storage temperature	.....	-55°C to +100°C
operating temperature	.....	-55°C to +100°C
junction temperature <sup>(1)</sup>	.....	+125°C
lead soldering temperature <sup>(2)</sup>	.....	240°C
continuous forward current <sup>(3)</sup>	.....	500mA
peak forward current <sup>(4)</sup>	.....	10A
reverse voltage	.....	5V
power dissipation <sup>(5)</sup>	.....	100mW

### notes:

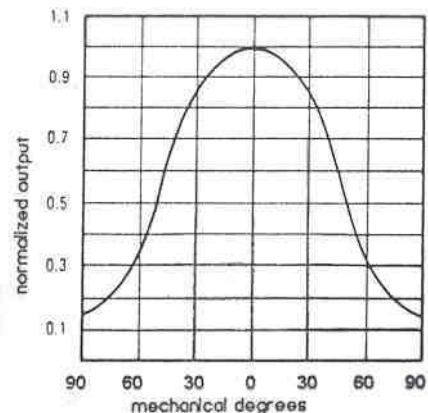
1. Maximum operating temperature of the metallurgical junction.
2. 0.06" (1.5mm) from the header for 5 seconds maximum. Maximum temperature can be 260°C if wave soldering.
3. Derate linearly 5.3mA/°C free air temperature to  $T_A = +100^\circ\text{C}$ .
4. Pulsed condition only. Maximum pulse width is 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 1.06mW/°C from 25°C free air temperature to  $T_A = +100^\circ\text{C}$ .
6. Cathode leads must be externally connected together.

### 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.

Revised 12/01/04

# CLE234E

## Super-efficient Aluminum Gallium Arsenide Quad chip IRED



electrical characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
symbol	parameter	min	max	units	test conditions
$P_O$	Total power output <sup>(1,2)</sup>	20	-	mW	$I_F = 500\text{mA}$
$V_F$	Forward voltage	-	2.0	V	$I_F = 500\text{mA}$
$I_R$	Reverse current	-	10	$\mu\text{A}$	$V_R = 5\text{V}$

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 $T_A = 25^\circ\text{C}$ (not guaranteed by test)				
symbol	parameter	value	units	conditions
$P_O$	Total power output <sup>(note 1 above)</sup>	600	mW	$I_F = 10\text{A}$
$\lambda_P$	Peak emission wavelength	880	nm	$I_F = 50\text{mA}$
BW	Spectral bandwidth at half power points	80	nm	$I_F = 50\text{mA}$
$\Theta_{HP}$	Emission angle at half power points	100	deg.	$I_F = 50\text{mA}$
$V_F$	Forward voltage	1.65	V	$I_F = 500\text{mA}$
$t_r, t_f$	Radiation rise and fall time	700	ns	$I_{F(PK)} = 500\text{mA}, f = 1\text{kHz}, \text{D.C.} = 50\%$

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