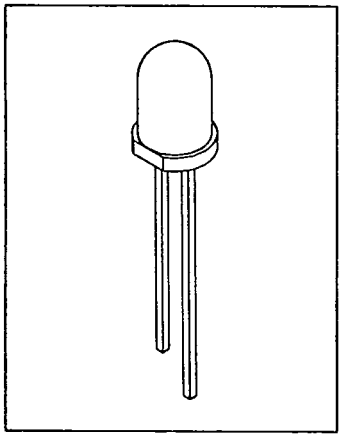
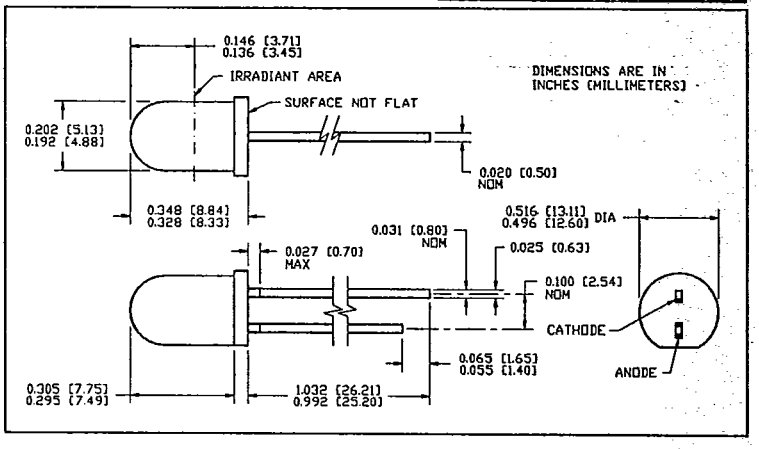
T-41-13

CLED291 Series

Aluminum Gallium Arsenide Infrared Emitting Diodes

HAWKER SIDDELEY SENISYS SENSOR INTEGRATED SYSTEMS





Features

- 880 nm wavelength
- T-1$^3/_4$ package
- wide radiation angle
- four ranges of irradiance

Description

The CLED291 family consists of an aluminum gallium arsenide infrared emitter mounted in a plastic, axial-leaded package. Four ranges of output power are available. The optical design of the T-1$^3/_4$ package directs the optical energy along the mechanical axis of the device. These devices are mechanically compatible with the CLT590 family of sensors and spectrally compatible with all sensors in the Senisys product line.

Absolute Maximum Ratings ($T_A = 25°C$ unless otherwise stated.)

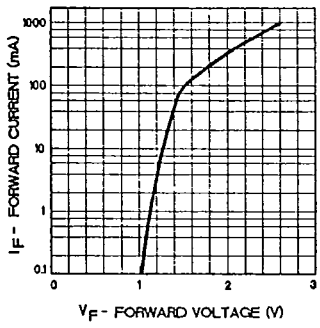
Storage Temperature	-40°C to +100°C
Operating Temperature	-40°C to +100°C
Junction Temperature[1]	+110°C
Lead Soldering Temperature[2]	240°C[3]
Continuous Forward Current	150mA
Peak Forward Current [4]	3A
Reverse Voltage	3V
Power Dissipation	330mW[5]

Notes:

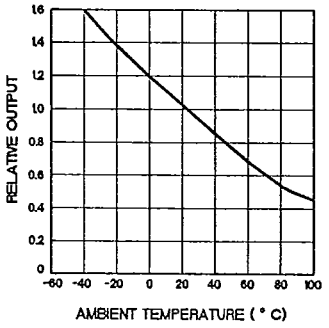
1. Maximum operating temperature of the metallurgical junction.
2. 0.06"(1.5mm) from the header for 5 seconds maximum.
3. 260°C maximum when wave soldering.
4. Pulsed conditions only; maximum pulse width of 2.0 μsec at 2% maximum duty cycle. Use good judgement when operating this device under these conditions; thermal transients exceeding these restrictions can cause irreversible harm.
5. Derate linearly from 25°C free-air temperature to T_A = +100°C at 3.33mW/°C.

Fundamental Characteristics

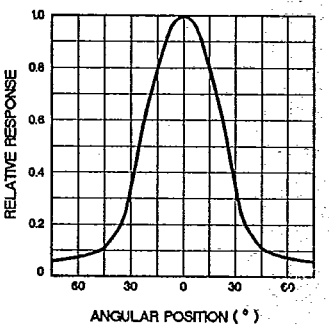
I_F vs. V_F



RELATIVE RESPONSE vs TEMP.



SPACIAL RESPONSE



Senisys • 1600 West Plano Parkway • Plano, Texas 75075 • Phone: 214-422-1844 • FAX: 214-423-4661

CLED291 Series

Aluminum Gallium Arsenide Infrared Emitting Diodes

Electrical Characteristics ($T_A = 25°C$ unless otherwise stated)

Symbol	Parameter	min	max	units	Test Conditions
E_e	Irradiance (1)				
	CLED291C	10.0	-	mW/cm^2	$I_F = 100mA$ (2) (3)
	CLED291B	13.0	26.0	mW/cm^2	$I_F = 100mA$ (2) (3)
	CLED291A	16.0	-	mW/cm^2	$I_F = 100mA$ (2) (3)
V_F	Forward Voltage (2)	-	2.0	V	$I_F = 100mA$ (2)
I_R	Reverse Current	-	10	μA	$V_R = 3V$

Notes:

1. Other ranges of irradiance and test conditions can be specified; call Senisys for applications assistance.
2. Measured under pulsed conditions to minimize parameter shift due to device heating. In all spontaneous emitters, internal quantum efficiency is a function of junction temperature; power output must be measured before significant junction heating has occurred.
3. E_e is a measure of irradiance (power/unit area) within a 0.250" (6.35mm) diameter area, centered on the mechanical axis of the device and spaced 0.500" (12.7 mm) from the lens side of the reference surface. This value is not necessarily uniform across the test area.

Typical Characteristics

Design Characteristics at $T_A = 25°C$ (not guaranteed by test)

Symbol	Parameter	value	units	Conditions
λ_P	Peak Emission Wavelength	880	nm	$I_F = 20mA$
BW	Spectral Bandwidth	70	nm	$I_F = 20mA$
$\Delta\lambda_P/\Delta T$	Temperature Coefficient of Wavelength	0.20	nm/°C	I_F = Constant Value
Θ_{HP}	Emission Angle	50	°	$I_F = 20mA$
t_r	Radiation Risetime	600	ns	$I_{F(PK)} = 100mA$, f = 1kHz, DC = 50%
t_f	Radiation Falltime	700	ns	$I_{F(PK)} = 100mA$, f = 1kHz, DC = 50%

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