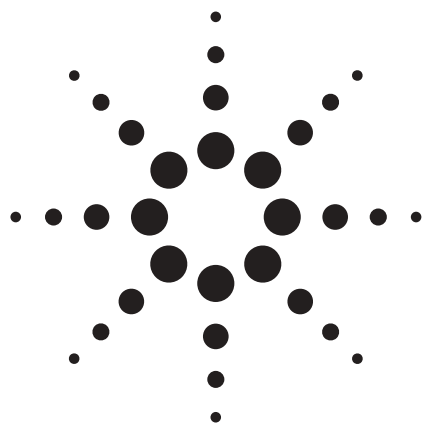




Agilent HSDL-4261

High-Power T-1 $\frac{3}{4}$ (5mm)

AlGaAs Infrared (870nm) Lamp

Data Sheet



Description

The HSDL-4261 Infrared emitter was designed for applications that require high power, low forward voltage and high speed. It utilizes Aluminum Gallium Arsenide (AlGaAs) LED technology and is optimized for speed and efficiency at emission

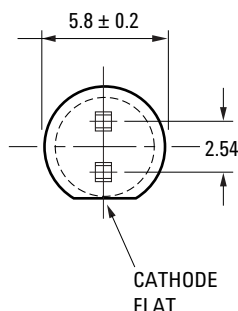
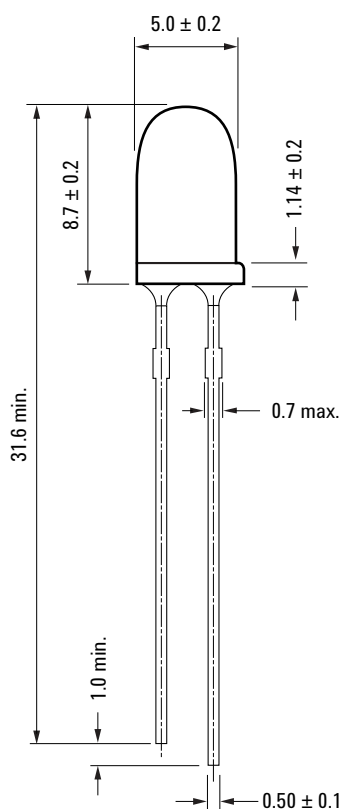
wavelengths of 870nm. The material used produces high radiant efficiency over a wide range of currents. The emitter is packaged in clear T-1 $\frac{3}{4}$ (5mm) package.

Features

- Very High Power AlGaAs LED Technology
- 870nm Wavelength
- T-1 $\frac{3}{4}$ Package
- Low Cost
- Low Forward Voltage: 1.4V at 20mA
- High Speed: 15ns Rise Times

Applications

- Industrial IR Equipments
- IR Portable Instruments
- Consumer Electronics (Optical mouse etc)
- High Speed IR Communications (IR LANs, IR Modems, IR Dongles etc)
- IR Audio
- IR Telephones



Part Number	Lead Form	Shipping Option
HSDL-4261	Straight	Bulk



Agilent Technologies

Absolute Maximum Ratings at 25°C

Parameter	Symbol	Min.	Max	Unit	Reference
DC Forward Current	I_{FDC}	-	100	mA	[1], Fig. 2
Power Dissipation	P_{DISS}	-	190	mW	
Reverse Voltage	V_R	5	-	V	
Operating Temperature	T_O	-40	70	°C	
Storage Temperature	T_S	-40	100	°C	
LED Junction Temperature	T_J	-	110	°C	
Lead Soldering Temperature		-	260 for 5 sec	°C	

Notes:

1. Derate as shown in Figure 6.

Electrical Characteristics at 25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	Reference
Forward Voltage	V_F	-	1.4 1.7	1.5 1.9	V	$I_{FDC}=20mA$ $I_{FDC}=100mA$	Fig. 2 Fig. 3
Forward VoltageTemperature Coefficient	$\Delta V/\Delta T$	-	-1.5 -1.3	-	mV/°C	$I_{FDC}=20mA$ $I_{FDC}=100mA$	Fig. 4
Series Resistance	R_S	-	4.1	-	Ohms	$I_{FDC}=100mA$	
Diode Capacitance	C_0	-	80	-	pF	0V, 1MHz	
Reverse Voltage	V_R	3	14	-	V	$I_R=100uA$	
Thermal Resistance, Junction to Ambient	RO_{ja}	-	280	-	°C/W		

Optical Characteristics at 25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	Reference
Radiant Optical Power	P_0	-	9 45	-	mW	$I_{FDC}=20mA$ $I_{FDC}=100mA$	
Radiant On-Axis Intensity	I_E	-	36 180	-	mW/Sr	$I_{FDC}=20mA$ $I_{FDC}=100mA$	Fig. 5
Radiant On-Axis IntensityTemperature Coefficient	$\Delta I_E/\Delta T$	-	-0.22	-	%/°C	$I_{FDC}=100mA$	
Viewing Angle	$2\theta_{1/2}$	-	26	-	deg	$I_{FDC}=20mA$	Fig. 7
Peak wavelength	λ_{PK}	-	870	-	nm	$I_{FDC}=20mA$	Fig. 1
Peak wavelengthTemperature Coefficient	$\Delta \lambda/\Delta T$	-	0.18	-	nm/°C	$I_{FDC}=20mA$	
Spectral Width	$\Delta \lambda$	-	47 52	-	nm	$I_{FDC}=20mA$ $I_{FDC}=100mA$	Fig. 1
Optical Rise and Fall Time	t_r/t_f	-	15	-	ns	$I_{FPK}=500mA$ Duty Factor=33%	
Bandwidth	f_c	-	23	-	MHz	Pulse Width=125ns	

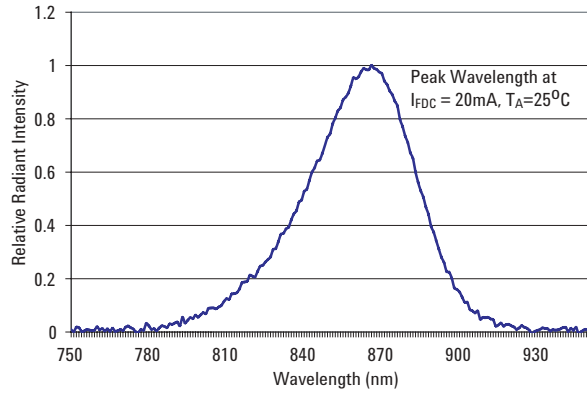


Figure 1. Relative Radiant Intensity vs. Wavelength

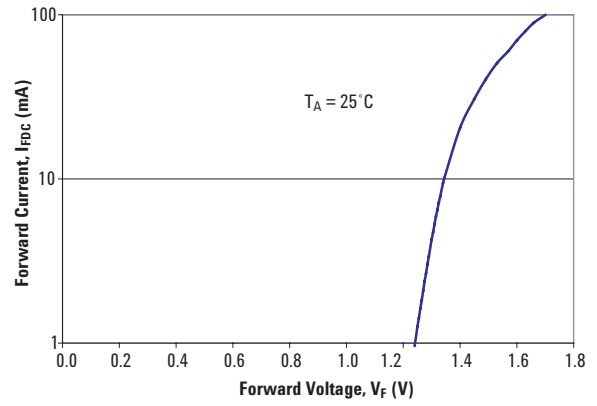


Figure 2. DC Forward Current vs. Forward Voltage

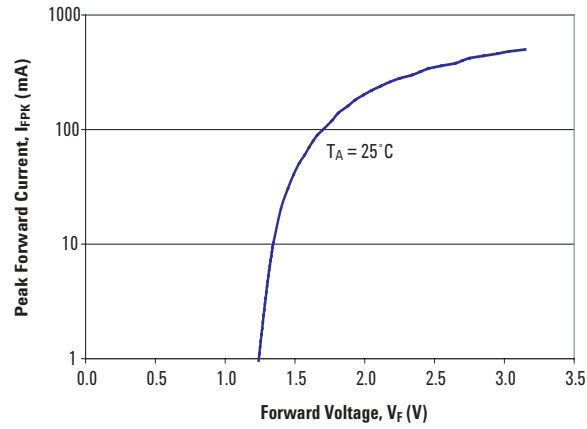


Figure 3. Peak Forward Current vs. Forward Voltage

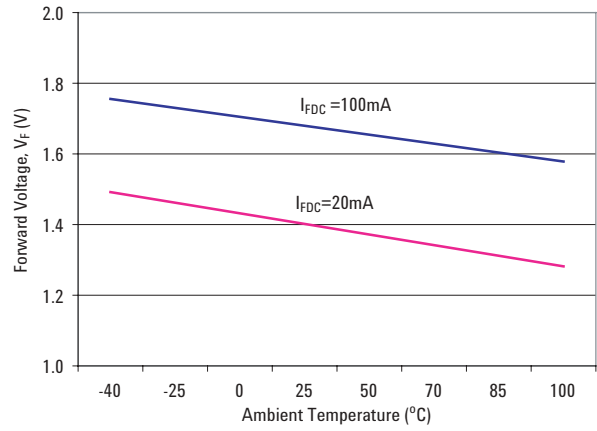


Figure 4. Forward Voltage vs. Ambient Temperature

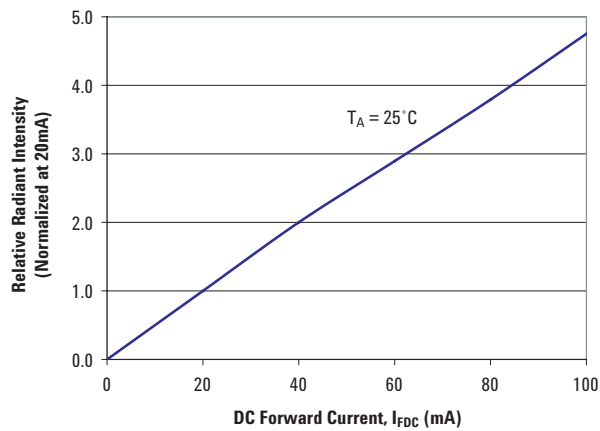


Figure 5. Relative Radiant Intensity vs. DC Forward Current

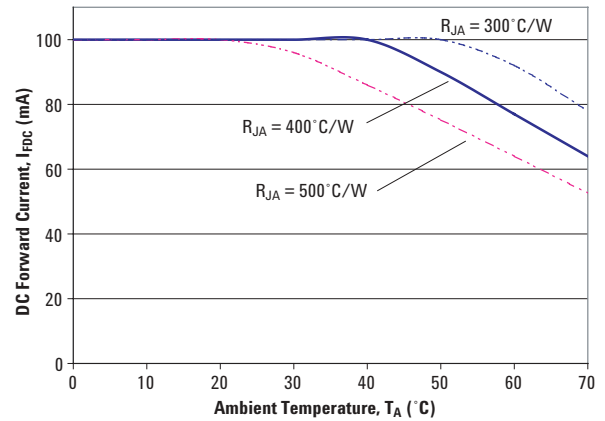


Figure 6. DC Forward Current vs. Ambient Temperature

Derated Based on TJMAX=110°C

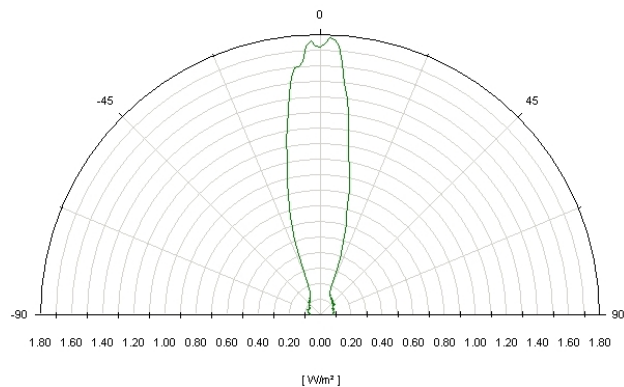


Figure 7. Radiant Intensity vs. Angular Displacement

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