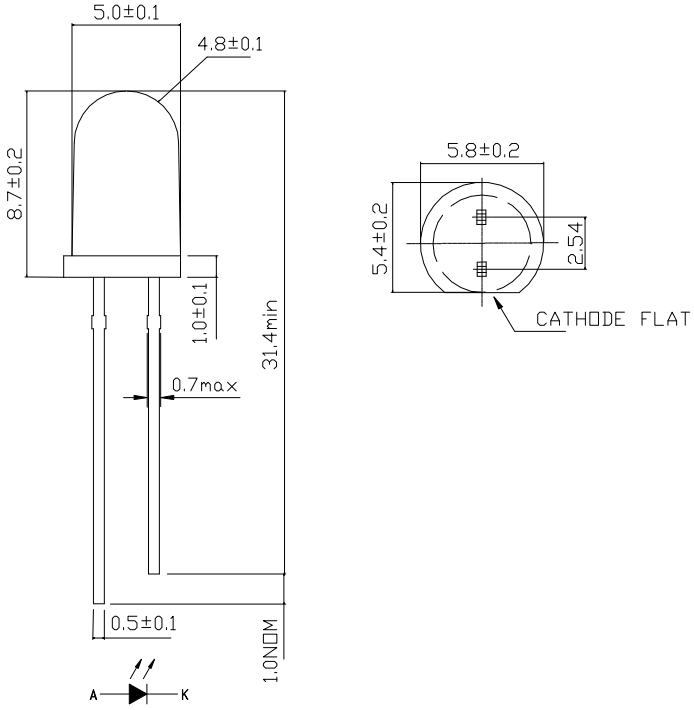
REV. A, Apr, 2013

FEATURES

* Very high power TS AlGaAs technology
* T-1 3/4 Package
* 875 nm Wavelength
* very high intensity:
  HSDL-4220 :38MW/SR ; 30 degree
*Low forward voltage for series operation
*Applications
*IR Audio
*IR Telephones
*High speed: 40ns Rise times
*High Speed IR communications
IR LANS
IR Modems
IR Dongles
*Industrial IR Equipment
*IR Portable Instruments

PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25mm(.010") unless otherwise noted.
3. Protruded resin under flange is 1.5mm(.059") max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.

ABSOLUTE MAXIMUM RATINGS AT T_A=25℃

PARAMETER	Symbol	MIN	MAX	UNIT	Reference
Average Forward Current	I_{FAVG}		100	mA	[2]
Peak Forward Current	I_{FPK}		500	mA	[2].Fig.2b Duty Factor=20% Pulse Width=100uA
DC Forward Current	I_{FDC}		100	mA	[1].Fig.2a
Power Dissipation	P_{DISS}		260	mW	
Reverse Voltage (IR=100uA)	V_R	5		V	
Transient Forward Current (10us Pulse)	I_{FTR}		1.0	A	[3]
Operating Temperature	T_O	0	70	℃	
Storage Temperature	T_S	-20	85	℃	
LED Junction Temperature	T_J		110	℃	
Lead Soldering Temperature [1.6mm(.063") From Body]			260 for 5 seconds	℃	

Notes:
1.Derate linearly as show in Figure 4.
2.Any pulse operation cannot exceed the absolute Max Peak Forward current as Specified in Figure 5.
3.The transient Peak current is the maximum non-recuring the LED die and the wire bonds.

ELECTRICAL OPTICAL CHARACTERISTICS AT T_A=25℃

PARAMETER	Symbol	MIN.	TYP.	MAX.	UNIT	TEST CONDITION	Reference
Forward Voltage	V_F	1.3	1.5	1.7	V	I_{FDC} = 50mA	Fig.2a
			2.15		V	I_{FPK} = 250mA	Fig.2b
Forward Voltage Temperature Coefficient	△V/△T		-2.1		mV/℃	I_{FDC} = 50mA	Fig.2C
			-2.1			I_{FDC} = 100mA	
Series Resistance	R_S		2.8		ohms	I_{FDC} = 100mA	
Diode Capacitance	C_O		40		pF	0V,1M Hz	
Reverse Voltage	V_R	2	20		V	I_R=100 μ A	
Thermal Resistance, Junction to Pin	R θ_{JP}		110		℃/W		

OPTICAL CHARACTERISTICS AT T_A=25℃

PARAMETER	Symbol	MIN.	TYP.	MAX.	UNIT	Test condition	Reference
Radiant Optical Power	P_O		19		mW	I_{FDC} = 50mA	
			38		mW	I_{FPK} = 100mA	
Radiant On-Axis Intensity	I_E	22	38	60	Mw/Sr	I_{FDC} = 50mA	Fig.3a
			76		Mw/Sr	I_{FDC} = 100mA	
			190		Mw/Sr	I_{FDC} = 250mA	Fig.3b
Radiant On-Axis Intensity Temperature Coefficient	$\triangle I_E / \triangle T$		-0.35 -0.35		%/℃	I_{FDC} = 50mA I_{FDC} = 100mA	
Viewing Angle	$2\theta_{1/2}$		30		deg	I_{FDC} = 50mA	Fig.6
Peak Wavelength	λ pk	860	875	895	nm	I_{FDC} = 50mA	Fig.1
Peak Wavelength Temperature Coefficient	$\triangle\lambda / \triangle T$		0.25		nm/℃	I_{FDC} = 50mA	
Spectral Width-at FWHM	$\triangle\lambda$		37		nm	I_{FDC} = 50mA	Fig.1
Optical Rise and all Times, 10%-90%	T_r/ T_f		40		ns	I_{FDC} = 50mA	
Bandwidth	f_c		9		MHz	I_{FDC} = 50mA ±10mA	Fig.8

Ordering Information

Part Number	**Lead Form**	**Shipping Option**
HSDL-4220	Straight	Bulk

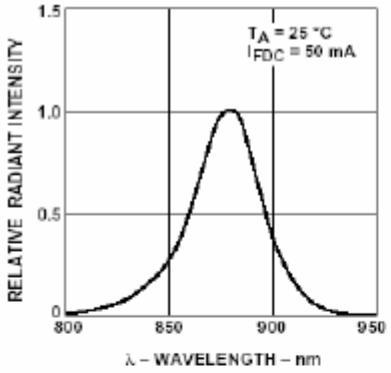


Figure 1. Relative Radiant Intensity vs. Wavelength.

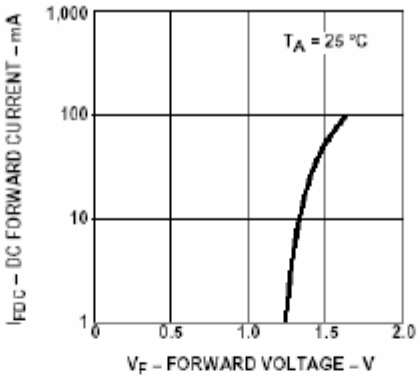


Figure 2a. DC Forward Current vs. Forward Voltage.

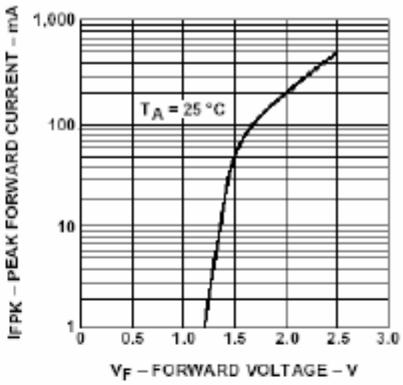


Figure 2b. Peak Forward Current vs. Forward Voltage.

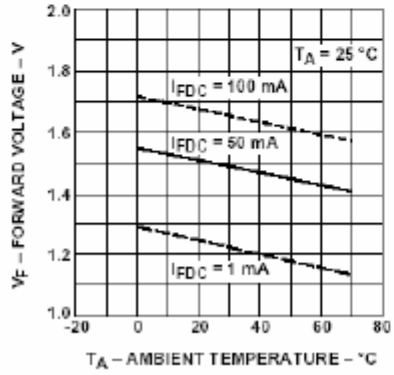


Figure 2c. Forward Voltage vs Ambient Temperature.

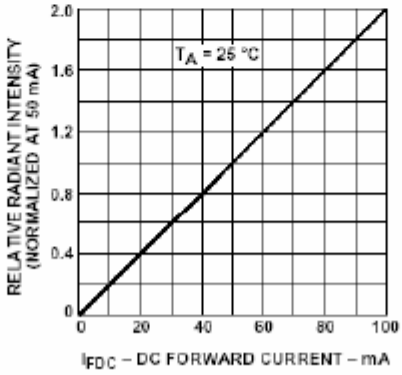


Figure 3a. Relative Radiant Intensity vs. DC Forward Current.

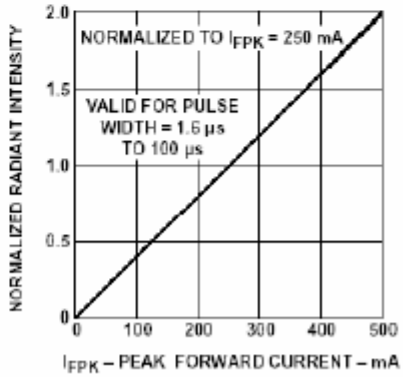


Figure 3b. Normalized Radiant Intensity vs. Peak Forward Current.

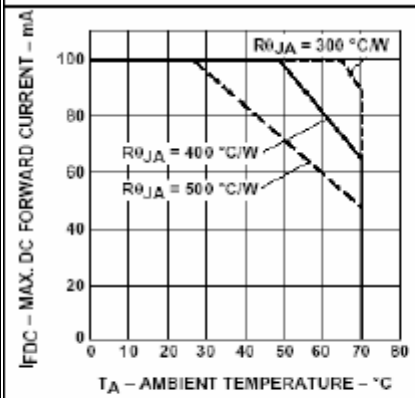


Figure 4. Maximum DC Forward Current vs. Ambient Temperature. Derated Based on T_{JMAX} = 110°C.

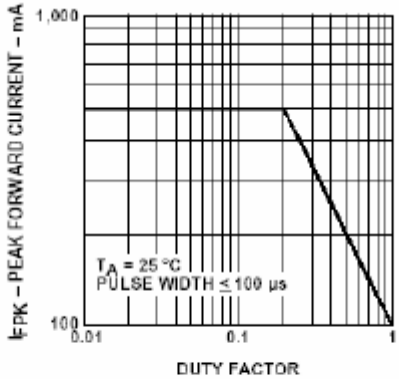


Figure 5. Maximum Peak Forward Current vs. Duty Factor.

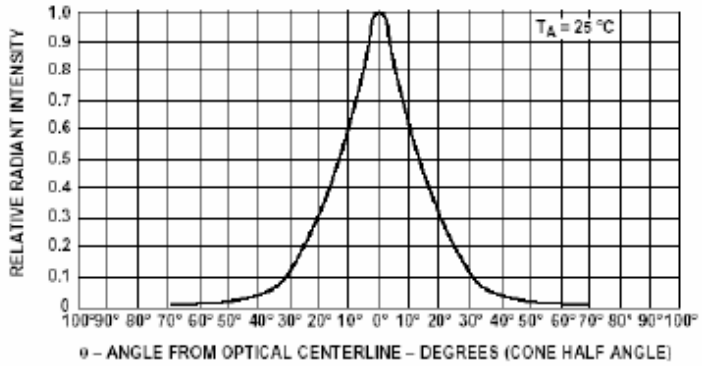


Figure 6. Relative Radiant Intensity vs. Angular Displacement HSDL-4220.

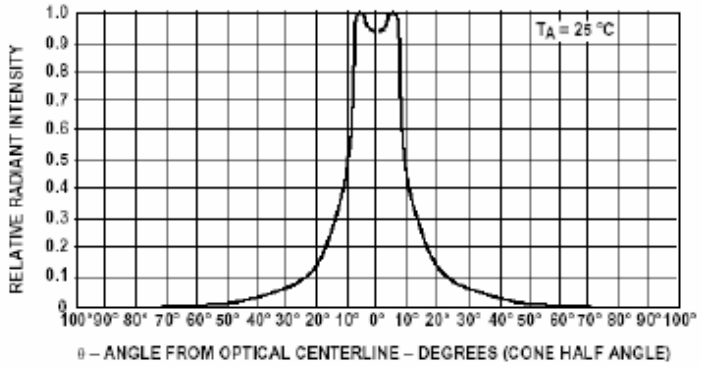


Figure 7. Relative Radiant Intensity vs. Angular Displacement HSDL-4230.

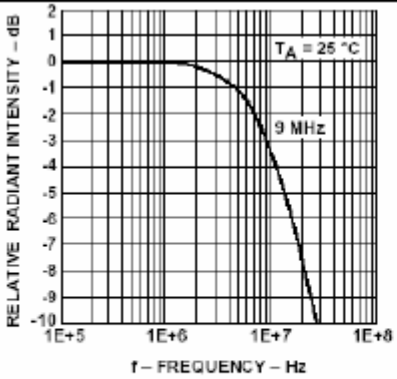


Figure 8. Relative Radiant Intensity vs. Frequency.