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H2A1-H1050

IR High Power single chip LED

H2A1-H1050 is a GaAlAs based, high power 1050 nm single chip LED in standard hexagonal Aluminum package for general application. Slots in the Aluminum-core PCB allow for easy mounting of standard collimating optics and are also suitable for M3 or M4 mounting screws. Large electrical interconnection pads on the PCB allow for convenient installation.

Specifications

- Structure: GaAlAs
- Peak Wavelength: 1050 nm
- Optical Output Power: typ. 50 mW
- Life Time: > 10.000 hours
- Housing: standard emitter package

Absolute Maximum Ratings (T_a=25°C)

Parameter	Symbol	Value	Unit
Power Dissipation, DC	P_D	1000	mW
Forward Current, DC	I_F	500	mA
Pulsed Current (1% duty cycle, 1kHz)	I_{FP}	1000	mA
Reverse Voltage	U_R	-5	V
Operating Temperature	T_{opr}	-30 … +70	°C
Storage Temperature	T_{stg}	-30 … +85	°C
Soldering Temperature (max. 1,5 s)	T_{sol}	330	°C

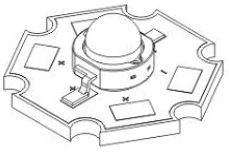
Electro-Optical Characteristics (T_a=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Current	I_F		-	350	-	mA
Viewing Angle	φ	I_F = 350 mA		± 75		deg.
CW Output Power	P_O	I_F = 350 mA		50		mW
Peak Wavelength	λ_P	I_F = 350 mA		1050		nm
Forward Voltage	U_F	I_F = 350 mA	-	1.2	-	V
Half Width (FWHM)	Δλ	I_F = 350 mA	-	47		nm

Wavelength measurements tolerance is +/- 2%
Output power measurement tolerance is +/- 10%
Voltage measurement tolerance is +/- 2%

Device Materials

Item	Material
foundation	Plastic
Lens	Acryl
Electrodes	AgCu
PCB	Al



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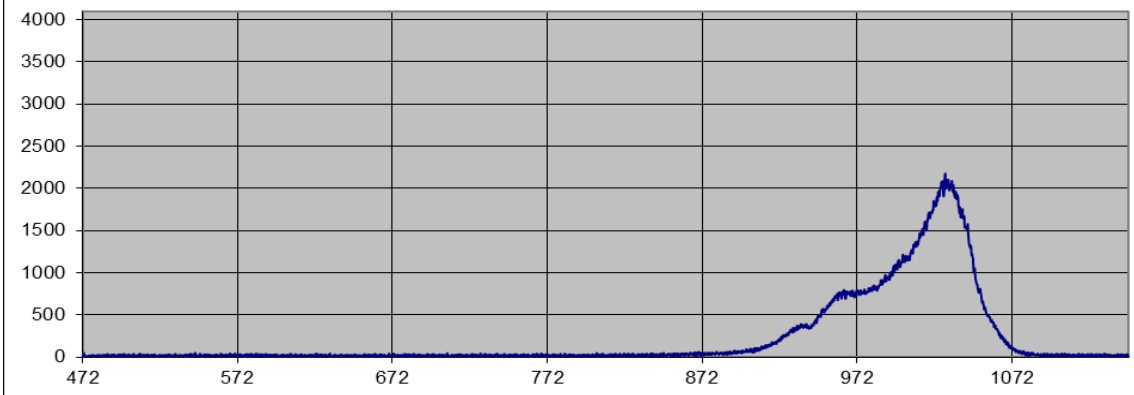
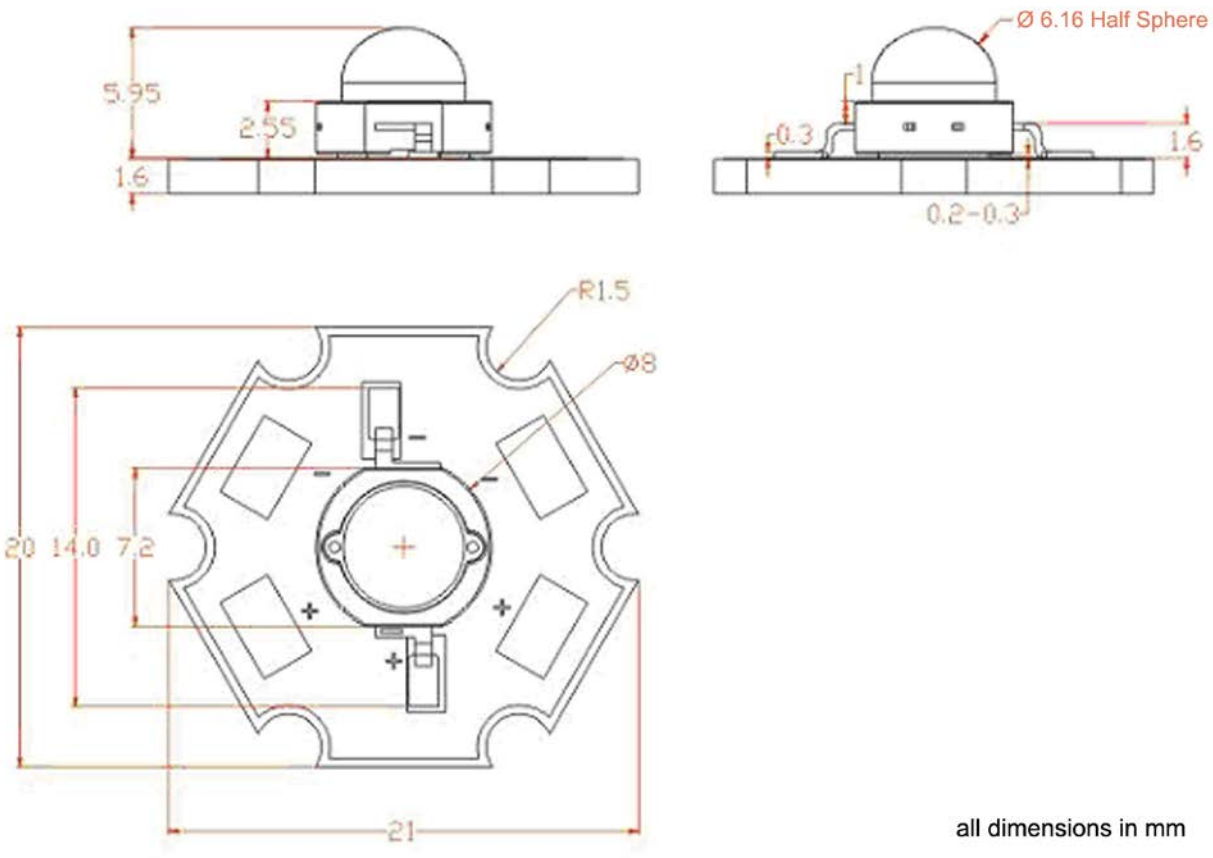
Typical Performance Characteristics

Normalized Output Power vs. Wavelength:



Outline Dimensions

Emitter:



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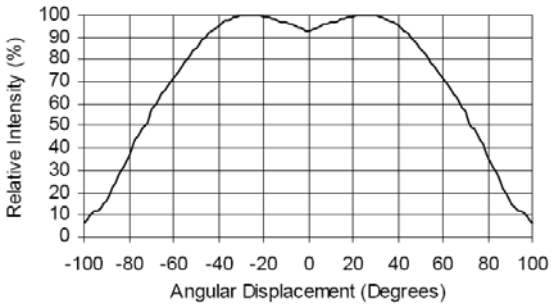
Radiation Pattern (lambertian lens without optics)

Relative Intensity vs. Angular Displacement



Accessories

Collimating optics, holders, reflectors

10158 + 10146, 2° half angle spot optic + optic holder

10048 + 10076, 4° half angle spot optic + optic holder

10003 + 10043, 6° half angle spot optic + optic holder

10003/15 + 10043, 15° half angle spot optic + optic holder

10003/25 + 10043, 25° half angle spot optic + optic holder

CLP17CR, 6° metalized polycarbonate reflector

CLP23CR, 20° metalized polycarbonate reflector

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Soldering Conditions

Reflow Soldering:

APG2C1 LEDs have a maximum storage temperature of 85°. Therefor it is not possible to use a reflow soldering process for array assembly!

Hot Bar Soldering:

A Hot Bar Soldering process is recommended when soldering APG2C1 emitters. This process will only transfer heat to the leads and avoids overheating the emitter which will damage the device. In order to transfer sufficient heat from the hot bar to the device, following parameters must be carefully considered:

- Amount of flux
- Pressing force of solder tip
- Hot bar temperature

For the standard assembly process, following parameters should be maintained:

- Hot Bar temperature: 330 °C
- Force of Hot Bar. 40 N
- Soldering time: 1.5 s

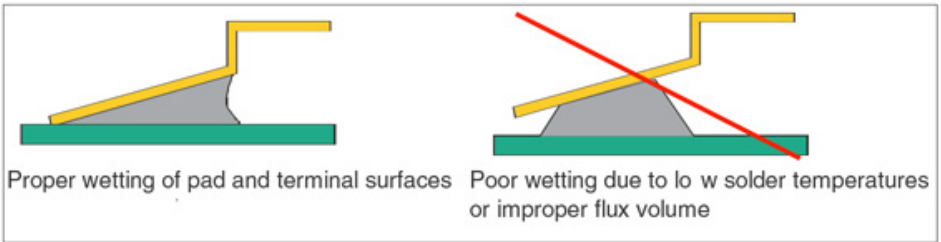
It is recommended to use a copper nickel-plated hot bar mounted to standard temperature controlled soldering equipment.

Manual Hand Soldering:

For prototype build or small series production runs, it is possible to place and solder the emitters by hand. It is therefore recommended to maintain the following parameters:

- Solder Tip Temperature 330 °C
- Soldering time. < 1.5 s
- Junction temperature must be kept below 70 °C

A visual inspection may be used to check the quality of the sodler joint



General Soldering Precautions:

- Mechanical stress, shock and vibration must be avoided during soldering
- Only use non corrosive flux.
- Do not apply current to the device until it has cooled down to room temperature after soldering.