850nm 5Gbps VCSEL Chip

Datasheet

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The specification applies to GaAs based infrared chip for 850nm wavelength range.

Product Type: 850nm 5Gbps VCSEL Chip

The 850nm 10mil Vertical Cavity Surface Emitting Laser (VCSEL) chips are designed for high-speed optical data communication applications. The product characterized by the unique VCSELs oxide-confined aperture process design and provides stable electro-optical characteristic and high reliability.

Product Features

- GaAs based infrared chip
- 850nm center optical wavelength
- 3dB Bandwidth 4GHz
- Data rates up to 5Gbps
- Multi-mode beam profile
- Other configurations available on request

Ordering information

Part Number	Description
8ACHCED05	850nm VCSEL Chip 5G 10mil

Electrical Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Threshold Current	I_{th}	0.4	1.1	***	mA	T_a=25 °C
Output Power	P_o	***	2	***	mW	I_f=6mA
Slope Efficiency(S.E.)	η_s	0.27	***	0.55	mW/mA	I_f=6mA
Forward Voltage	V_f	***	2	***	V	I_f=6mA
Resistance	R_s	25	50	65	Ω	I_f=6mA
Center Wavelength	λ_c	840	850	860	nm	I_f=6mA
Spectral Bandwidth	$\Delta\lambda$	***	0.3	0.65	nm	I_f=6mA, RMS
Beam Divergence	θ	***	22	***	deg.	I_f=6mA Full Width 1/ e^2
Rise Time (20~80%)	T_r	***	70	80	ps	I_f=6mA
Fall Time (20~80%)	T_f	***	70	80	ps	I_f=6mA
Wavelength Tuning over Temp.	***	***	0.07	***	nm/K	
3dB Bandwidth	f_{3dB}	4	***	***	GHz	I_f=6mA
Relative Intensity Noise	RIN	***	***	-130	dB/Hz	I_f=6mA

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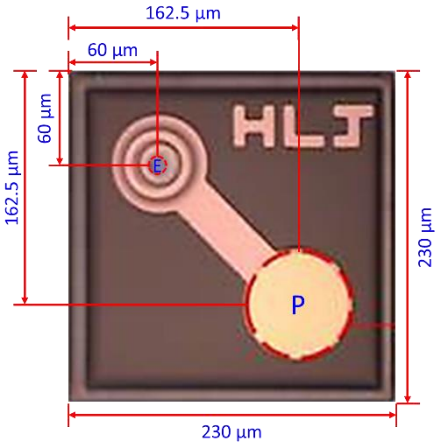
Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit	Condition
Storage Temperature	T_{stg}	-40 ~ 125	℃	
Operating Temperature	T_{op}	-40 ~ 90	℃	
Forward Current	I_f	12	mA	
Maximum Package SMT Solder Reflow	-	260	℃	Solder Time < 10 seconds

Note: The maximum CW laser current in the Absolute Maximum Ratings is valid for the operating temperature noted at the table above. Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device.

Dimensions



Dimensions：230 x 230 x 150 µm
Bonding Pad：ψ= 80 µm
E：Emitter
P：Pad

Packing Information

- Package Q'ty:
  - 4000 ea/ die sheet, 8 die sheet/pack, 6 pack/ box, 6 box/ cargo box
- RoHs Compliance:
  This part is compliant with EU 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

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