



HealthyPhoton

Model : HPQCL-H

HHL Packaged QCLs



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1. Introduction

HealthyPhoton collaborates with world-leading QCL chip manufacturers, providing customers with economical HHL packaged mid-IR QCL modules. The package can include either a Fabry-Perot multi-mode laser chip or a Distributed Feedback (DFB) single mode laser chip. We also provide accessories such as QCL current driver, temperature controller and output beam collimation services that are compatible with the HHL package.

2. Product Description

- Wavelengths available: 4 -12 μm (customized wavelengths available)
- Laser options:
 - Fabry-Perot multi-mode
 - Distributed Feedback (DFB) single mode
 - Output beam collimated/not collimated
- LIV curves provided

2.1. Parameters

General ratings (T=25°C)	Symbol	Typical value
Maximum output power	$P_{\text{out_max}}$	>50 mW
Threshold current	I_{th}	<500 mA
Compliance voltage	V	<14 V
DFB Single Mode Suppression Ratio	SMSR	>25 dB
DFB Wavenumber tuning range	$\Delta\lambda^{-1}$	$\sim 5 \text{ cm}^{-1}$
Parallel divergence angle (FWHM)	θ_p	$\sim 50^\circ$ (not collimated), $\sim 0.26^\circ$ (collimated)
Vetical divergence angle (FWHM)	θ_v	$\sim 60^\circ$ (not collimated), $\sim 0.30^\circ$ (collimated)

2.2. Advantages

- QCL chips from world leading manufacturers
- Affordable cost and ultra-small size module
- Ultra-narrow single mode linewidth (< 1MHz)
- Diverged or collimated laser beam output (optional)
- Bias current and TEC driver (optional)



2.3. Applications

- High-resolution trace gas sensing
- Molecular spectrum analysis
- Free-space optical communication
- Dangerous biological and chemical compound detection