

INTEGRATED CIRCUITS ELECTROINC INDUSTRIES

Convection Heat Transfer using mini channel ICF-HL-HCMC-I01

2024

1.Overview

The ICF-HL-HCMC-I01 – Convection Heat Transfer Using Mini Channel system allows users to study how different mini-channel designs affect convection heat transfer. By comparing various geometries, the system helps identify the most efficient designs for thermal management in compact applications.

2.Technical specifications

1. Dimensions:

• All channels have dimensions of 50 cm × 50 cm × 10 cm.

2. Instrumentation and Sensors:

- Pressure Sensors: Located at the inlet and outlet .
- Flow Rate Sensors: To measure the flow rate of the fluid within the range of 0-10 liters per minute (LPM).
- Temperature Sensors: Positioned at the inlet, outlet, and bottom of the channels .

3. Operational Parameters:

- Flow Rate Range: 0–10 LPM.
- Maximum Temperature: Up to 95 °C,.
- Heater Capacity: Up to 200 kW.

4. Data Acquisition and Monitoring:

- Data Logger: For capturing and storing data from sensors and other instruments.
- PC Software: Used to monitor, analyze, and visualize the data in real-time.

3.Experiments to be done

- 1. Nusselt and Reynolds Numbers.
- 2. Forced Convection Heat Transfer.



Fig: ICF-HL-HCMC-I01