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The difference in flow pattern, heat transfer and pressure drop characteristics of mini-channel flow boiling in horizontal and vertical orientations

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Highlights

- Flow boiling behaviors in horizontal and vertical 1-mm diameter tubes are reported.
- The shape of some flow patterns is sensitive to the change in the flow direction.
- Nucleate boiling behavior is observed for all channel orientations.
- Vertical downward flow induces the highest pressure drop.
- Flow boiling in vertical upward flow is a good choice for cooling devices.

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