

Accepted Manuscript

Research Paper

The Carbon Wire Bundle's Constructing as a Capillary Wick in the Flat Thin Heat Pipe

Seok-Hwan Moon, Yoon-Woo Park, Seok Ho Rhi

PII: S1359-4311(17)30916-X

DOI: <http://dx.doi.org/10.1016/j.applthermaleng.2017.02.042>

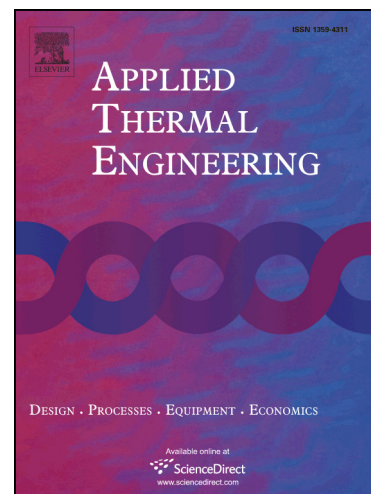
Reference: ATE 9923

To appear in: *Applied Thermal Engineering*

Received Date: 12 September 2016

Revised Date: 19 December 2016

Accepted Date: 11 February 2017



Please cite this article as: S-H. Moon, Y-W. Park, S.H. Rhi, The Carbon Wire Bundle's Constructing as a Capillary Wick in the Flat Thin Heat Pipe, *Applied Thermal Engineering* (2017), doi: <http://dx.doi.org/10.1016/j.applthermaleng.2017.02.042>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The Carbon Wire Bundle's Constructing as a Capillary Wick in the Flat Thin Heat Pipe

Seok-Hwan Moon,^{†} Yoon-Woo Park,[†] Seok Ho Rhi^{††}*

[†]3 Dimensional New Devices Research Section, ICT Materials and Components Research Laboratory, Electronics and Telecommunications Research Institute (ETRI), 218 Gajeong-no, Yuseong-gu, Daejeon 305-700, Republic of Korea

^{††}Department of Mechanical Engineering, Chungbuk University, 1 Chungdae-ro, Cheongju 28644, Republic of Korea

KEYWORDS: Enhancing thermal performance, Carbon wire, Aluminum flat heat pipe, Wire bundle, Extrusion, Thermal resistance

ABSTRACT: Flat plate heat pipe is required to be thin to apply 3D electronic package, which leads to declining heat transfer rate. Many studies enhance thermal performance by using various groove shapes, screen mesh, and mixed structures as wick. Nevertheless, these studies have not generated remarkable results. In the present study, we utilized carbon wire wick structure to improve the heat transfer rate of flat thin heat pipe (FTHP). The fabricated flat heat pipe in this study uses an aluminum container with 2 mm thickness and 12 channels to width direction via extrusion. The cross section of the aluminum container is designed as a groove wick structure at one side of the channel; a carbon wire is inserted to the other side. The carbon wire diameter is 7 μm , and the sharp edges made by carbon wires can contribute to capillary force creation. The 1 k

Download English Version:

<https://daneshyari.com/en/article/4990404>

Download Persian Version:

<https://daneshyari.com/article/4990404>

[Daneshyari.com](https://daneshyari.com)