

Title (en)

HIGH-POWER DIE HEAT SINK WITH VERTICAL HEAT PATH

Title (de)

HOCHLEISTUNGSSCHIPKÜHLKÖRPER MIT VERTIKALEM WÄRMEPFAD

Title (fr)

DISSIPATEUR THERMIQUE À MATRICE HAUTE PUISSANCE À TRAJET DE CHALEUR VERTICAL

Publication

EP 4334974 A1 20240313 (EN)

Application

EP 22722088 A 20220406

Priority

- US 202117313380 A 20210506
- US 202117313412 A 20210506
- US 2022071576 W 20220406

Abstract (en)

[origin: WO2022236216A1] Disclosed are apparatuses and methods for fabricating the apparatuses. In one aspect, an apparatus includes a high-power die mounted on a backside of a package substrate. A heat transfer layer is disposed on the backside of the high-power die. A plurality of heat sink interconnects is coupled to the heat transfer layer, where each of the plurality of heat sink interconnects is directly coupled to the heat transfer layer in a vertical orientation.

IPC 8 full level

H01L 23/367 (2006.01)

CPC (source: EP KR)

H01L 23/13 (2013.01 - KR); **H01L 23/3121** (2013.01 - KR); **H01L 23/3677** (2013.01 - EP KR); **H01L 23/49816** (2013.01 - EP KR); **H01L 23/49827** (2013.01 - EP KR); **H01L 23/49866** (2013.01 - KR); **H01L 24/29** (2013.01 - KR); **H05K 1/0209** (2013.01 - EP KR); **H05K 3/3436** (2013.01 - KR); **H01L 23/562** (2013.01 - EP); **H01L 25/0655** (2013.01 - EP); **H01L 2224/29347** (2013.01 - KR); **H05K 3/3436** (2013.01 - EP); **H05K 2201/10969** (2013.01 - EP)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

WO 2022236216 A1 20221110; BR 112023022547 A2 20240227; BR 112023022565 A2 20240102; EP 4334973 A1 20240313; EP 4334974 A1 20240313; KR 20240006528 A 20240115; KR 20240006529 A 20240115; TW 202245173 A 20221116; TW 202247377 A 20221201; WO 2022236215 A1 20221110

DOCDB simple family (application)

US 2022071577 W 20220406; BR 112023022547 A 20220406; BR 112023022565 A 20220406; EP 22720269 A 20220406; EP 22722088 A 20220406; KR 20237037470 A 20220406; KR 20237037471 A 20220406; TW 111113042 A 20220406; TW 111113044 A 20220406; US 2022071576 W 20220406