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(54) Title: PROTECTION DAM FOR A POWER MODULE WITH SPACERS

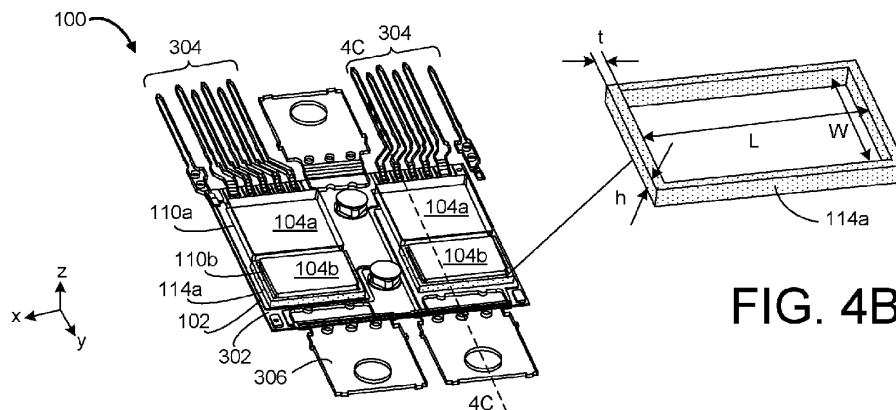


FIG. 4A

FIG. 4B

(57) Abstract: A protective dam (114) can relieve stress in a chip assembly (104) of a high-power semiconductor device module (100) used in electric vehicle or industrial applications. Some chip assemblies (104) that incorporate copper spacers (110b) for thermal dissipation can cause the device module (100) to become vulnerable to cracking. Adding a protective dam (114) can absorb stress to prevent damage to materials surrounding the chip assembly (104). Various types of protective dams (114) are presented, including high profile flexible protective dams (114a), low profile flexible protective dams (114b), metallic protective dams (114c), and integral protective dams (114d). The protective dams (114) can be incorporated into a high-power semiconductor device module (100) that features single sided or dual sided cooling via direct bond metal structures.

[Continued on next page]

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