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(54) **MICRO-ELECTRONIC COMPONENT  
COMBINING POWER DELIVERY AND  
COOLING FROM THE BACK SIDE**

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**ABSTRACT**

A micro-electronic component, for example an integrated circuit chip, is provided. In one aspect, the component includes a front-end-of-line (FEOL) portion and a back-end-of-line (BEOL) portion at its front side. A back side power delivery network (PDN) is present at the back side of the component, with via connections connecting the PDN to the FEOL and BEOL portions. The back side PDN includes a “dry part” and a “wet part,” where the dry part includes multiple interconnect levels of the PDN embedded in a dielectric material. The “wet part” includes the remaining PDN levels which are not embedded in a dielectric but which are part of a manifold structure configured to receive therein a flow of cooling fluid in order to remove heat generated by the devices in the FEOL portion.

