

**LIQUID METAL MICRO SWITCHES USING AS
CHANNELS AND HEATER CAVITIES MATCHING
PATTERNED THICK FILM DIELECTRIC LAYERS ON
OPPOSING THIN CERAMIC PLATES**

ABSTRACT OF THE DISCLOSURE

2 An efficient way to fabricate the channels and cavities in a LIMMS device is to form them as
matching upper and lower portions each created as a patterned layer of thick film dielectric material
4 deposited on a respective upper or lower substrate. The two portions are adhered together by a patterned
layer of adhesive, and hermetically sealed around an outer perimeter. The heater resistors are mounted
6 atop the lower layer, thus suspending them away from that substrate and exposing more of their surface
area. Vias can be used to route the conductors for the heaters and the switched signal contacts through
8 the lower substrate to cooperate with surface mount techniques using solder balls on an array of contact
pads. These vias can be made hermetic by their placement within the patterned layers of dielectric
10 material and by covering their exposed ends with pads of hermetic metal. Suitable thick film dielectric
materials that may be deposited as a paste and subsequently cured include the KQ 150 and KQ 115 thick
12 film dielectrics from Heraeus and the 4141A/D thick film compositions from DuPont.

FIG. 6 ACCOMPANIES THIS ABSTRACT