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(54) **THERMOELECTRIC ELEMENT**

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(57) **ABSTRACT**

A thermoelectric element according to one embodiment of the present disclosure includes a first metal substrate including a first through-hole formed therein, a first insulating layer disposed on the first metal substrate and including a second through-hole formed at a position corresponding to the first through-hole, a first electrode part disposed on the first insulating layer and including a plurality of first electrodes, a semiconductor structure disposed on the first electrode part, a second electrode part disposed on the semiconductor structure and including a plurality of second electrodes, a second insulating layer disposed on the second electrode part, and a second metal substrate disposed on the second insulating layer, wherein the first metal substrate includes a first outer periphery, a second outer periphery, a third outer periphery, and a fourth outer periphery which define a shape of the first metal substrate, the first outer periphery and the fourth outer periphery are opposite to each other, the second outer periphery and the third outer periphery are opposite to each other between the first outer periphery and the fourth outer periphery, the first electrode part includes a first region vertically overlapping the plurality of second electrodes, at least one of the plurality of first electrodes includes an extension portion extending toward the first outer periphery from the first region, the first through-hole is formed in an inside of the first region, and a shortest distance between the second outer periphery and a first electrode, which is closest to the second through-hole among the plurality of first electrodes, is within  $\pm 10\%$  of a shortest distance between the second outer periphery and the extension portion.

