In this paper, we investigate the use of thermal feedback on a smart ring with multiple thermoelectric coolers (TECs). Our prototype aims to offer an increased expressivity with spatial thermal patterns. Our pilot study showed that users could reliably recognize 4 single points with cold stimulation (97.2% accuracy). In the following two main experiments, we investigated the use of 4 in-ring TECs to achieve two categories of spatial thermal patterns by combining two neighboring or opposite elements. The results revealed three neighboring patterns and five opposite patterns that were reliably recognized by the participants with the accuracy above 80%. While the follow-up experiment suggested that it could be confusing for users by combining four single-spot cold stimulations, three neighboring patterns, and five opposite patterns in the same group (average accuracy: 50.2%), we conducted two more follow-up studies, showing that the participants could identify the thermal patterns in the combined group of the single-spot cold stimulations and the neighboring patterns (average accuracy: 85.3%), and the combined group of the single-spot cold stimulations and the opposite patterns (average accuracy: 89.3%). We further conducted three design workshops, involving six product/interface designers, to investigate the potential of using these thermal patterns for different applications. The designers suggested different mappings between the given thermal patterns and the information, including direction cueing through single-spot and neighboring patterns, artifact comparison through opposite patterns, notifying incoming calls/messages from different persons with different locations and temperatures of the TECs, etc. This demonstrated interest in spatial thermal patterns in smart rings not only for notifications but also for various everyday activities.