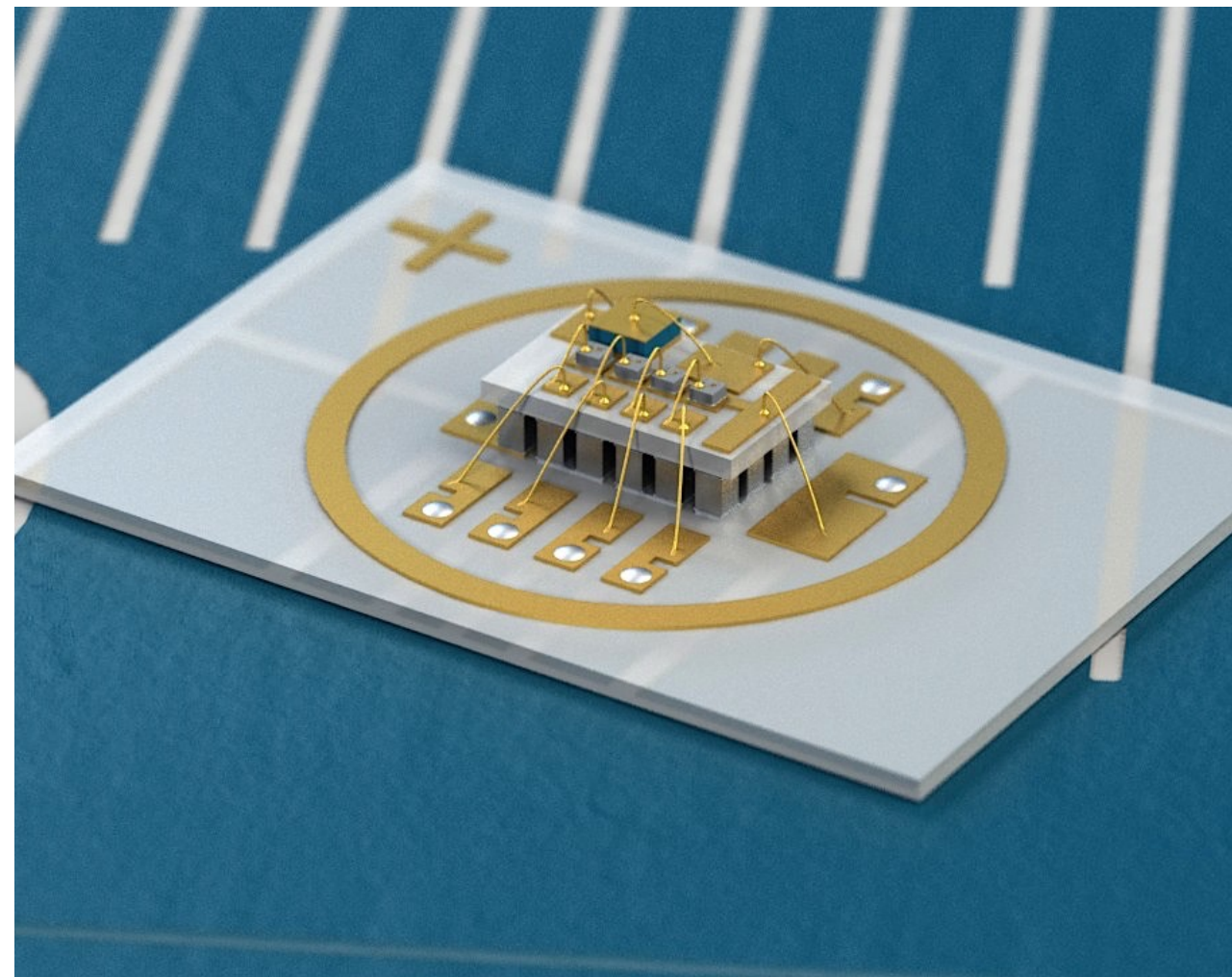
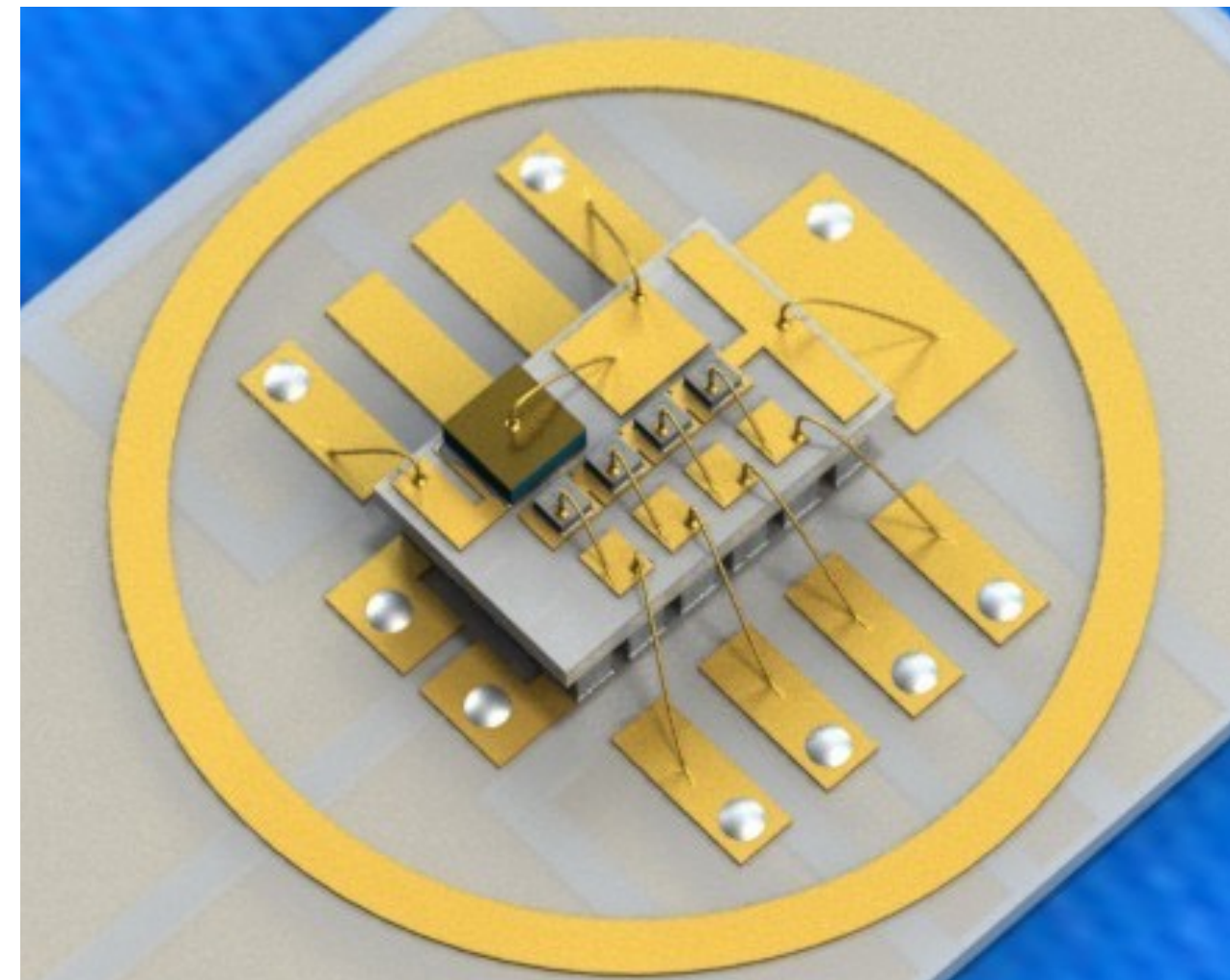




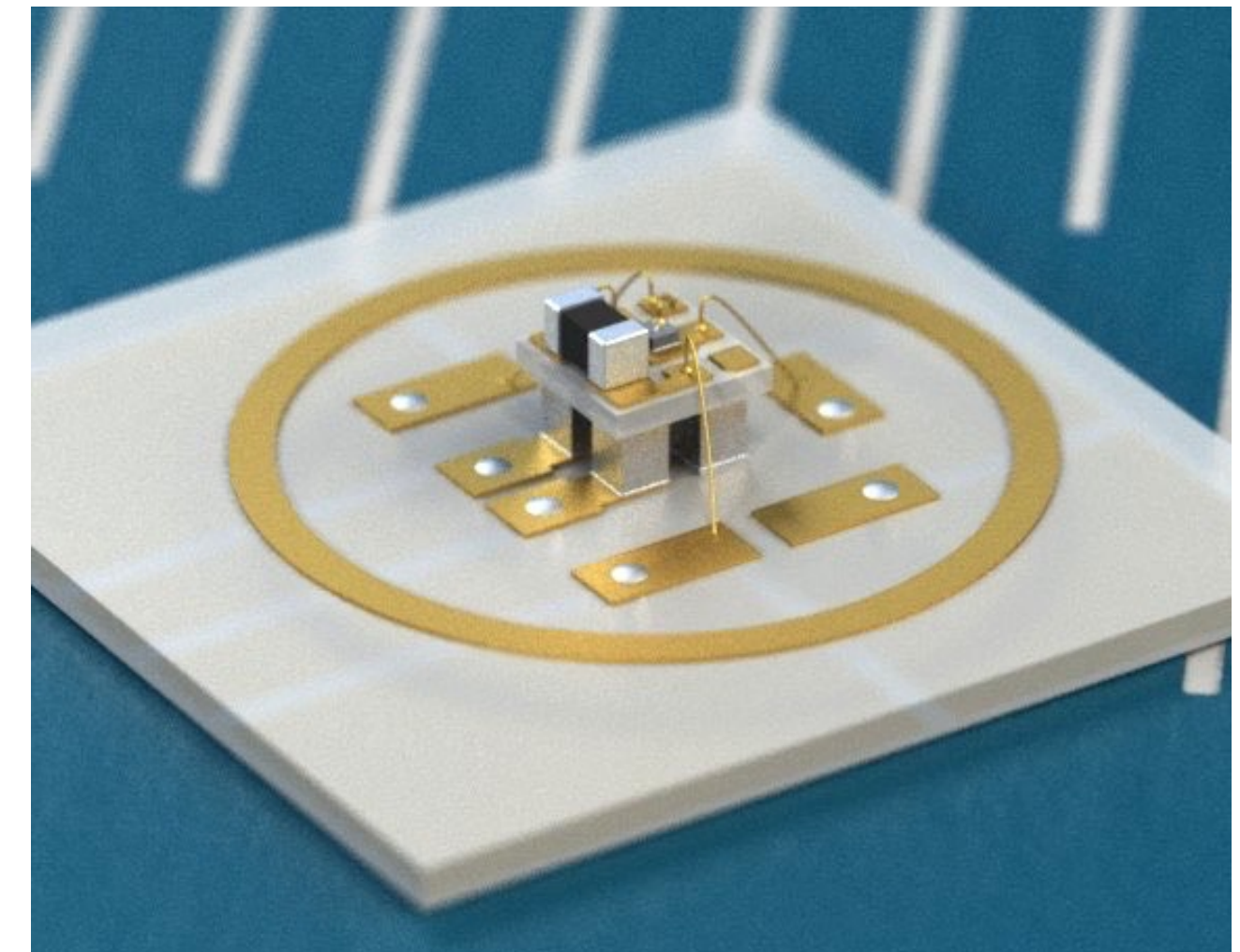
## Header-free Solution for VCSEL Applications



TEC Bottom Ceramics is revised for SMT process (using Vias)



Flexible solutions for single VCSEL and Arrays

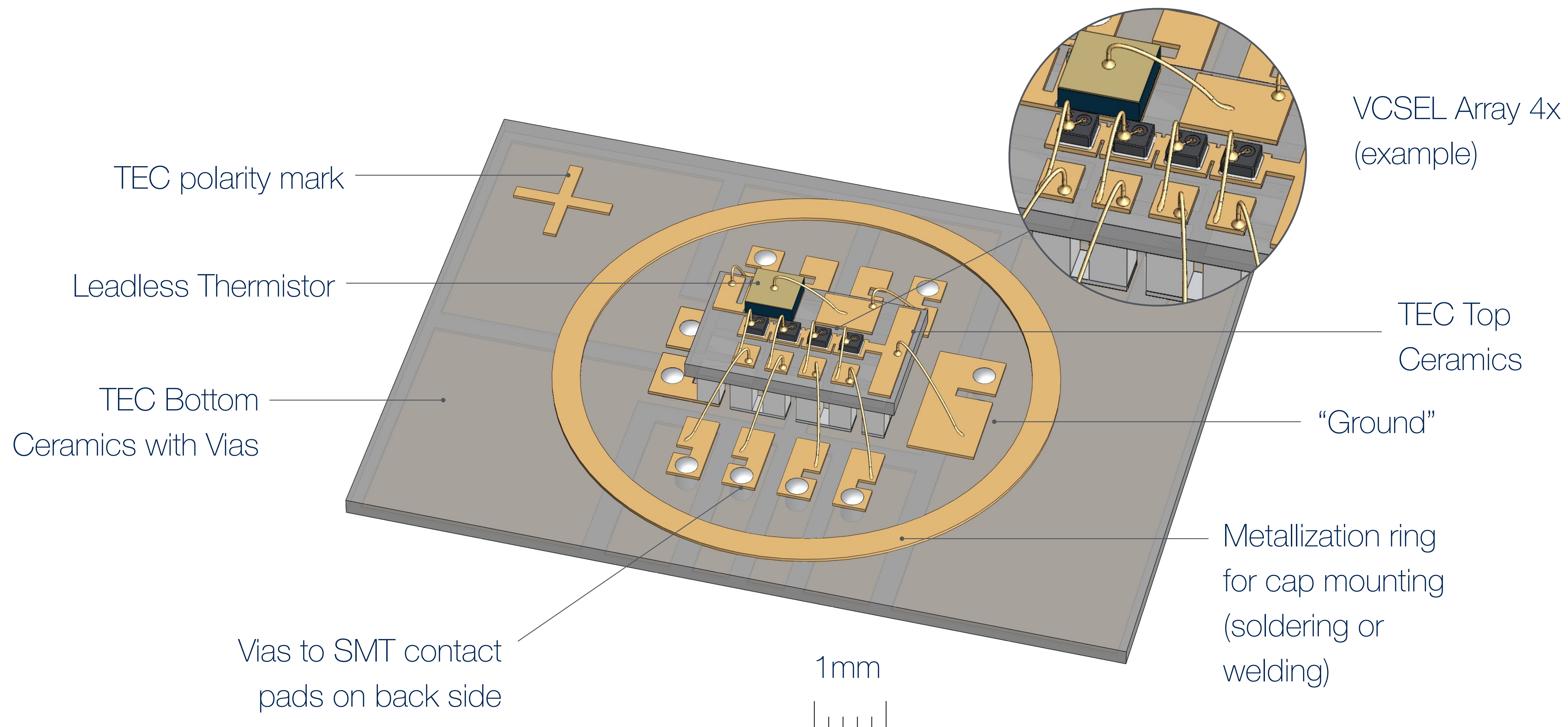


Various TEC solutions with different performance parameters





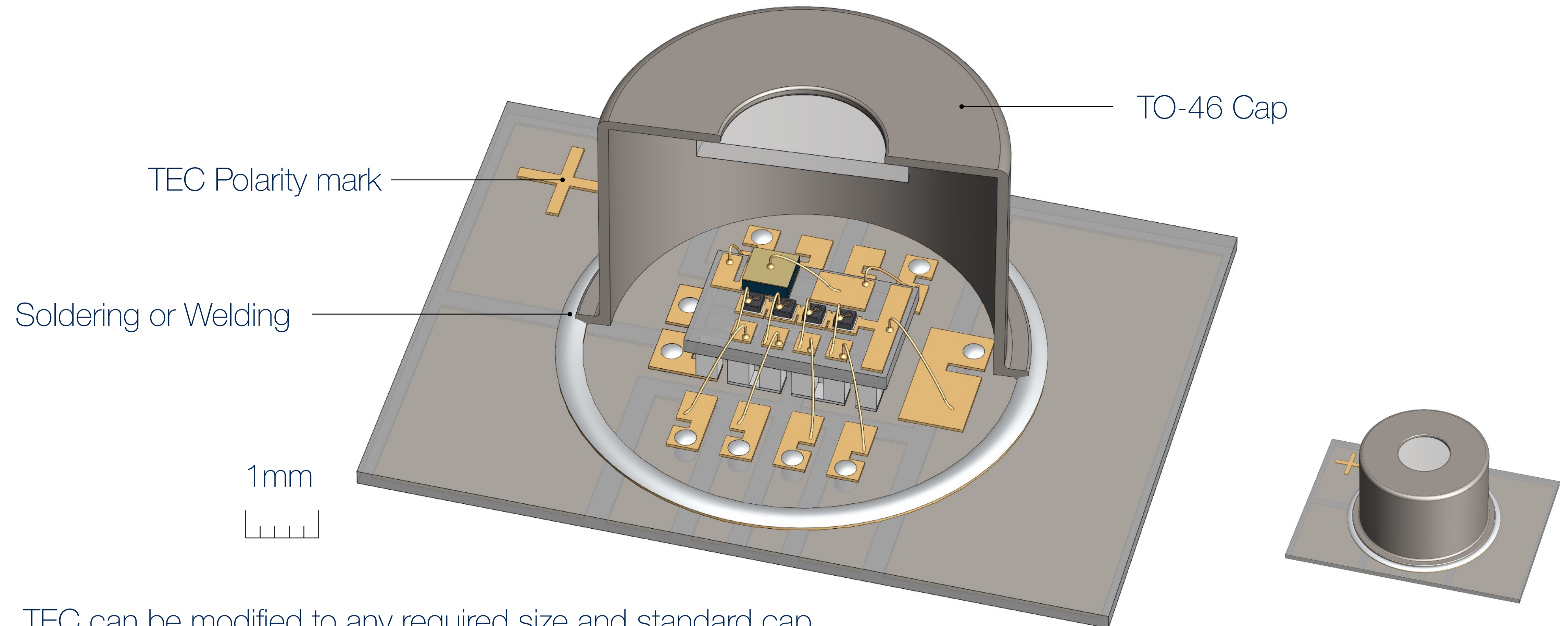
## Header-free Solution for VCSEL Applications (Example)







## Header-free Solution for VCSEL Applications



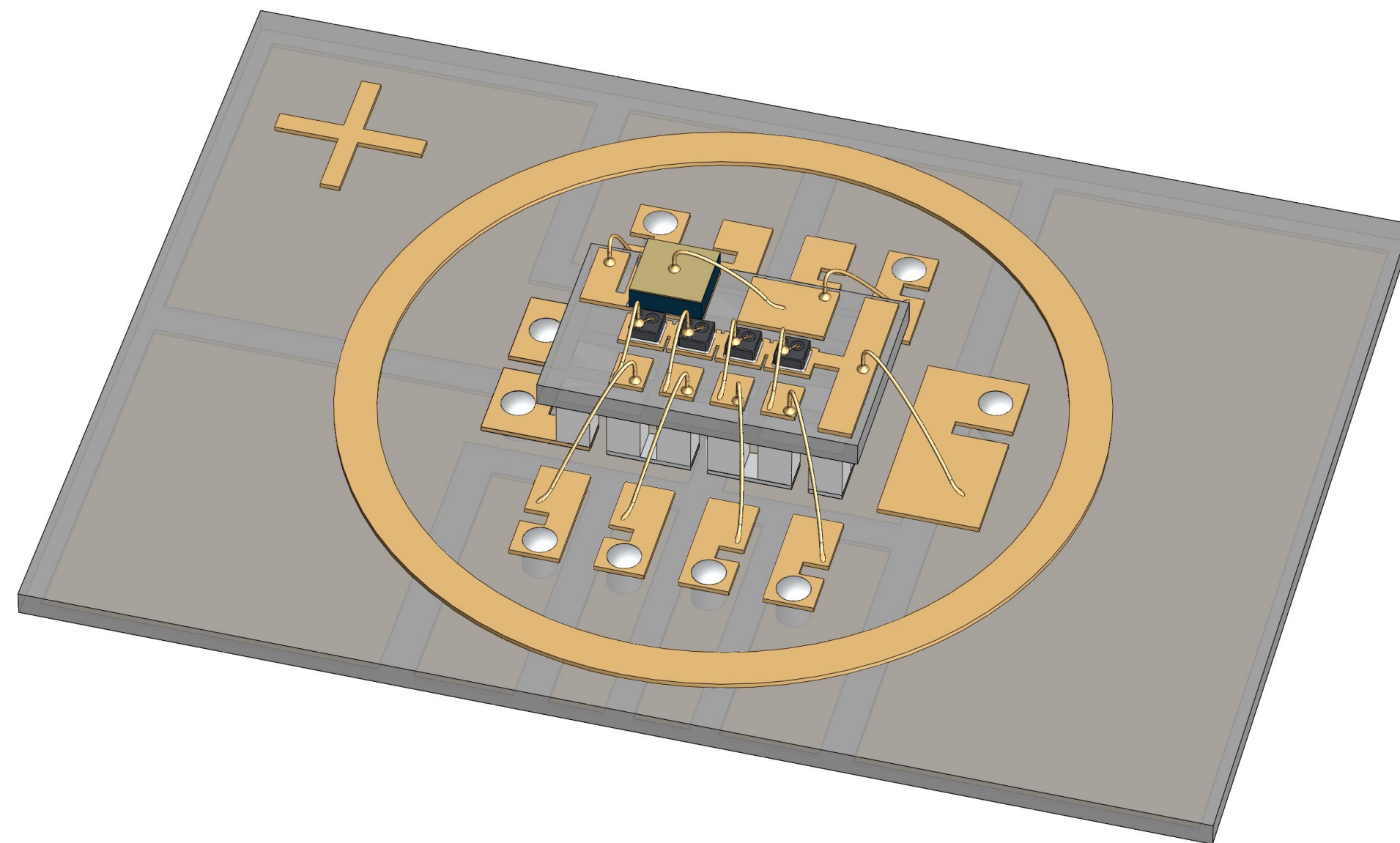
TEC can be modified to any required size and standard cap  
Flexible solution for Single VCSEL and VCSELs Array



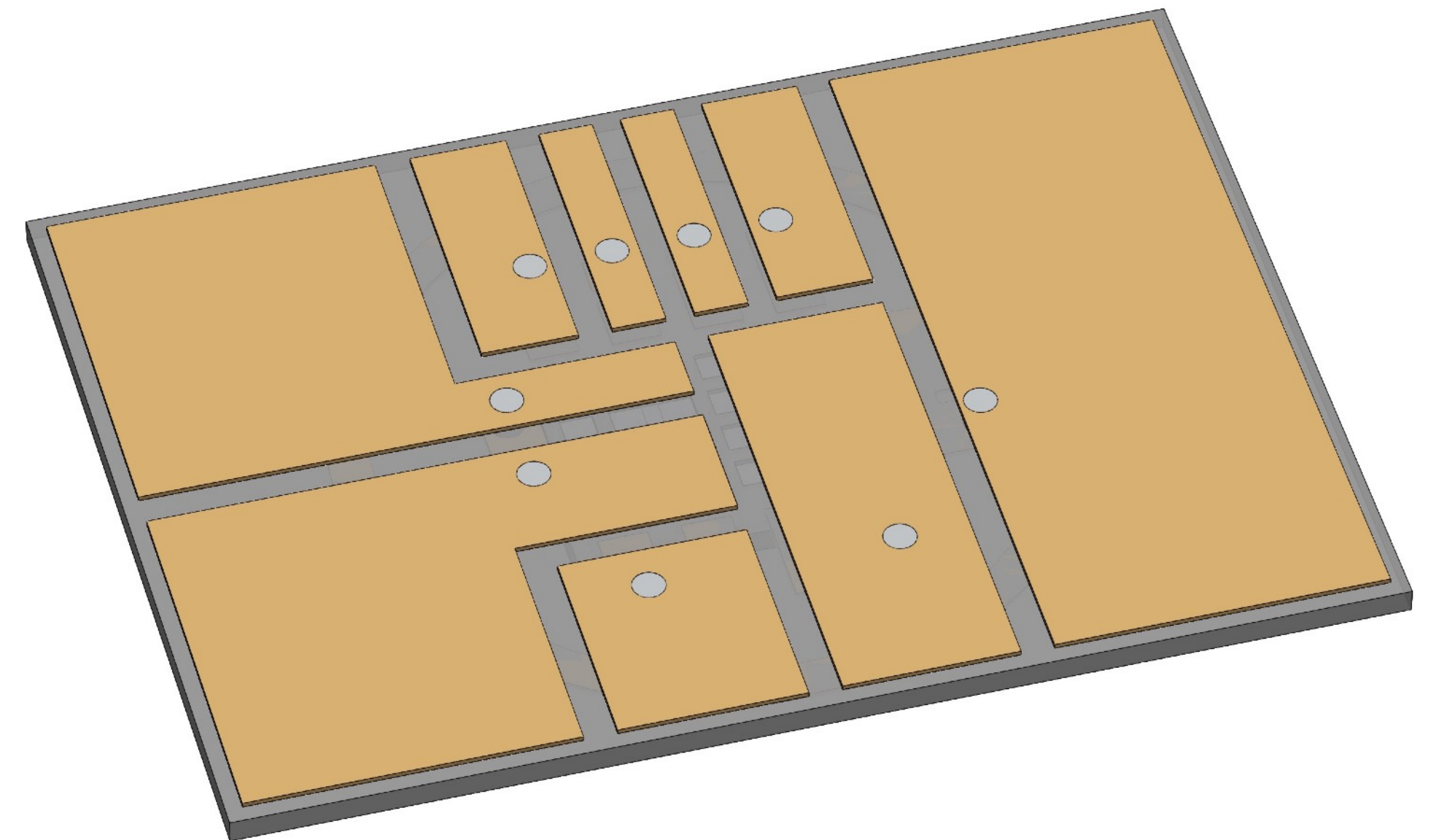


## Header-free Solution for VCSEL Applications

VCSEL TEC Example Assembly



Bottom side layout  
(example)



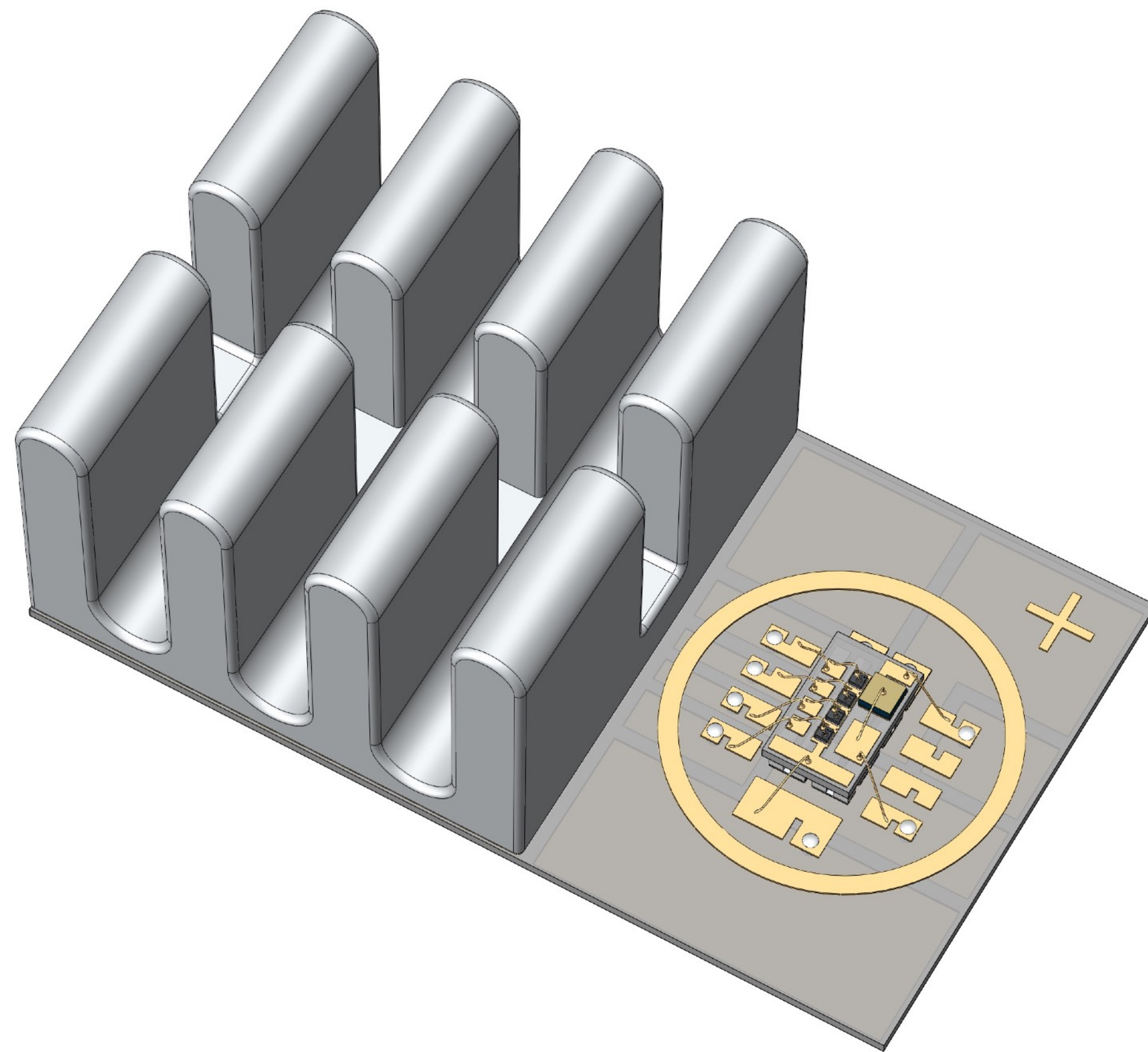
TEC Bottom Ceramics is suitable for SMT mounting.  
VIAS, pinout, TEC type are variable

SMT surface can be developed in accordance  
to application requirements (size, number of vias and etc)

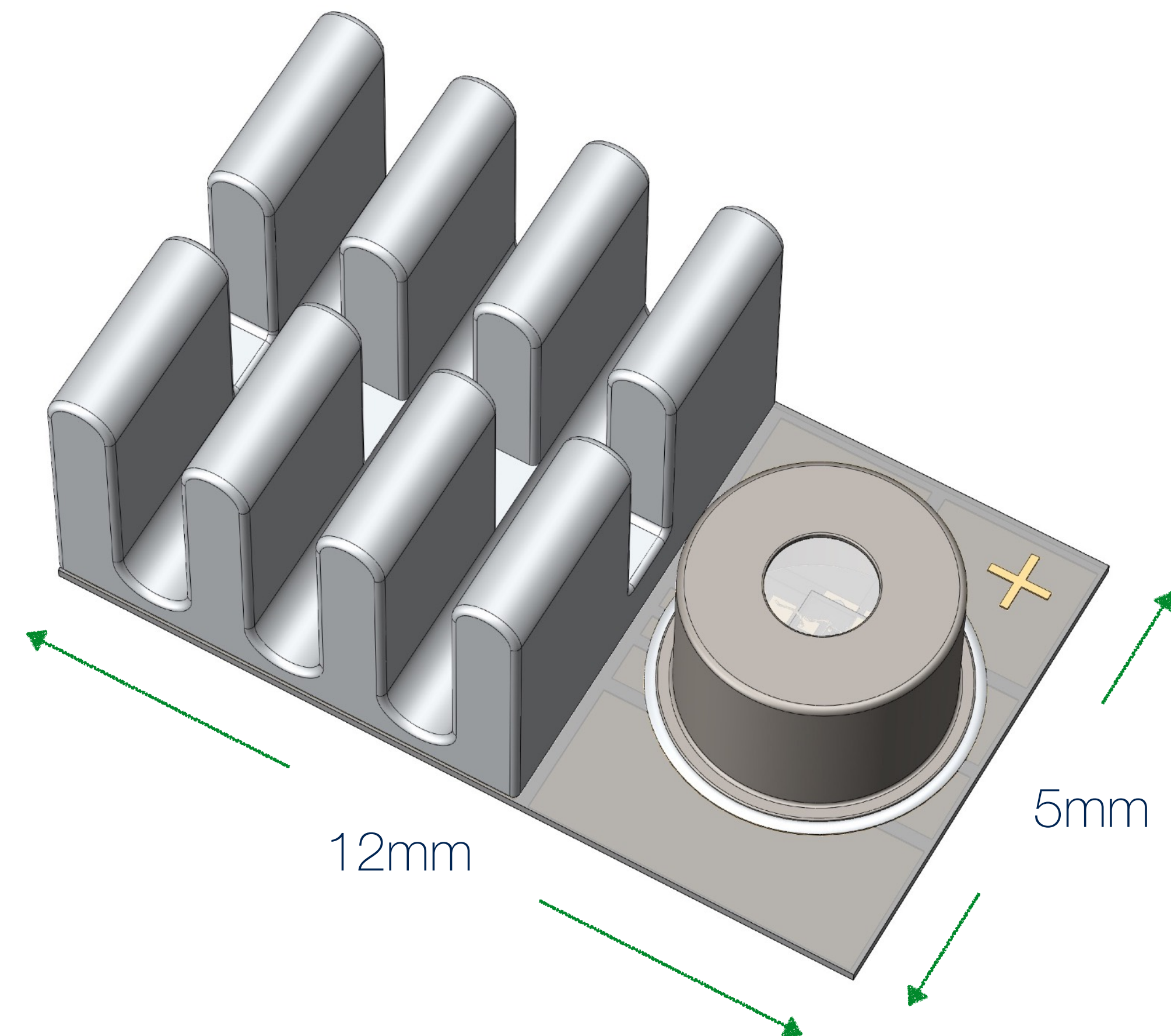




## Variable Modification with Heatsinks



Extended Ceramics for standard  
7x7x4mm<sup>3</sup> Heatsink mounting

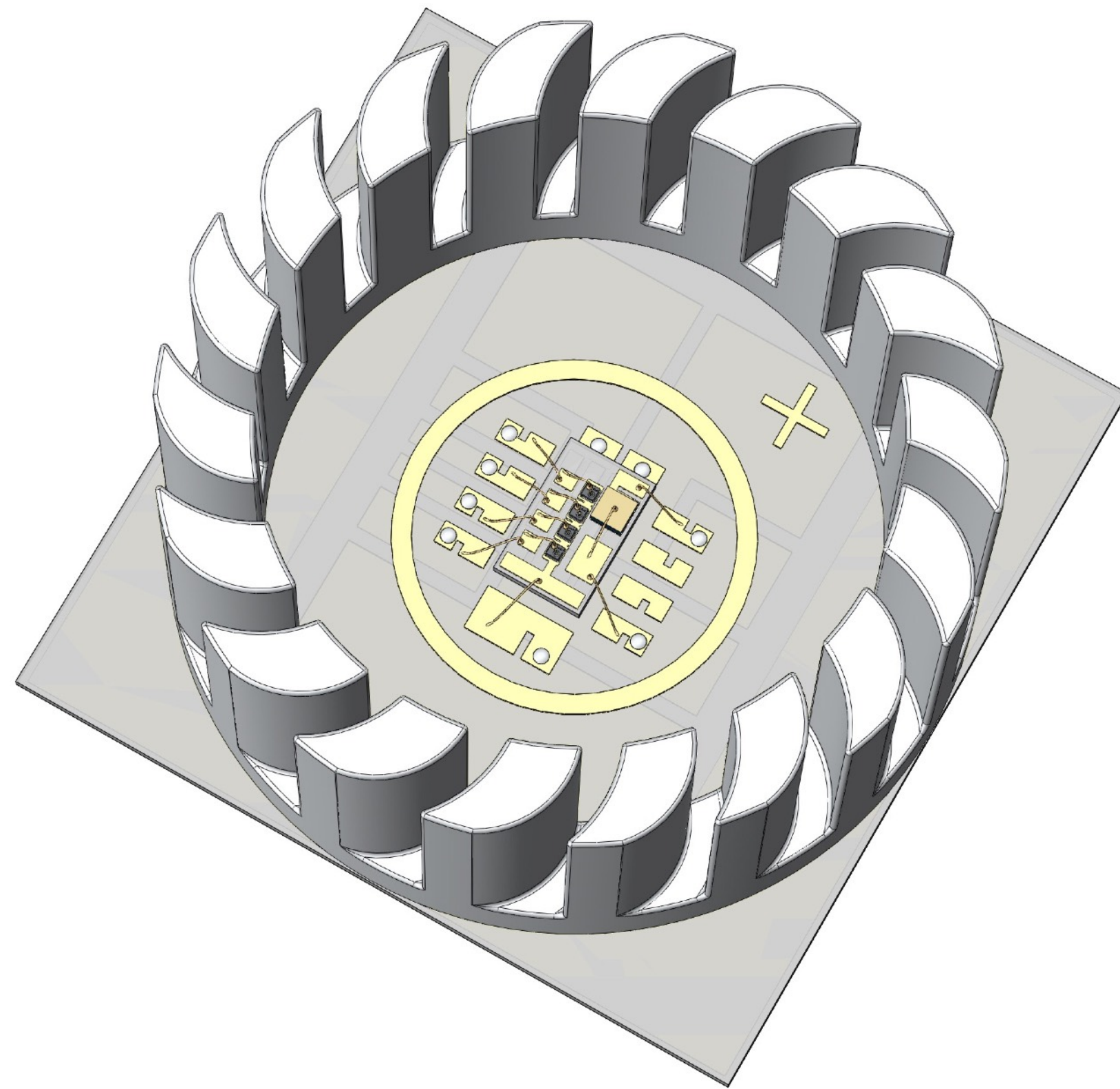


Final Solution after Sealing

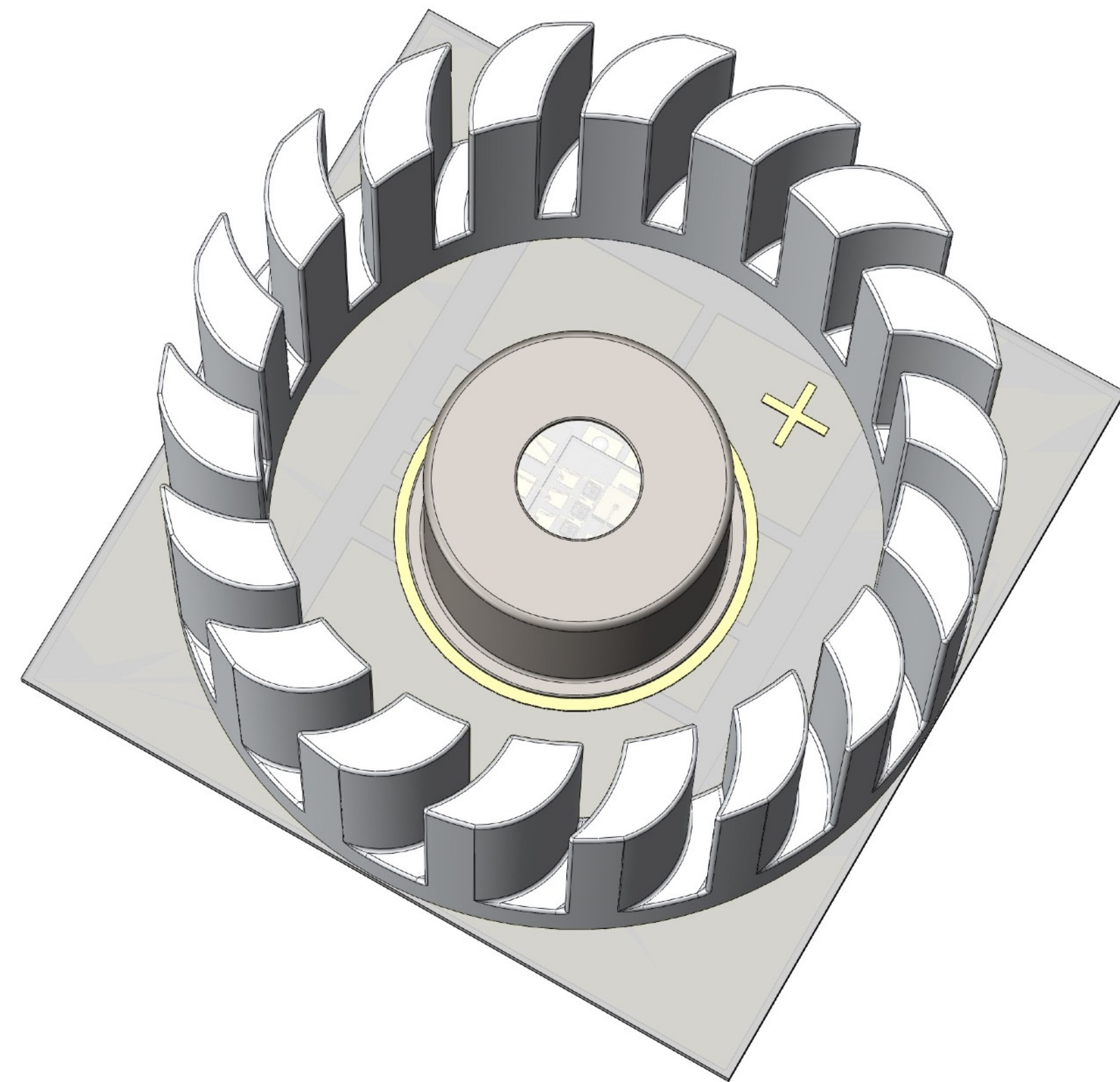




## Variable Modification with Heatsinks - Radial Heatsink (Example)



Extended Ceramics for customized  
10mm dia Radial Heatsink

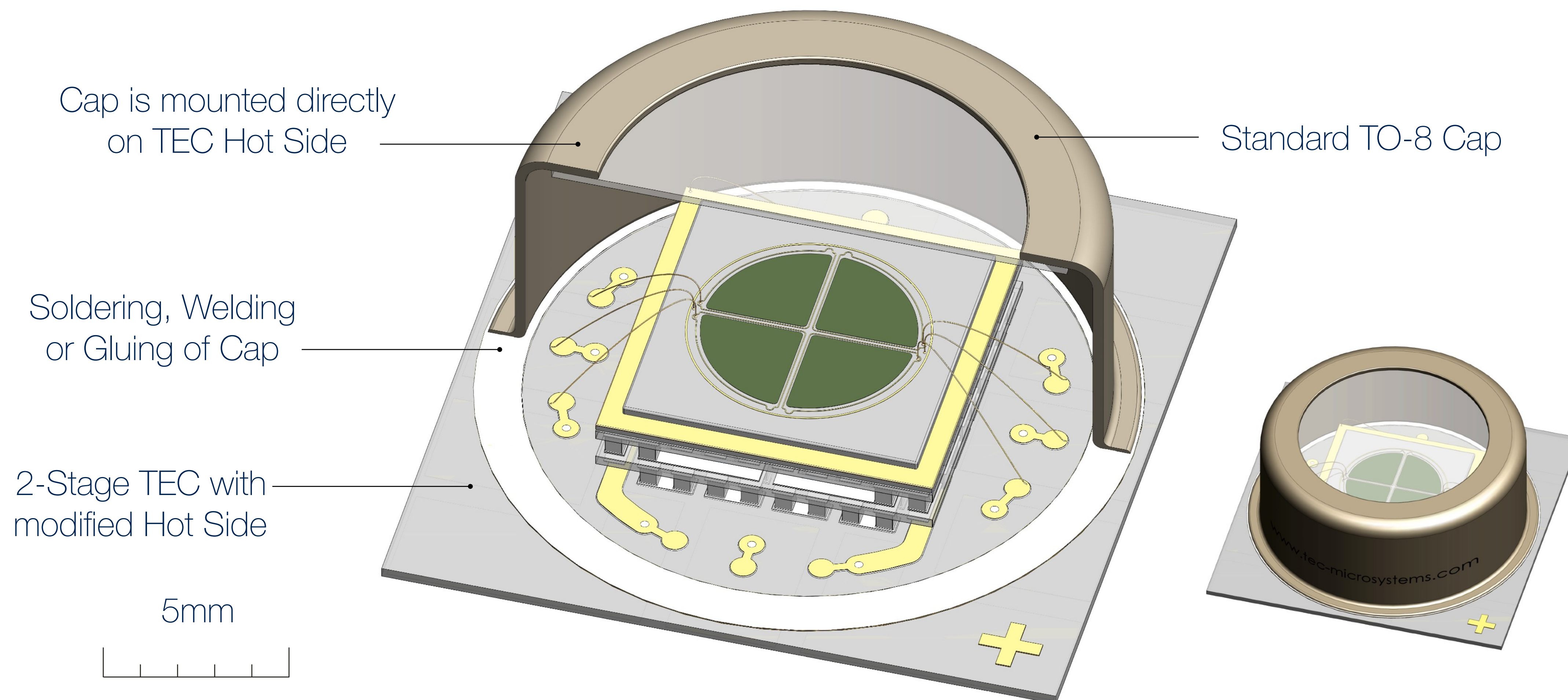


Final Solution after Sealing





## Header-free TEC Solution for APD Applications (Concept)

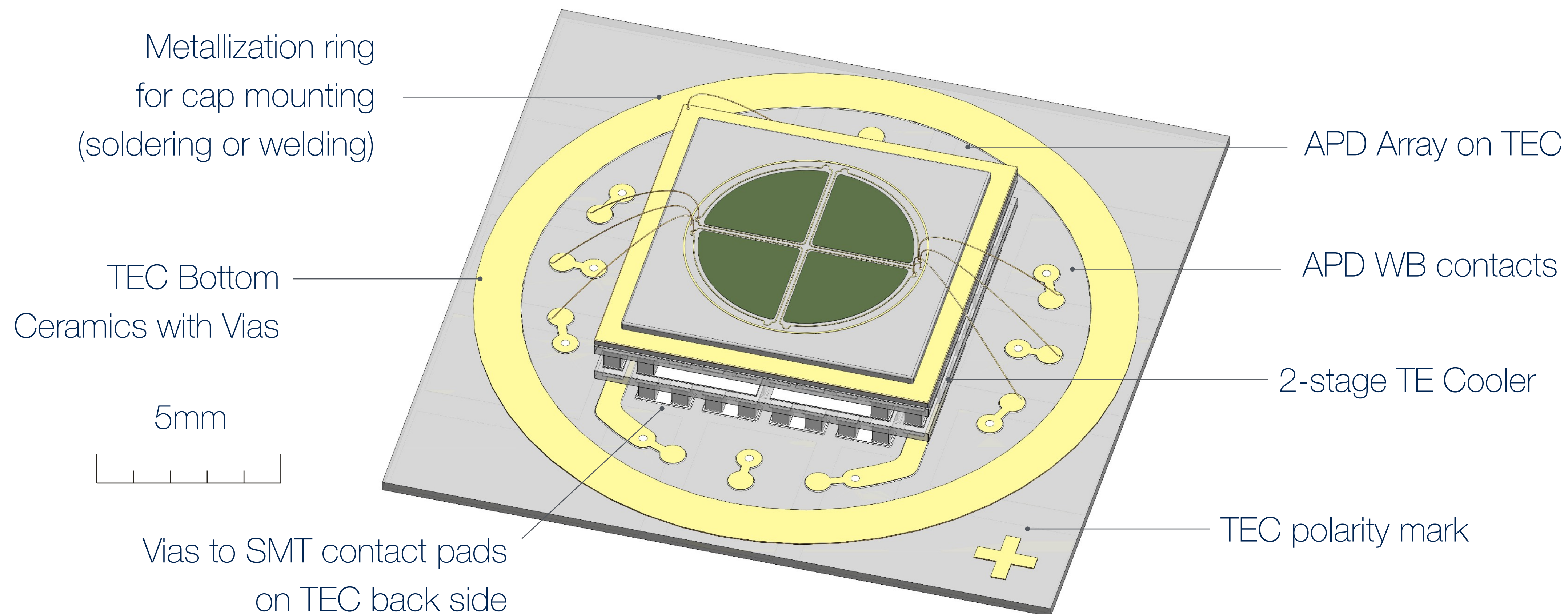


Any TEC can be modified for Header-Free Solution. Flexible configurations for Single APD and APD Arrays





## Header-free TEC Solution for APD Applications (Concept)

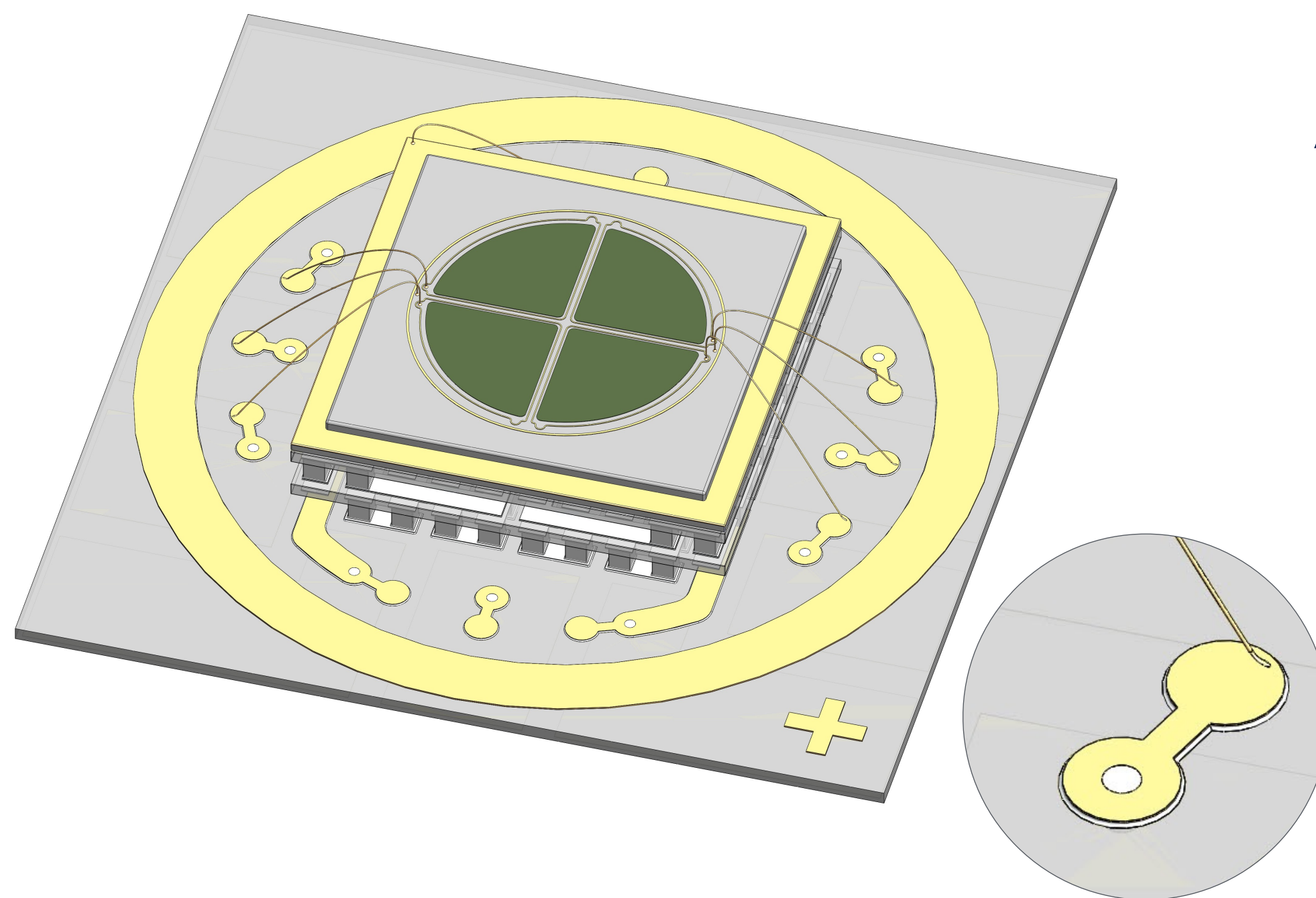






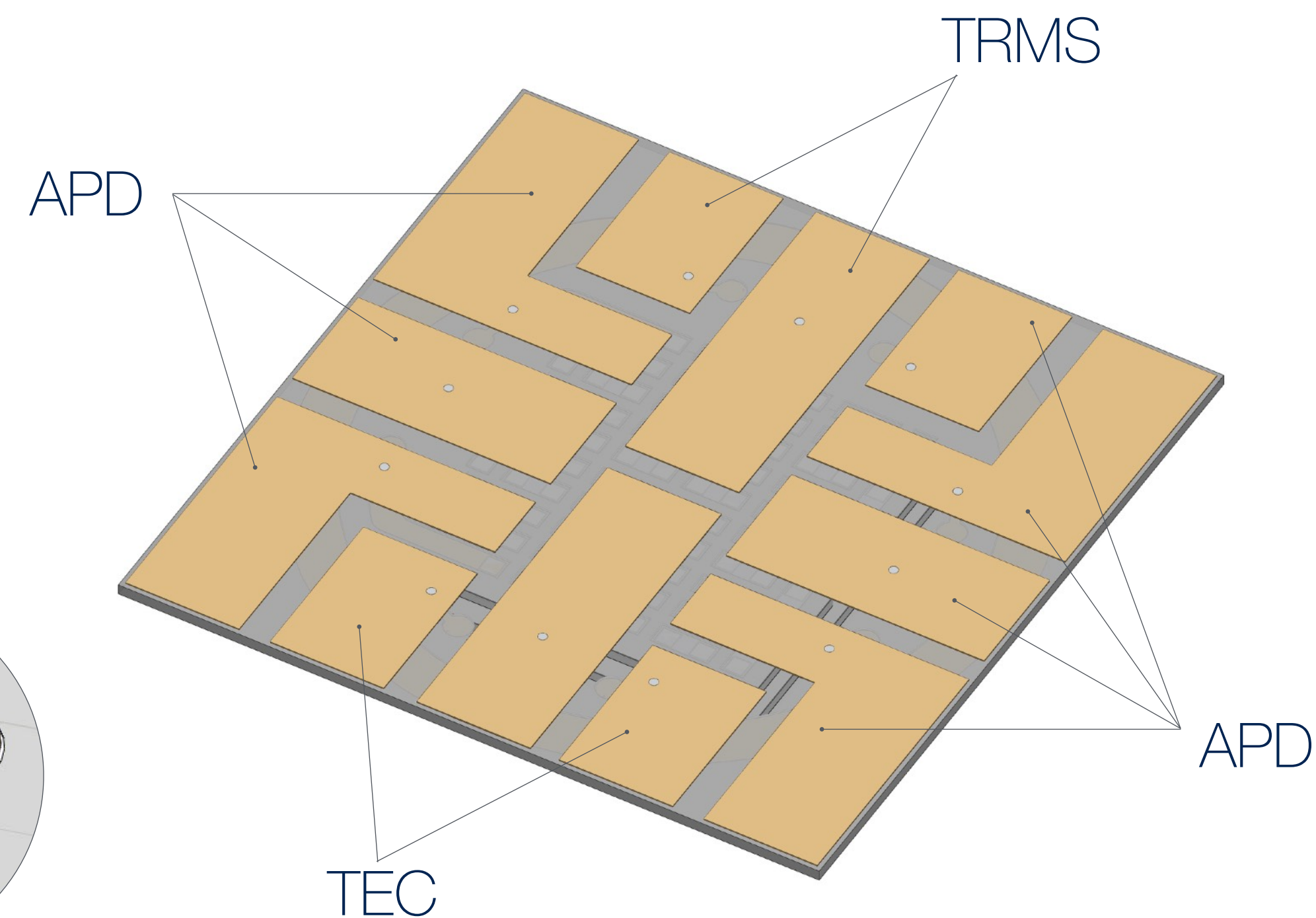
## Header-free TEC Solution for APD Applications (Concept)

APD Array on 2-stage Header-free TEC  
(Example)



TE Cooler Bottom Ceramics is optimized  
for SMT mounting using VIAS

TEC Bottom side layout  
(Example)

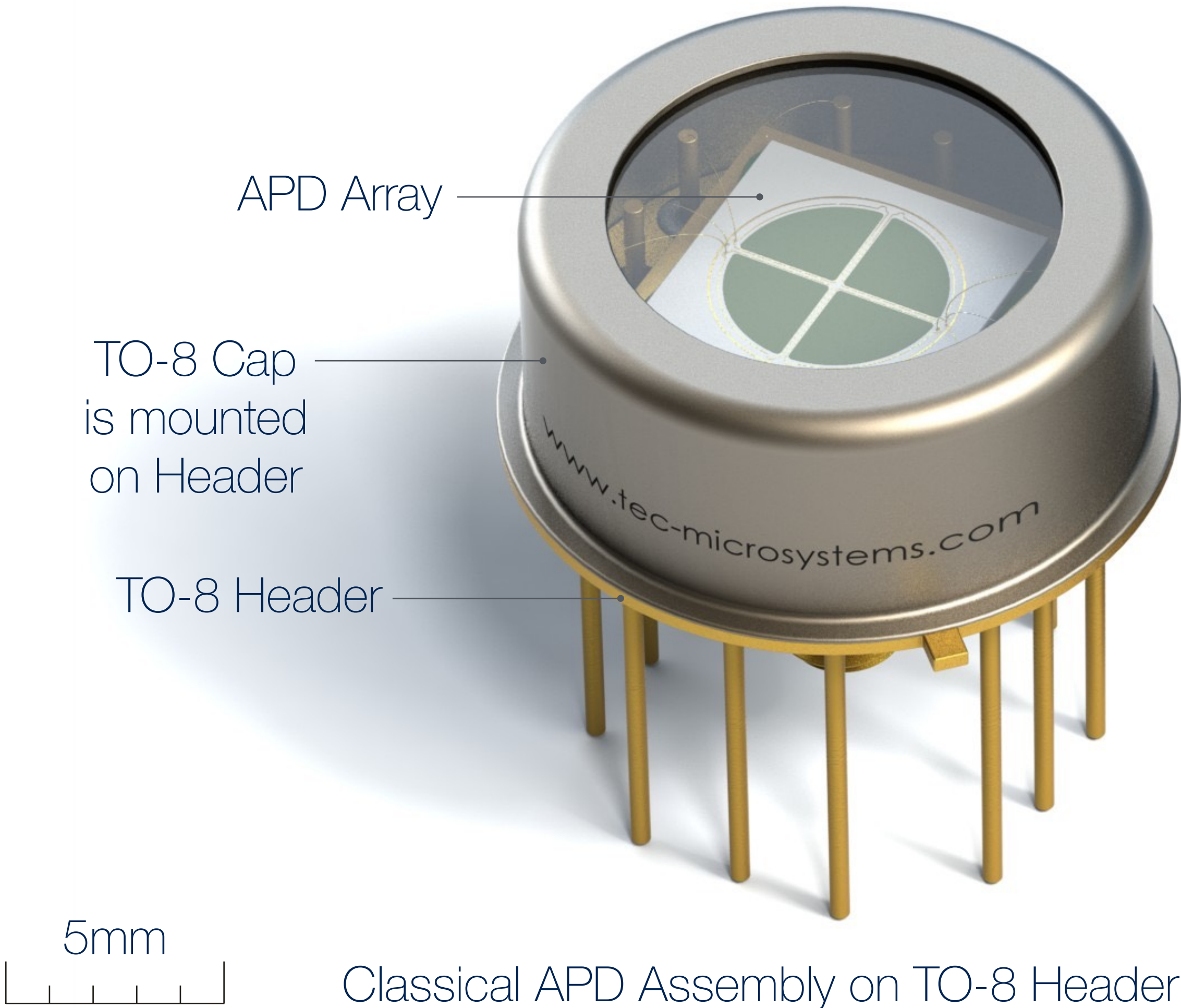


SMT TEC surface can be developed in accordance  
to application requirements (size, number of vias and etc)





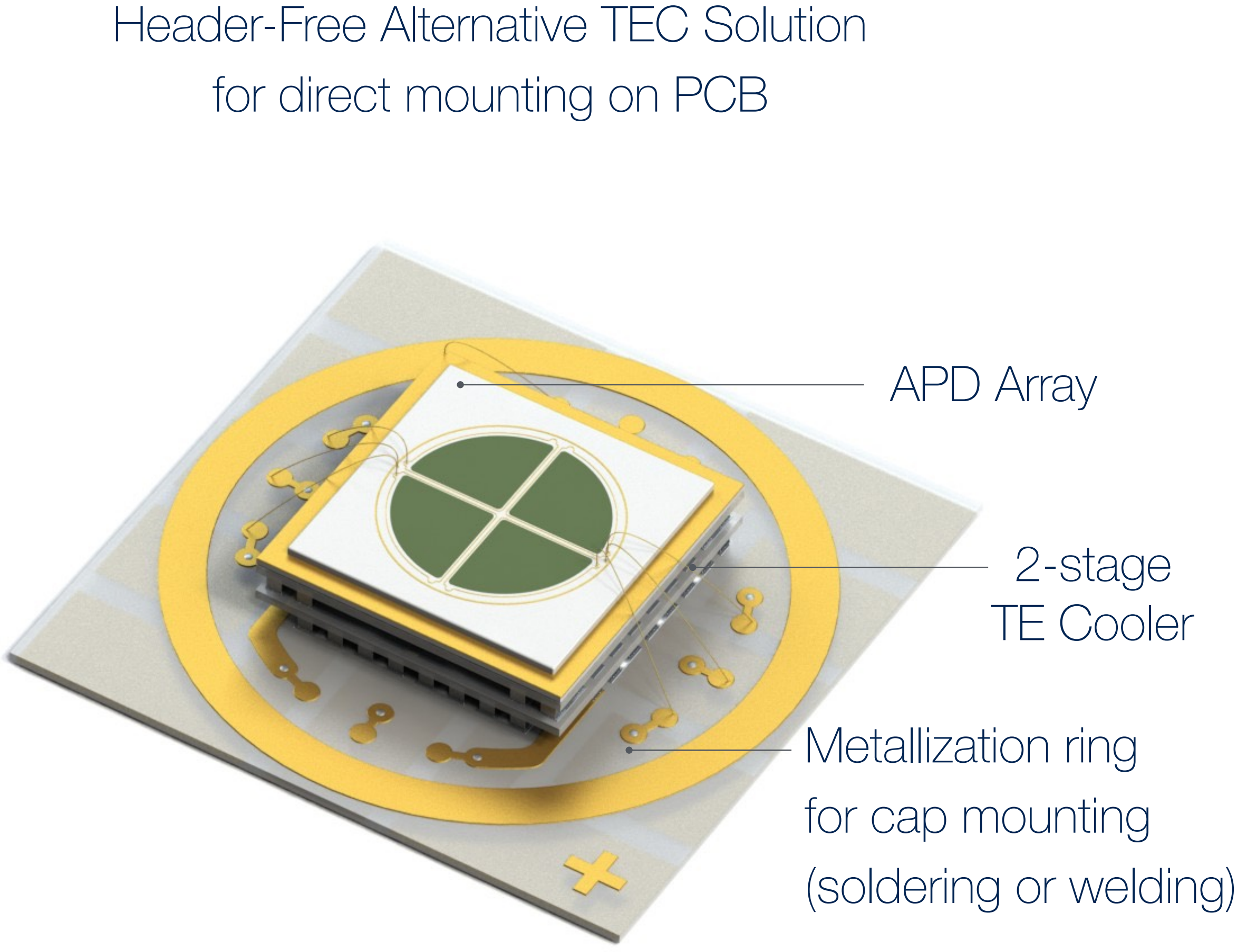
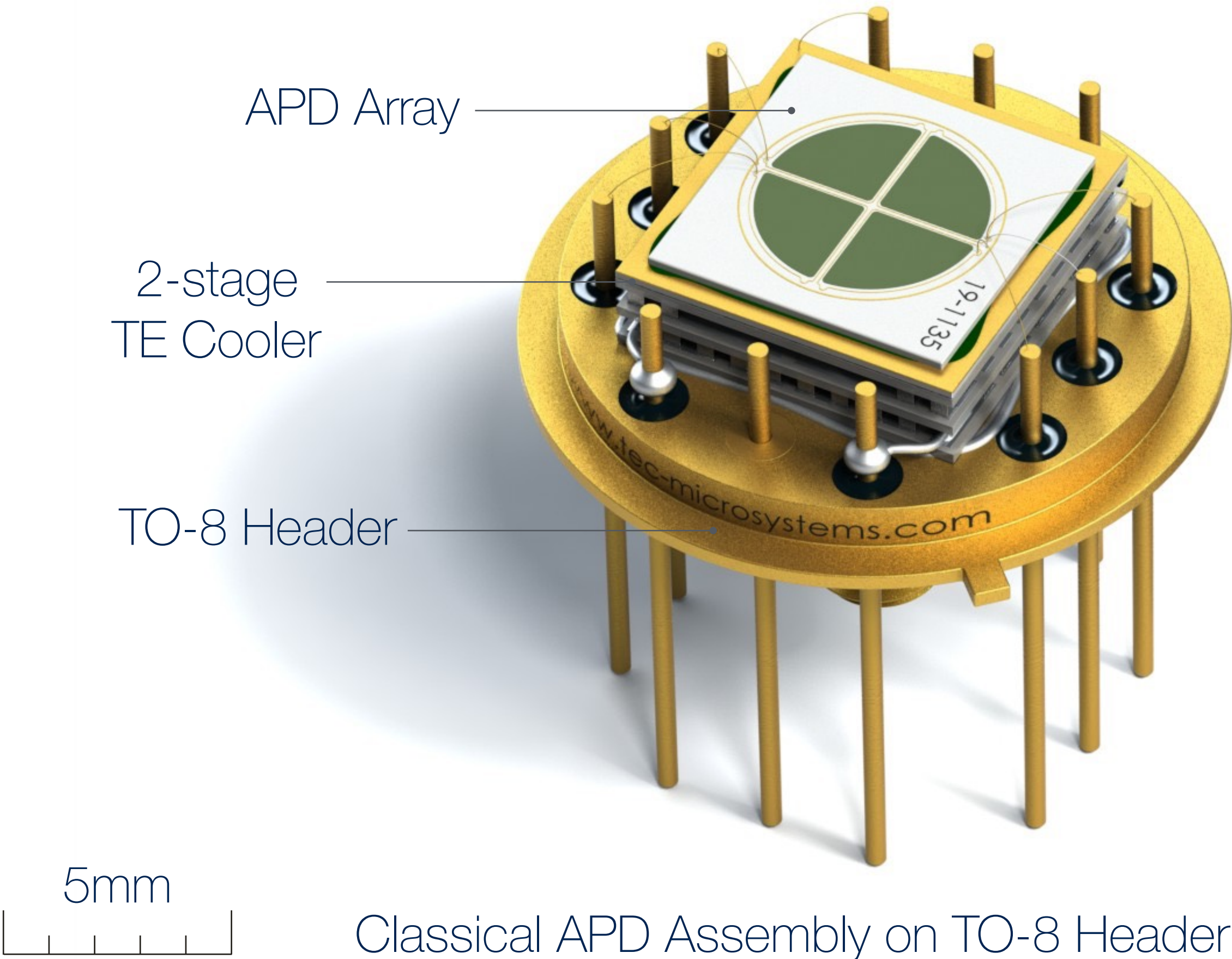
Header-free TEC Solution for APD Applications (Example)







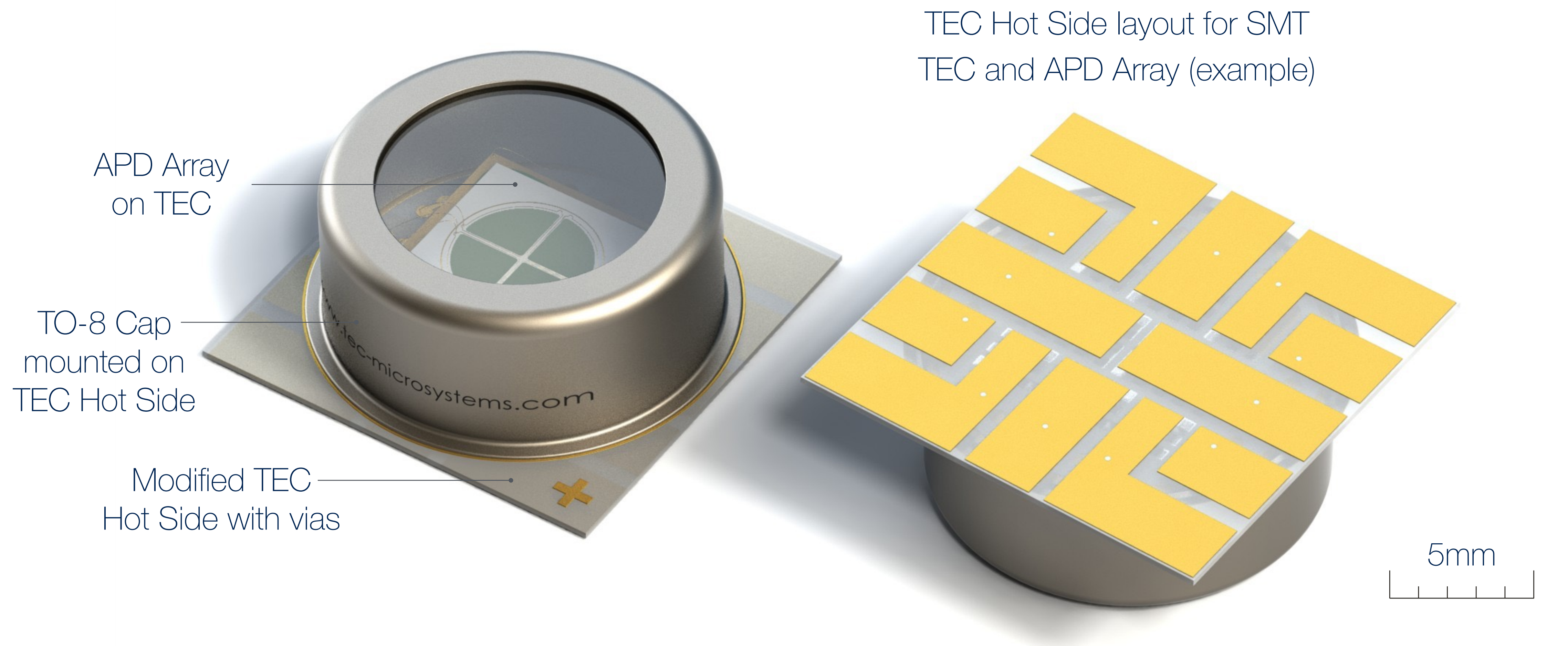
Header-free TEC Solution for APD Applications (Example)







## Header-free TEC Solution for APD Applications (Example)



SMT surface can be developed in accordance to application requirements (size, number of vias and etc)