American Standard Circuits
Sunstone Circuits

AMERICAN STANDARD CIRCUITS THERMAL MANAGEMENT SOLUTIONS

Discover ASC's commitment to close collaboration with their customers, showcasing how obstacles seamlessly transform into opportunities and long term solutions.

USE CASE SUMMARY

In defense applications, where performance, reliability, and thermal management are imperative, the demand for advanced solutions to efficiently dissipate heat is critical. This whitepaper presents a case study highlighting how our innovative PCB solutions addressed the thermal management challenges faced by a major defense contractor, delivering superior performance and reliability in demanding environments.

CHALLENGE

One of our defense customers encountered difficulties in dissipating extensive heat generated by a 4-layer PCB in their advanced defense systems. Other solutions fell short in meeting stringent thermal management requirements while ensuring electrical isolation between the PCB and the copper heat sink. The challenge required development of a solution that could efficiently dissipate heat while maintaining electrical isolation and reliability.

SOLUTION

The ASC team proposed a comprehensive thermal management solution tailored to the specific needs of the defense contractor: Including the following

- ### Development of Thermally Conductive PCBs
  ASC Sunstone engineered a specialized 4-layer PCB using 10 mil Thermasil® material with a thermal conductivity of 4.0 W/mK. This advanced material provided superior thermal conductivity while preserving electrical isolation, making it ideal for heat dissipation from the PCB.

- ### In-house Fabrication and Bonding
  Leveraging our advanced manufacturing capabilities, we fabricated both the PCB and the copper heat sink with intricate routing in-house. This integrated approach ensured precise alignment and compatibility between the PCB and the heat sink, optimizing heat transfer and reliability.

- ### Collaboration with Design House
  Close collaboration with the design house aided in the overall PCB design process, leveraging their expertise in defense applications. The prototyping phase, lasting three months, involved iterative testing and refinement to optimize the thermal management solution for performance and reliability.

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RESULTS

The implementation of our thermal management solution yielded significant results for our client including:

- **Superior Performance**

  The Thermasil-based PCB, coupled with the copper heat sink, surpassed performance expectations. The integrated solution effectively dissipated heat from the PCB, ensuring optimal performance and reliability in demanding defense applications.

- **Reliability and Durability**

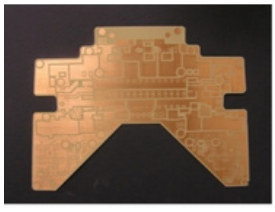
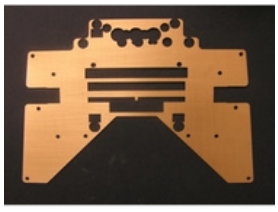
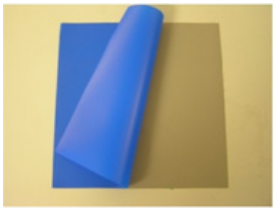
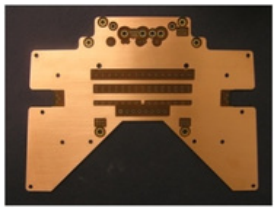
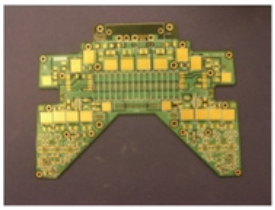
  Our in-house fabrication and bonding processes, along with rigorous testing, ensured the reliability and durability of the thermal management solution, enabling consistent performance under challenging environmental conditions.

- **Customer Satisfaction**

  The defense contractor was highly satisfied with the thermal management solution's performance, surpassing initial design modeling. Our collaborative approach, innovative solutions, and dedication to customer satisfaction strengthened our partnership with the defense contractor.

CONCLUSION

Through innovative PCB solutions and collaborative partnerships, we successfully addressed our customers thermal management challenges for their defense project, delivering superior performance, reliability, and durability. This whitepaper underscores the commitment we have to partnering with our clients to provide innovation, excellence, and customer satisfaction and advanced solutions for the most demanding environments.

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