

AE's SLE Series performance and lowest radiated/conducted noise ideal for use within automotive diagnostics

INDUSTRY

Automotive

SOLUTION

SLE60PSD

EQUIPMENT

Automotive diagnostic

CHALLENGE

The customer is using a tablet, embedding their software on it for automotive diagnostic. The end customer wanted PD to communicate with existing USB-C coms/charging port. The challenge from the design perspective is the impact of conducted and radiated emissions noise on the performance of the tool. In the application of automotive diagnostics, systems are complex and have many items generating their own noise such as alternators and computer circuits (a new car can have upwards of 50 microcontrollers or MCU's). Being

able to accurately read data from the complex network of systems and sensors in an auto is key to modern automotive diagnostics. On a common bus, Controller Area Network (CANBUS for example) noise could impact the reading or data needed for an accurate diagnosis of a fault condition. The tools go well beyond reading a system code, they can read live data from sensors to see how a particular system is operating (which parameter is causing the computer to send a trouble code and turn on the check engine light).

SOLUTION

The modern diagnostic tool is bi-directional and can be used to modify or correct a system setting related to a trouble code. Based on this, the engineer valued the EMI/EMC performance of the supply, giving added confidence in proper operation in the field and the reputation of the product that goes with a well-respected OEM of diagnostic tools.

The solution proposed to address these requirements was AE's SLE60SPD. This power supply module offers 3A maximum at 5V, 9V, 12V, 15V, and 20V output voltages. It has medical and ITE safety approvals and meets DoE Efficiency Level VI and EU CoC Version 5, Tier 2 requirements. The SLE60 is also suitable for medical equipment up to Class BF and meets Class B EMI, making it ideal for home healthcare applications. The enhanced EMI and EMC performance ensures easy integration into end-equipment while the use of high-quality electrolytic capacitors provides a long operational life.

RESULT

- The SLE60PSD performance won over lower cost solutions from competitors
- Advanced Energy's power supply had lowest radiated and conducted noise. The SLE60PSD excelled in producing a low noise signal within diagnostic environment/ auto shops where the competition failed EMC/CE.
- The end customers' ability of case customization (glossy finish, logo added to top and bottom of case)
- The custom box for shipping individual parts (compatible with their packaging)
- Advanced Energy provided RCM mark for shipping to Australia (US, EU, AU for now)
- Rides through unstable mains power fluctuation, ensuring continuous operation
- Enhanced EMI and EMC performance ensured easy integration into end-equipment



CONCLUSION

Related to the filed reputation, branding of the supply was important to the customer, they put a value on adding their logo to both sides of the case, the proper aesthetics for the intended customer is part of promoting the brand (a “bespoke” look and feel to all items that ship with the tool). Advanced Energy's willingness to work and engage with all the customers requests allowed to get this unique project completed. The USB-C power delivery and long operational life due to use of high-quality electrolytic capacitors ensured the SLE60PSD was the correct solution for this customer. The safety approvals and standards met by Advanced energy allow our solutions to qualify for such sensitive end-systems.



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