



DID YOU KNOW? **VISHAY IS THE STANDARD FOR HIGH RELIABILITY AND AEC-Q200 POWER THICK FILM RESISTORS**

Long term reliability is increasingly a key parameter in fast-growing EV / HEV applications such as precharge, discharge, or snubber circuits. Here, any system failure can result in expensive recalls or repairs and must be avoided at the design-in stage.

Vishay thick film power resistors offer engineers unrivaled long term reliability and performance in terms of current flow control and / or absorbing important pulses in these circuits. They define the current or a voltage and also dissipate power and energy. Depending on the derating rules and on the cooling system (in air, on the PCB, on the heatsink,) our resistors will dissipate up to 150 W, significantly above competing devices or technologies. They are fully capable of accepting very high energy for short pulses regardless of the cooling system.

The Automotive Electronics Council (AEC) established the AEC-Q200 standards for reliable passive components. DTO25, D2TO20, D2TO35, and LTO 100 and LTO 150 thick film power resistors are all qualified to these standards and demonstrate exceptional performance.

Vishay's optimized designs and our unique manufacturing process provide outstanding results for applications in harsh environments. Our medium power resistors provide excellent in-circuit performance results, as well as the benefit of the highest quality available on the market.

Key Performances:

- Power rating up to 3.3 W on PCB, 4.5 W in air for the LTO 150, and 20 W to 150 W on the heatsink
- Very high single pulse energy up to 36 J (0.1 s pulse)
- Non-inductive design
- Dielectric strength of 1500 V for the DTO25, 2000 V for the D2TOs, and 3000 V for the LTO 100 and LTO 150
- Solder reflow secure at 270 °C / 10 s for the DTO25 and D2TOs

The Vishay Advantage Versus Other Technologies and Competitors

- Temperature cycling; requirement JESD22 method JA-104: 1000 cycles (-55 °C to +125 °C); passed with no failures ever experienced
- MTTF (in hours) as of September 2017: DTO at 21152553, D2TO at 57022752, and LTO 100 at 17375103
- FIT (in pcs / 10⁹ hours): DTO at 47.3, D2TO at 17.5, and LTO 100 at 57.6
- Operational ILife; requirement MIL-STD-202 method 108: 1000 hours; 90 / 30 rated power; see D2TO results at 8000 hours

