



DID YOU KNOW?

LOW OHMIC MELF RESISTORS FOR RELIABLE CURRENT MEASUREMENT

Modern automotive and renewable energy applications rely on current measurement to improve efficiency and service life. While the current sense resistors utilized in these systems are increasingly subjected to exceptional conditions, they are still required to deliver reliability and high measurement accuracy. With their tight tolerance, low temperature coefficient, and excellent long term stability, low ohmic thin film MELF resistors in the range of 100 m Ω to 10 Ω are the perfect choice for these applications.

Tight Tolerance: The resistance values of low ohmic MELF resistors are laser-trimmed by smoothly cutting a helical groove in the resistive layer. This precise trimming allows for a tight tolerance down to $\pm 1\%$ for resistance values as low as 0.22 Ω .

Low Temperature Coefficient: The resistive element consists of an advanced metal film exhibiting a high thermal stability, resulting in a low temperature coefficient of ± 50 ppm/K. This allows for accurate current measurement over a wide temperature range.

Excellent Long Term Stability: The MELF resistors' large effective resistive area, resulting from their cylindrical shape and advanced helical trimming geometry, allows a homogeneous power dissipation and distribution of thermal energy across the entire resistive element. Therefore, the temperature rise in the resistive film for a given power load is limited, resulting in excellent long term stability and reliable measurement accuracy over the lifetime of the devices.

The diagram on the right shows the excellent resistance drift of low ohmic thin film MELF resistors compared to that of a standard thick film chip resistor.

Low ohmic thin film MELF resistors are the optimum choice for current measurement applications that require high accuracy and long term stability, such as:

- Battery management systems
- Solar inverters
- LED drivers

