

Current sense resistors are utilized in numerous applications. Their recent increase in usage is due to growth in safety system applications and portable, battery-powered devices. Current sense resistors aim to eliminate the risk of short circuits or surge current conditions which are likely to damage other components.

What Makes a Resistor a Current Sense Resistor?

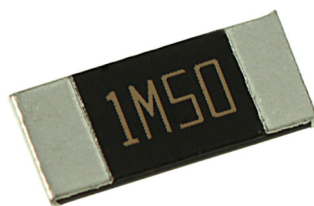
A current resistor is generally defined by the resistance value below 1Ω . By obtaining resistance below 1Ω , the resistors are able to help monitor the current in a circuit and translate it to voltage in the circuit that can be easily measured and monitored.

Applications*

- Power management applications
- Switching power supply's
- Surge/Transient protection in audio circuits
- DC-DC converter, battery pack or charger applications
- Multi-media electronics
- Engine control circuits in automobiles
- Portable devices such as PDAs and cell phones
- Safety systems
- Disk drivers
- Li-ion(Lithium-ion) battery safety devices and management
- Climate control systems
- Voltage regulation modules (VRM's) for laptops

**Current sense resistors are commonly used when monitoring current in various applications, such as power supply applications and rechargeable battery packs. These resistors also help estimate how much life is left in batteries before needing a recharge.*

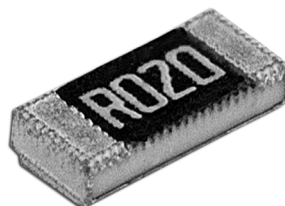
Venkel's Current Sense Resistors



Ultra Low Value (ULCR)



Low Value (LCR)



Metal Strip (CSMS)



Metal Foil (CSMF)

Advantages

- Low cost
- High measurement accuracy
- Measurable current range from very low to medium
- Capability to measure DC or AC current
- Standard EIA Case Sizes

Disadvantages

- Additional resistance into the measured circuit path, which can increase source output resistance which may result in unwanted loading effect.
- Power loss due to power dissipation ($P=I^2R$). Current sense resistors are rarely used for high current sensing applications.

More information on current sense resistors is available on the Venkel website. Our Engineering Team is also available for questions concerning these products.