



DID YOU KNOW? **GUIDELINES FOR SMART DESIGNS: POWER METAL STRIP® POWER DENSITY**

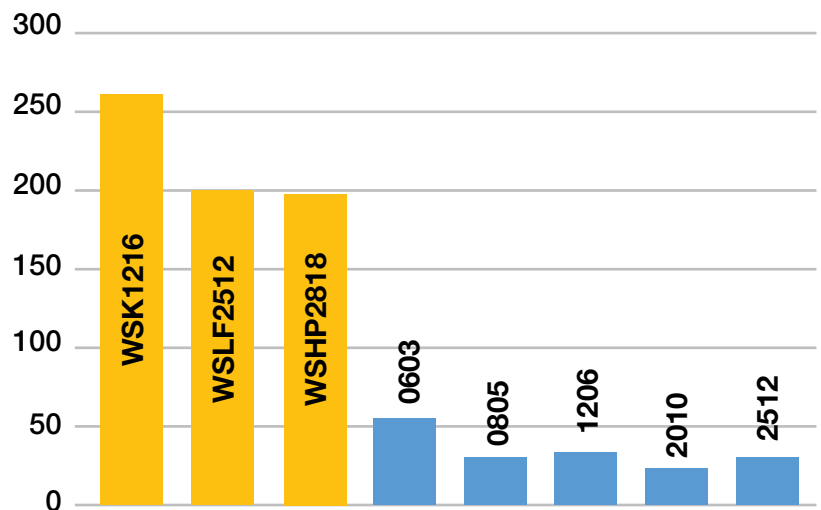
WSHP2818 / WSK1216 / WSLF2512

Power density in resistors is defined by a device's power rating compared to the board space the component occupies. A combination of a high power rating in a compact footprint can lower design costs by reducing component counts and utilizing less board material, while increasing accuracy by not using parallel current sensing elements. Power density can also allow for end products with higher performance by enabling smaller and lighter designs that can extend battery life or extend power supply performance within the same dimensions.

In Power Metal Strip® resistors, high power density is accomplished by using an all-metal welded construction that can withstand the demands of higher continuous operating temperatures and an innovative design that makes use of different heat transfer pathways.

- The WSK1216 raises the resistance element above the PCB to enable the terminal to be formed under the element. This results in a small footprint while achieving a low resistance value and a 4-terminal connection for superior TCR performance
- The WSHP2818 has copper terminals that provide a large contact area and a short thermal path from the resistance element to the PCB, which maximizes heat transfer efficiency
- The WSLF2512 efficiently transfers heat from a robust resistance element through a large copper terminal

**Power Density (W/in²) vs
Standard Power Rated Sizes**



Power Metal Strip resistors are frequently used in applications that manage high currents and require low resistance values to minimize power dissipation, and provide superior temperature stability for accurate measurement. Some of these applications include:

- Inverter power supplies in motor control, air conditioning, and consumer goods
- Battery management in electric mobility
- Automotive electronic controls such as engine, climate controls, and anti-lock brakes
- Brushless DC motors controls, such as in HVAC units and electronic power steering