

CHEP Series Thin Film High Frequency Chip Resistors Deliver More Power in Less Space, Without Need for a Heatsink; Devices Offer Power Ratings Up to 2.8 W, High Frequency Operation to 50 GHz, and Low Parasitics in Compact 0402 and 0603 Case Sizes

Product Benefits:

- Available in compact 0402 and 0603 case sizes
- High frequency operation up to 50 GHz
- High power ratings up to 2.8 W without active cooling
- Flip-chip or wraparound terminals available
- LC values as low as 1×10^{-24} minimize internal reactance
- Resistance range from 20 Ω to 120 Ω , with tolerances down to $\pm 1 \%$
- High temperature operation to +155 °C
- RoHS-compliant, halogen-free, and Vishay Green



Market Applications:

- Telecom and connectivity applications, including LEO satellites, base station terminals, 5G and 6G networks, and RF infrastructure such as remote radio units (RRUs) and antennas
- Aerospace and defense systems such as drones, satellite payloads, guidance and telemetry systems, data links, and phased array radar systems

The News:

Vishay Intertechnology introduces a new series of thin film chip resistors in compact 0402 and 0603 case sizes. Built on an advanced aluminum nitride (AlN) substrate, the Vishay Sfernice CHEP series combines exceptional power handling and high frequency performance in standard surface-mount footprints, allowing designers to achieve higher power density without sacrificing RF performance or increasing board space.

- The CHEP series sets a new benchmark for power handling in its class. While competing solutions are often rated below 1 W, the devices deliver standard power ratings of 1.2 W in the 0402 case size and 1.8 W in the 0603 case size. When mounted per datasheet guidelines, power ratings increase by 50 % to 1.8 W and 2.8 W, respectively, enabling higher power density in smaller footprints
- When mounted as flip-chip devices, resistors in the 0402 case size achieve frequencies to 50 GHz, while wraparound active face-up mounting supports operation to 20 GHz. Devices in the 0603 case size support frequencies up to 40 GHz
- The resistors' LC values result in low parasitics, which reduce phase shift, maintain consistent impedance, and minimize noise to improve RF performance
- Standard 0402 and 0603 case sizes enable easy integration into widely accepted land patterns, simplifying design and layout



The Key Specifications:

- Case sizes: 0402, 0603
- Rated power:
 - 0402: 1.2 W (up to 1.8 W with optimized mounting)
 - 0603: 2.0 W (up to 2.8 W with optimized mounting)
- Operating frequency:
 - 0402: up to 50 GHz
 - 0603: up to 40 GHz
- Resistance range: 20 Ω to 120 Ω
- Tolerance: $\pm 1\%$, $\pm 2\%$, and $\pm 5\%$
- Temperature coefficient (TCR): ± 100 ppm/ $^{\circ}\text{C}$ (± 50 ppm/ $^{\circ}\text{C}$ available upon request)
- Limiting element voltage:
 - 0402: 37 V
 - 0603: 50 V
- Operating temperature range: -55°C to $+155^{\circ}\text{C}$

Availability:

Samples and production quantities of the CHEP series are available now, with lead times of 16 weeks.

To access the product datasheet on the Vishay Website, go to <http://www.vishay.com/ppg?53090> (CHEP)

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