



## POWER INDUCTOR OVERVIEW

### FOR SWITCH MODE POWER APPLICATIONS

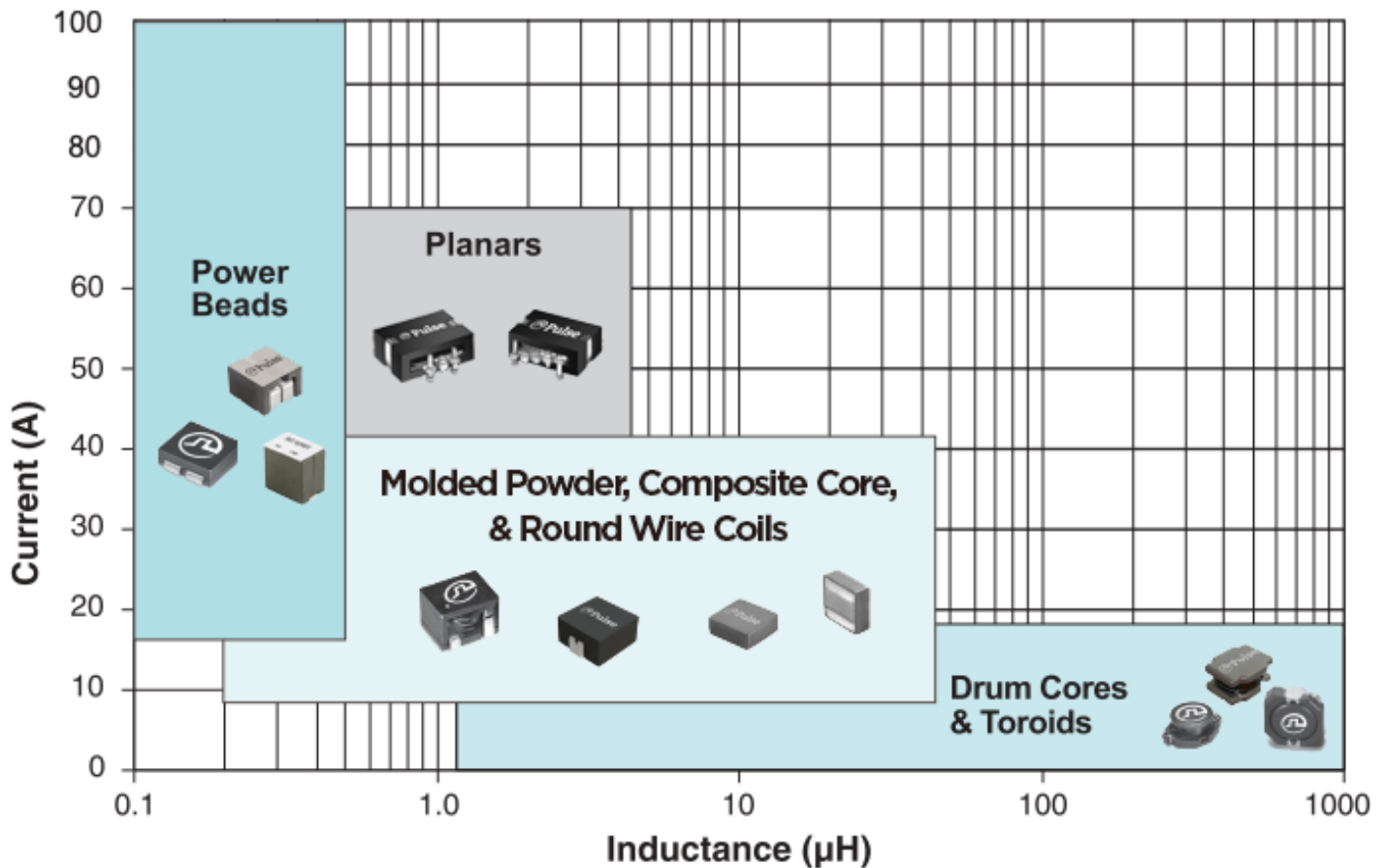
Power Inductors are used in virtually every electronic system and every market segment from small sub-watt wearable and hand-held devices to large kilowatt and megawatt industrial power installations. They can be used in a variety of functions including differential mode filtering, output chokes and as the main energy storage device in multiple power supply topologies.

The key parameters when selecting a power inductor are:

- Inductance value which will be based on the requirements of the circuit application.
- Current rating to ensure the part will not overheat and that is is compatible with the circuit requirements.
- Saturation current to ensure the component will not saturate at peak application current.
- AC core and AC conductor loss calculation to verify thermals and efficiency.

Pulse Power Inductors come in a wide-range of product technologies including power beads, molded, composite, round wire coils, drum cores, flat wire, planar and toroids. Offerings range from a few mA to 150Apk, from 20nH to 10mH in both surface mount and through-hole configurations.

## PRODUCT OVERVIEW: SMT POWER INDUCTORS



### **Drum Cores (Shielded and Unshielded):**

Typically for lower current applications and less efficiency sensitive designs.

### **Toroid Inductors:**

Versatile multi-use platforms for single and dual winding applications.

### **Composite Core Inductors:**

Mid-Inductance (0.1 to 20µH), wide current (0.5 to 32A) applications, high power density.

### **Molded Powder Inductors:**

Mid-Inductance (0.2 to 20µH), wide current (5-55A) applications, soft saturation.

### **Round Wire Coil Inductors:**

Mid-Inductance, High-Efficiency Inductors (0.3 to 20µH) up to 50A.

### **Power Bead Inductors:**

Low Inductance (<0.5µH), high current (>100Apk) applications for single and multi-phase applications.

### **Planar Inductors:**

Mid-Inductance (0.5 to 4µH), high current (>73A) applications

### Power Bead Inductors



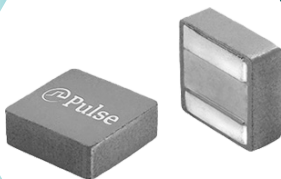
- Commonly used for high current multi-phase application for powering processors, memory modules, high current ASICs and FPGs
- 1T or 2T structure for ultra low DCR (<0.120uOhms)
- Ferrite core to minimize AC loss and maximize energy storage density
- 20nH to 1uH, >140Apk
- 30+ platforms sizes (4x4mm to 13x13mm)

### Molded Powder Inductors



- Commercial (130C) and Automotive Grade (155C)
- Soft saturation characteristics
- Industry Standard Footprints
- 100nH to 100uH
- > 110Apk
- 46+ platform sizes from 4x4x1.2mm to 24x22x13mm

### Composite Inductors



- Commercial (130C) and Automotive Grade (155C)
- Highest Energy Storage and Low DCR
- 200nH to 50uH
- >120Apk
- 40+ platform sizes from 4x4x2.0mm to 16x16x13mm

## Round Wire Coil Inductors



- Ferrite Core for low AC Losses
- Designed to minimize PCB area
- 300nH to 100uH
- >80Apk
- 6 platforms from 7x7x6mm to 26x26x15mm

## Drum Core Inductors



- Shielded and Unshielded Constructions
- Typically used in applications where efficiency is less critical
- 0.3uH to 5mH
- >56Apk
- 55+ platform sizes from 2x2x1mm to 23x23x10mm

## Alternate Constructions



- **Planar Inductors:** Typically, low profile, high current (>30Arms) utilizing a ferrite core and copper plate windings.
- **Toroid Inductors:** Round magnet wire wound on distributed gap powder material cores. Soft saturation and excellent shielding.
- **Flat Coil Inductors:** Utilize flat wire coil for the windings to create a low DCR and low profile high current solution
- **Wire-wound Inductors:** General purpose inductors wound with round magnet wire and using a gapped ferrite core.