



# Integrated Power Converter

Tech ID: 09-0028

**Contact:**

Dr. Rick Swatloski  
Director - OTT  
(205) 348-8583  
RPSwatloski@ua.edu

**Status:**

Seeking R&D and/or  
licensing partner

Patent Pending

**Inventor Bio:**

Dr. Jaber Abu-Qahouq  
Associate Professor

Electrical and Computer  
Engineering Department  
University of Alabama

Center for Advanced Vehicle  
Technologies

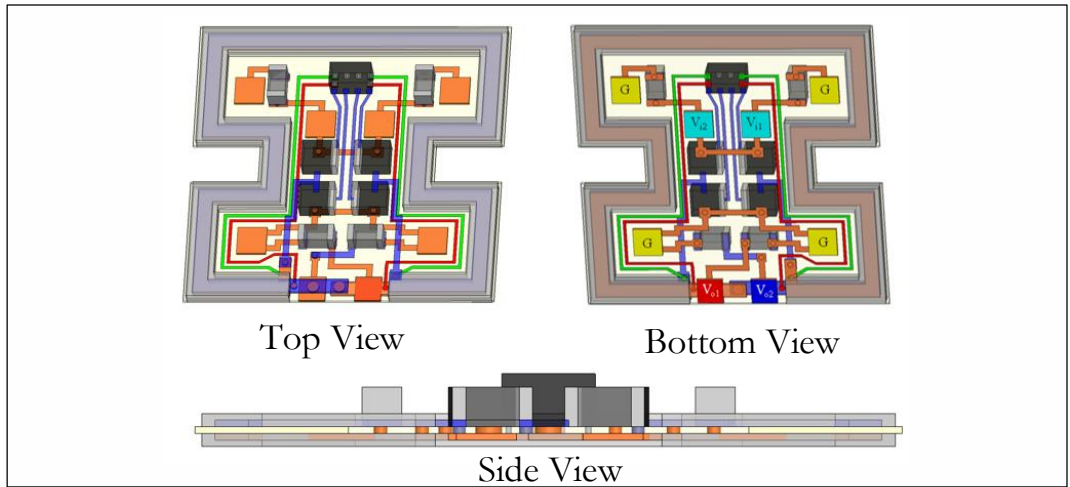
Center for Materials for  
Information Technologies

Over 100 academic  
publications

4 Patent Applications

## An Integrated Enclosed Architecture Method for a Power Converter

- Power converter’s power FET (Field Effect Transistor) devices, power drivers, control and/or capacitors are enclosed within the inductor
- Utilizes vertically coupled inductor to enclose the other power converter parts
- Novel design allows for numerous, unique shapes without any loss of efficiency



3D diagrams for the Enclosed Architecture

## Advantages

- Smaller total power converter size and minimum connections lengths
- Allows for more unique designs which are applicable to more industries
- Reduced energy distribution losses

## Applications



Integrated  
Circuitry



Aerospace



Vehicle  
Manufacturers

*[For More Information, Click to View YouTube Pitch](#)*

THE UNIVERSITY OF  
ALABAMA



@uatechtransfer

