Efficient Power Conversion EPC2040: Technology and Cost Comparison

Description: The EPC2040 is a 15V eGaN FET® from Efficient Power Conversion for high frequency pulsed applications like LiDAR (Light Distancing and Ranging). The ability of EPC2040 to switch ten times faster than MOSFETs increases the resolution, response time and accuracy of capturing three dimensional LiDAR images.

The EPC2040 is a GaN-on-silicon HEMT (High Electron Mobility Transistor) designed by EPC, manufactured by Episil and supplied in passivated bare die form with solder balls. The wafer level package is well suited for high frequency functions with low inductive parasitic levels. WLCSP (Wafer Level Chip Scale Packaging) produces a small die, at just 0.85mm x 1.20mm, at low packaging cost.

The EPC2040 is manufactured with the latest EPC technology. The new gate structure reduces gate leakage and the metal contact has been enhanced. Moreover we observe a very thin epitaxy layer to reduce the cost.

The report presents deep technology analysis of the packaging and components with images of the complex GaN epitaxy layer stack and transistor structure.

It also includes production cost analysis and overall comparison with the first EPC GaN HEMT.

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