Transphorm TPH3002PS
600V GaN on Silicon HEMT

High voltage GaN HEMT developed for the high frequency operation in a low-inductance source terminal TO220 package

The TPH3002PS is a 600V EZ-GaN™ HEMT for high frequency operations from Transphorm. Manufactured by Fujitsu and assembled in a TO220 package, it features the Quiet-Tab™ scheme which increases switching speed by 200%. With a 7.5ns turn-on and a 10ns turn-off, the TPH3002PS has a higher switch frequency than the best CoolMOS.

The TPH3002PS is based on a cascode configuration of a GaN on Silicon HEMT transistor to hold the high voltage and a standard low voltage MOSFET to drive high frequency and to make a normally-off transistor from a normally-on GaN HEMT.

The device is assembled in a TO220 package for an easy integration in converter electronic system. Moreover, it integrates a Quiet-Tab™ and a Gate-Source-Drain (GSD) pin-out arrangement in order to reduce the parasitic inductance and capacitance in high frequency and to allow 200% increase in switching speed compared to traditional TO-220.

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

It also includes production cost analysis and overall comparison with GaN Systems GS66508P 650V HEMT.
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** Technology Analysis report contains only Physical Analysis & Manufacturing Process Flow

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