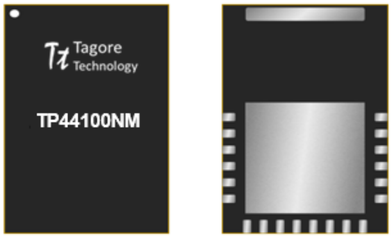
TP44100NM – 90mΩ, 650V GaN HEMT with Integrated Driver and Protection

1.0 Features

- 650V enhancement mode HEMT with integrated driver
- 90mΩ R_{DSON}
- 5V PWM input
- UVLO protection
- Zero reverse recovery
- Low quiescent current driver
- Adjustable turn-on slew rate
- Dv/Dt immunity both with/without driver-supply
- Low propagation delay for up to 2MHz operation



(Top view) (Bottom View)

Figure 1 Device Image
(22pin 5×7×0.85 mm QFN Package)

2.0 Topologies and Applications

- As switching FETs in singles, or in pairs as half-bridges
- AC-DC, DC-DC, DC-AC converters
- PFC applications (totem pole and standard)
- High frequency LLC converters
- Mobile chargers and laptop adapters
- LED and motor drives
- Server power supplies

RoHS/REACH/Halogen Free Compliance

3.0 Description

The TP44100NM is a 90mΩ, 650V GaN HEMT device with integrated driver circuit. The monolithic integration of driver minimizes inductance in the gate loop enabling safe and clean switching even at high-voltage high-frequency operations. This device makes the applications more efficient/reliable, and also reduces the size of the magnetic components dramatically. UVLO function of the device turns-off the HEMT in case V_{DD} voltage droops below its threshold voltage. A proprietary dv/dt protection circuit protects the HEMT from drain-dvdt induced false turn-on even in the absence of V_{DD} supply. An external resistance between V_{reg} and RG allows control of drain voltage slew rate for best EMI performance.

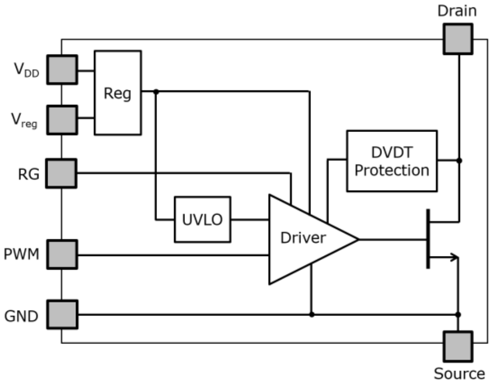


Figure 2 Functional Block Diagram

4.0 Ordering Information

Table 1 Ordering Information

Base Part Number	Package Type	Form	Qty	Reel Diameter	Reel Width	Orderable Part Number
TP44100NM	22 Pin 5×7×0.8mm QFN	Tape and Reel	1000	13" (330mm)	18mm	TP44100NMTRPBF
Evaluation Board						TP44100NM-EVB