

YX45134 – DrGaN Power IC with Smart Current Sense**1 Features**

- Monolithically-integrated Driver and GaN
- Integrated 700V GaN HEMT with 300mohms $R_{ds(on)}$
- Smart and integrated current sense
- Patented accurate current sense independent of GaN dynamic $R_{ds(on)}$
- Wide VCC&PWM range (5 to 40 V)
- TTL and CMOS logic input with hysteresis
- Flexible GaN drive slew rate control for EMI
- 200 V/ns dV/dt immunity
- Up to 50 MHz operation
- Die temperature sense and OTP protection
- Default low at output when input pins floating
- Low standby current
- Zero reverse recovery charge
- Build-In UVLO protection
- 30-Lead QFN 6mmx8mm Package

2 Applications

- DC-DC, AC-DC, DC-AC Power Supply
- QR flyback, AHB, Buck, Boost, Half bridge, Full bridge, LLC resonant, Class D, PFC
- Wireless power, Solar Micro-inverters
- LED lighting, TV SMPS, Server, Telecom

3 Description

The YX45134 integrates a high-performance enhancement-mode (e-mode) GaN HEMT with a full-featured gate drive to achieve unprecedented high-frequency and high efficiency operation. The YX45134 also employs a novel current sense method which is independent of GaN dynamic $R_{ds(on)}$, achieving accurate current sensing to further improve system performance and robustness which is not achieved by discrete GaN FETs. The YX45134 integrates a 5V LDO from 40V VCC, and it supports TTL and CMOS input logic with hysteresis. It also has UVLO and over-temperature protection to increase system robustness, low standby current to improve no-load efficiency. This DrGaN Power IC provides the highest switching frequency capability, highest dV/dt immunity, high performance integrated driver and industry-standard low-profile, low-inductance QFN package to enable designers to achieve simple and reliable power solutions. The YX45134 can support different topologies such as flyback, half-bridge, buck/boost, LLC and other resonant converters to reach MHz switching frequencies with high efficiencies and low EMI as well as achieve unprecedented power densities at a low cost.

4 Device Information

PART NUMBER	PACKAGE	BODY SIZE (NOM)
YX45134	QFN 30L	6mm × 8mm

5 Typical Application Circuits for Flyback Converter