Description

Vertical GaN™ junction field effect transistors (JFETs) from NexGen are made from gallium nitride (GaN). They use a vertical GaN-on-GaN device structure which delivers high switching frequencies of GaN devices at breakdown voltages up to and higher than 1200V.

The vertical device construction effectively decouples breakdown voltage from the device area, creating high voltage devices operating at very high switching frequencies and carrying large currents.

Only Vertical GaN™ devices provide this unique combination enabling circuit and system designers to eliminate design constraints normally encountered with devices of other technologies. Thus, new generations of power systems are now possible.

By employing homoepitaxy, i.e. growing GaN on GaN substrates, NexGen's Vertical GaN™ solves the reliability problems that plague GaN-on-Si or similar heterogenous devices. Vertical GaN™ devices are inherently reliable since they are made from purely GaN. In addition, Vertical GaN™ is avalanche rugged, enabling use in industrial and automotive power systems with very reliable designs operating at high switching frequencies.

Features

- 1200V Enhancement-Mode GaN JFET
- Very low C_{oss} and Q_G
- Low $R_{DS(on)}$
- Avalanche tolerant
- No reverse recovery charge (Q_{rr})
- Logic level V_{th}

Application Benefits

- Very high switching frequency operation
- Very low switching losses for high efficiency
- Breakdown voltage comparable to SiC
- Compatible with std MOSFET drivers
- High system reliability with GaN devices
- Cost efficient high performance designs

Typical Applications

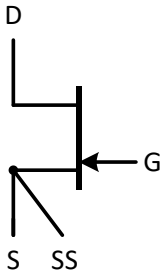
Vertical GaN™ enables highly efficient hard and soft switching applications utilizing high switching frequencies at high voltages

- AC/DC Switching Power Supplies
- LED Lighting
- Solar Inverters
- Motor Drives
- Electric Vehicles

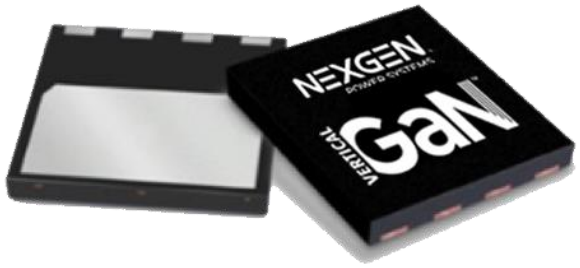
Critical Performance Parameters

Parameter	Value
V_{DS}	1200 V
I_D	13 A
$R_{DS(on)}$(typ)	170 mΩ
Q_G	9.4 nC
C_{oss}	5.9 pf

Schematic Symbol



Package View



Ordering Information

Part Number	Package	Marking
NXG2EA120R170	DFN	TBD