CCPAK Power GaN FETs

Performance, efficiency, reliability

As the innovators of copper-clip package technology, Nexperia brings 20 years' experience of producing high-quality, highly robust, copper-clip SMD packaging to the power GaN FET portfolio. Adopting proven technology, CCPAK gives industry-leading performance in a truly innovative package. Wire-bond free for optimized thermal and electrical performance, and simplified design of cascode configuration to eliminate the need for complicated drivers and controls.

Key features and benefits

- Copper clip & cascode configuration
  - 3 times lower inductances than industry-standard packages for lower switching losses and EMI
  - Higher reliability compared to wire-bond solution
  - >99% power conversion efficiency
  - Up to and beyond 1 MHz in switching frequency (high power density)
  - Easy to design gate drive, 0 to 12 V
- Thermal performance
  - Low $R_{th(j\text{-}mb)}$ typ (<0.5 K/W) for optimal cooling
  - Up to 175 °C T_j max
- Manufacturability and robustness
  - Flexible leads for temperature cycling reliability
  - Flexible gull winged leads for robust board level reliability
  - Compatible with SMD soldering and AOI
  - In-house testing, packaging and manufacturing
- Two cooling options
  - Top-side cooling (CCPAK1212i)
  - Bottom-side cooling (CCPAK1212)
- Qualifications
  - MSL1
  - Halogen free

Key applications

The path to Net Zero CO_2
- Solar (PV) inverters,
- Server Titanium grade power supplies,
- Battery storage/ UPS inverters,
- Heat pumps

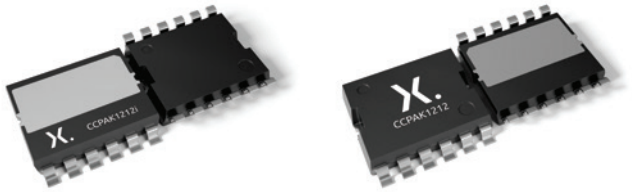
Industry 4.0
- Servo motor drives/ frequency inverters,
- Telecom power supplies,
- Class-D Audio amplifiers,
- Welding machines

nexperia

EFFICIENCY WINS.

Top-side and bottom-side cooling

For added flexibility in designs and to further improve heat dissipation, CCPAK is available in both top-side cooling (CCPAK1212i) and traditional bottom-side cooling (CCPAK1212) package designs. The first in the portfolio of GaN SMD packages, the CCPAK1212 packages have a compact footprint of only 12 x 12 mm and a low package height of 2.5 mm.



CCPAK1212 (top-side cooling)

Automotive-qualified versions in development

Package	Type name	Configuration	V_{DS} max (V)	$R_{DS(on)}$ max @ V_{GS} = 10 V (mΩ)	T_j (Max) (° C)	I_D (Max) (A)	Q_{OSS} (nC)
CCPAK1212	GAN039-650NBB	Cascode	650	39	150	58.5	150
	GAN039-650NBBA	Cascode			175	60	

CCPAK1212i (bottom-side cooling)

Package	Type name	Configuration	V_{DS} max (V)	$R_{DS(on)}$ max @ V_{GS} = 10 V (mΩ)	T_j (Max) (° C)	I_D (Max) (A)	Q_{OSS} (nC)
CCPAK1212i	GAN039-650NTB	Cascode	650	39	150	58.5	150
	GAN039-650NTBA	Cascode			175	60	

Visit page

For more information including product datasheets visit:
www.nexperia.com/gan-fets

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