Silicon Carbide MOSFETs
Raising the bar for safe, robust and reliable power switching

In response to the increasing demand for high-power and high-voltage applications, Nexperia proudly presents its Silicon Carbide (SiC) MOSFETs. These devices offer exceptional $R_{DS(on)}$ temperature stability, rapid switching speeds, and robust short-circuit durability, making them the ideal choice for electric vehicle charging infrastructure, photovoltaic inverters, and motor drives.

Key applications
- E-vehicle charging infrastructure
- Photovoltaic inverters
- Switch mode power supply
- Uninterruptable power supply
- Motor drives

Design Benefits
- Very low switching losses
- Fast reverse recovery
- Fast switching speed
- Temperature independent turn-off switching losses
- Very fast and robust intrinsic body diode
- Faster commutation and improved switching due to the additional Kelvin source pin

Key technical features
- Best-in-class R_{DSon} temperature stability
- Superior gate charge and beneficial gate charge ratio
  - Low power consumption of gate drivers
  - High tolerance against parasitic turn-on
- Ultra small threshold voltage tolerance
- Robust body diode with very low forward voltage
- Lower leakage current up to 1200 V

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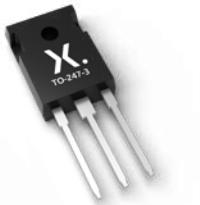
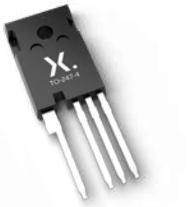
With the addition of X.PAK, our extensive portfolio now includes TO-247-3 & 4, D2PAK-7, and X.PAK package options, ensuring we meet the diverse needs of our customers. These advanced solutions deliver superior thermal management, reduced parasitic inductance, and enhanced reliability, making them perfect for the most demanding applications.

Choose Nexperia's SiC MOSFETs for cutting-edge technology that drives performance, reliability, and innovation in your high-power designs.

Package solutions



- TO-247-3 (SOT429-2)
  Through-hole technology
  20.95 x 15.94 x 5.02 mm *



- TO-247-4 (SOT8071-1)
  Through-hole technology
  23.45 x 15.94 x 5.02 mm *

- D2PAK-7 (SOT8070-1)
  Surface mount technology
  10.08 x 15.88 mm **

- X.PAK (SOT8107)
  Surface mount,
  top-side cool technology
  14 x 18.5 mm **

* Package size (l x w x h)
** Package dimensions inc. leads (l x w)

nexperia

Product range

Types in **bold** represent new products,
types in **bold red** are in development.

Type name	Package	V_{DS} max (V)	R_{DSon} typ (mΩ) @ T_j = 25 °C	I_D max (A) @ TC = 25 °C	T_j max (°C)
NSF030120L3A0	 TO-247-3	1200	30	67	175
NSF040120L3A0			40	65	
NSF060120L3A0			60	38	
NSF080120L3A0			80	35	
NSF030120L4A0	 TO-247-4		30	67	
NSF040120L4A0			40	65	
NSF040120L4A1			53	53	
NSF060120L4A0			60	38	
NSF080120L4A0			80	35	
NSF030120D7A0	 TO-263-7		30	67	
NSF040120D7A0			40	65	
NSF060120D7A0			60	38	
NSF080120D7A0			80	33	
NSF017120T2A0-Q	 X.PAK		17	107	
NSF017120T2A0			17	107	
NSF030120T2A0-Q			30	65	
NSF030120T2A0			30	65	
NSF040120T2A1-Q			40	51	
NSF040120T2A1			40	51	
NSF060120T2A0-Q			60	33	
NSF060120T2A0			60	38	
NSF080120T2A1-Q			80	31	
NSF080120T2A1			80	31	

SiC FET | Nomenclature

NSF 040 120 L3 A0 -Q

NEXPERIA
Silicon carbide
FET

R_{DSon}
017 17 mΩ
022 22 mΩ
030 30 mΩ
040 40 mΩ
060 60 mΩ
080 80 mΩ

Max. reverse voltage
120 1200 V

Package indicator
L3 TO-247-3
L4 TO-247-4
D7 D2PAK-7
T1 QDPAK
T2 X.PAK
B1 Bare die

Version indicator

Qualification scheme
Standard
-Q Automotive

Date of release:
March 2025

Printed:
In the Netherlands