Field-Effect Rectifier Diodes

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Advantageously replace Schottky

These new 60V & 100V structured field-effect rectifier diodes enhance application performance and compactness

ST's new series of 60 and 100 V field-effect rectifier diodes (FERD) range from 20A to 60A with 6 package options. Based on a proprietary process, these diodes achieve the best-in-class VF/IR trade-off for a given chip surface. These diodes exhibit much better intrinsic performance than traditional Schottky-structured diodes of equivalent voltage and current ratings. The combination of a lower VF diode, with better control of leakage current, integrated into a smaller die enable designers to use smaller packages, resulting in a higher application compactness, with potential cost benefits.

KEY FEATURES & BENEFITS

- Lower V_F x I_R than corresponding Schottky diode
- Smaller chip than Schottky for the same current rating
- Lower thermal coefficient
- Unique 30A device in DPAK
- ECOPACK2 components
- Improves application efficiency and thermal performance
- Wide selection of 26 devices
- Easier compact design at competitive prices
- Best performance reproducibility thanks to low V_F/I_R variations over current, voltage, and temperature ranges
- Higher reliability thanks to a lower leakage current
- Unique 60A device in D²PAK with Automotive Grade level

KEY APPLICATIONS

- Industrial power
  - Factory automation
  - Tooling chargers
- Auxiliary power
  - Server & telecom power
  - Air-conditioning
  - Home appliances
  - UPS
- DC/DC converters
- SMPS
- USB chargers
- Automotive On Board Charger
- Automotive Traction Inverter

www.st.com/ferd

Design safe, compact,and affordable power supplies

ST's new 60V and 100V field-effect rectifier diodes (FERD) help power converter designers reach higher efficiency and increased density at levels that were not achievable using traditional Schottky solutions.

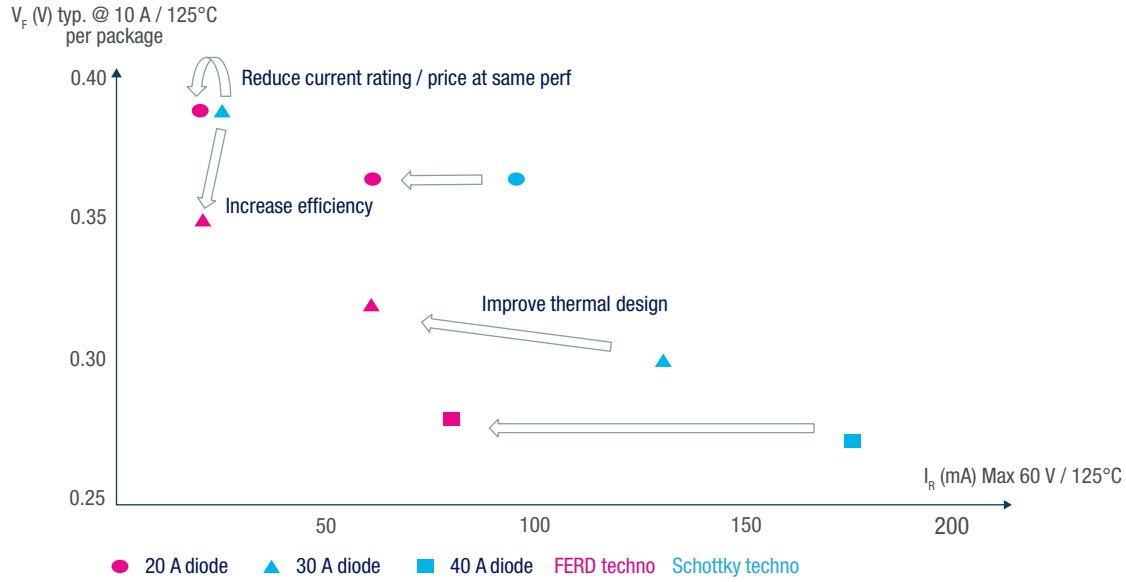
In regards to power density, our new FERD dice are much smaller than Schottky ones and can be easily integrated into smaller packages. For example, a 20A or higher FERD diode housed in a DPAK package reduces by a factor of 3 the PCB surface occupied by a Schottky diode of the same current rating housed in a D²PAK package.

Of course, the application's overall electrical performance is maintained and often improved using FERD diodes.
In addition to the power integration benefits, the potential positive economic impact of using a less expensive package solution must be taken into account.

Moreover, ST's patented FERD technology exhibits a much better controlled leakage current, with a lower thermal coefficient than standard Schottky diodes.

Therefore, developers will appreciate an easier thermal design, with reduced thermal runaway risks, and the associated improved reliability.

Ferd technology advantage over schottky - Example of 60V diodes



Ferd diodes selection guide

Part Number	$I_{F(AV)}$(A)	V_{RRM} (V)	V_F at I_F, 125°C typ. / max. (V)	I_R at V_{RRM}, 125°C max. (mA)	Packages
FERD20H60C	2 x 10	60	0.525 / 0.585	20	TO-220AB, D²PAK
FERD20L60C	2 x 10	60	0.510 / 0.575	60	TO-220AB, D²PAK
FERD20M60	20	60	0.510 / 0.560	20	TO-220AB, I²PAK
FERD20U60DJFD	20	60	0.465 / 0.505	70	PowerFLAT™ (6 x 5 mm)
FERD30H60C	2 x 15	60	0.540 / 0.600	20	TO-220AB, D²PAK
FERD30L60C	2 x 15	60	0.510 / 0.570	60	TO-220AB, D²PAK
FERD40L60C	2 x 20	60	0.515 / 0.580	80	TO-220AB, D²PAK
FERD20S100S	20	100	0.690 / 0.760	12	DPAK, IPAK, TO-220AB
FERD20H100S	20	100	0.640 / 0.705	16	DPAK, IPAK, TO-220AB, TO-220FPAB
FERD30H100S	30	100	0.680 / 0.745	16	DPAK, IPAK, TO-220AB
FERD30SM100DJF	30	100	0.665 / 0.735	16	PowerFLAT™ (6 x 5 mm)
FERD40H100S	40	100	0.645 / 0.705	24	D²PAK, TO-220AB
FERD60H100CGY*	2 x 30	100	0,76	10	D2PAK

* AEC-Q101 Automotive Grade

Order code: FLFERD601000521