Field-effect rectifier diodes
Introduction to the new ‘H’ series of 100 V diodes

High-efficiency ST FERD series maximizes power integration
FERDxxH100S applications

Devices are designed for use in **power supplies** for...

- Notebook adapters and chargers
- DIN rail SMPS
- Industrial SMPS
- LED and street lighting PSUs
- Consumer and telecom DC/DC converters

...based on **flyback topologies**.
FERDxxH100 for flyback topologies

Flyback topology is well-known cost-effective topology generally used for low-power applications (< 100 W)
Diode current rating in Flyback converters

FERDxxH100S cover the needs of 20 to 60 W converters based on flyback topologies
FERD vs Schottky in 40W SMPS

FERD benefits:
- Gain on $V_F$ (-50 mV)
- Gain on efficiency (+0.3%)

FERDxxH100 can advantageously replace Schottky diodes in SMPS (better price or performance, or both)
FERDxxH100 key features and benefits

**New technology**
- Based on ST's patented CMOS technology
- $V_F/I_R$ trade-off optimized for flyback topologies
- Higher power density with smaller form factor possible (IPAK / DPAK packages with performance of TO-220 diode)

**Low $V_F$**
- Improved efficiency at light load
- Improved application reliability when operating at lower $T_j$

**Low electrical dependency versus temperature**
- Reduced risk of thermal runaway
- Able to be used in confined environments
# Product range and terminology

## FERD

**Field Effect Rectifier Diode**

## XX

**Average Forward Current (A)**

## H

**H series**

## 100

**$V_{RRM}$ 100 V**

## S

**Single diode**

## y

**Package type**

- **TS = TO-220AB**
- **B = DPAK**
- **H = IPAK**
- **FP = TO-220ABFP**
- **G = D²PAK**

## -TR

**Packing**

## Table:

<table>
<thead>
<tr>
<th>Part number</th>
<th>$I_{F(AV)}$</th>
<th>Power application</th>
<th>$V_F$ [V] typ</th>
<th>$I_R$ [mA] max</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>$I_0/10$</td>
<td>$I_0/4$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25°C</td>
<td>125°C</td>
<td>25°C</td>
</tr>
<tr>
<td>FERD20H100S</td>
<td>20 A</td>
<td>[10-40] W</td>
<td>0.370</td>
<td>0.315</td>
<td>0.455</td>
</tr>
<tr>
<td>FERD30H100S</td>
<td>30 A</td>
<td>[20-60] W</td>
<td>0.390</td>
<td>0.350</td>
<td>0.440</td>
</tr>
<tr>
<td>FERD40H100S</td>
<td>40 A</td>
<td>[40-90] W</td>
<td>0.380</td>
<td>0.325</td>
<td>0.465</td>
</tr>
</tbody>
</table>
FERD portfolio
Thank you!

www.st.com/ferd for more