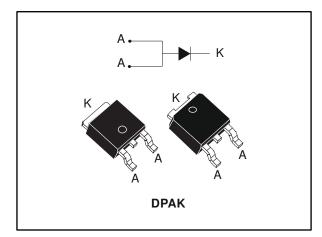


# FERD15S50S

# 50 V field-effect rectifier diode

Datasheet - production data



### **Features**

- ST advanced rectifier process
- Stable leakage current over reverse voltage
- Low forward voltage drop
- High frequency operation
- ECOPACK<sup>®</sup>2 compliant component for DPAK on demand

### Description

This single rectifier is based on a proprietary technology that achieves the best in class  $V_{\text{F}}/I_{\text{R}}$  trade-off for a given silicon surface.

Packaged in DPAK, this device is intended to be used in rectification and freewheeling operations in power supplies.

Value
15 A
50 V
0.31 V
150 °C

February 2017

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This is information on a product in full production.

## 1 Characteristics

# Table 2: Absolute ratings (limiting values at 25 °C, unless otherwise specified, anode terminals short-circuited)

Symbol	Parameter	Value	Unit	
VRRM	Repetitive peak reverse voltage	50	V	
I <sub>F(RMS)</sub>	Forward rms current 25			
IF(AV)			15	А
IFSM	Surge non repetitive forward current t <sub>p</sub> = 10 ms sinusoidal		100	А
T <sub>stg</sub>	Storage temperature range	-65 to +175	°C	
Tj	Maximum operating junction temperature <sup>(1)</sup>			°C

#### Notes:

 $^{(1)}(dP_{tot}/dT_j) < (1/R_{th(j-a)})$  condition to avoid thermal runaway for a diode on its own heatsink.

	Table 3: Thermal resistance parameters				
Symbol	Symbol Parameter Value U				
Rth(j-c)	Junction to case	1.4	°C/W		

Table 4: Static electrical characteristics (anode terminals short circuited)								
Symbol	Parameter	Test conditions		Min.	Тур.	Max.	Unit	
		T <sub>j</sub> = 25 °C	V <sub>R</sub> = 35 V	-		470	μA	
		T <sub>j</sub> = 125 °C	VR = 35 V	-	16	32	mA	
IR <sup>(1)</sup>	Reverse leakage current	$T_j = 25 \ ^\circ C$		-	250	650	μA	
			T <sub>j</sub> = 125 °C	Vr = Vrrm	-	20	40	mA
		T <sub>j</sub> = 25 °C	1- 5 4	-	0.36			
			IF = 5 A					

T<sub>j</sub> = 125 °C

T<sub>i</sub> = 25 °C

T<sub>j</sub> = 125 °C

T<sub>j</sub> = 25 °C

T<sub>j</sub> = 125 °C

#### Notes:

VF<sup>(2)</sup>

$$\label{eq:powerset} \begin{split} & \mbox{$^{(1)}$Pulse test: $t_p=5$ ms, $\delta<2\%$} \\ & \mbox{$^{(2)}$Pulse test: $t_p=380$ µs, $\delta<2\%$} \end{split}$$

To evaluate the maximum conduction losses use the following equation:

 $P = 0.25 \ x \ I_{F(AV)} + 0.02 \ x \ I_{F^2(RMS)}$ 

Forward voltage drop

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0.31

0.43

0.42

0.49

0.49

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-

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 $I_F = 10 \text{ A}$ 

I<sub>F</sub> = 15 A

0.36

0.48

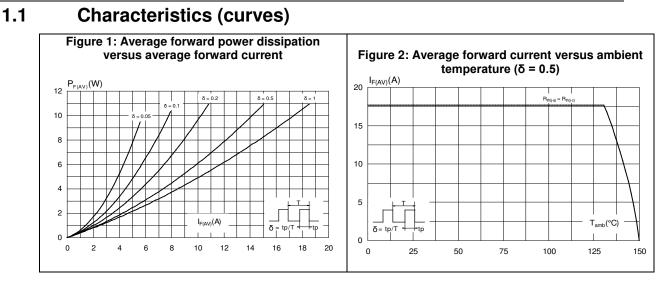
0.46

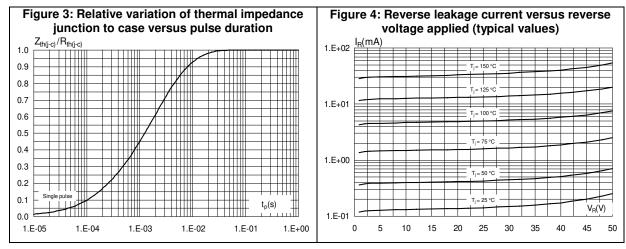
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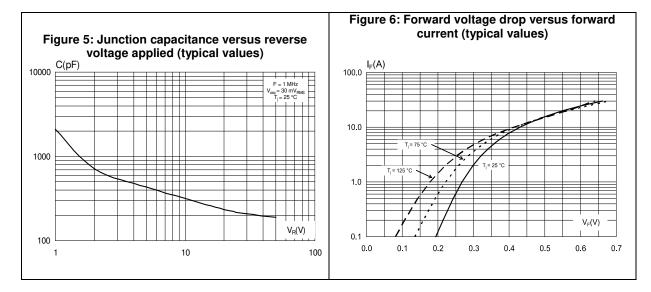
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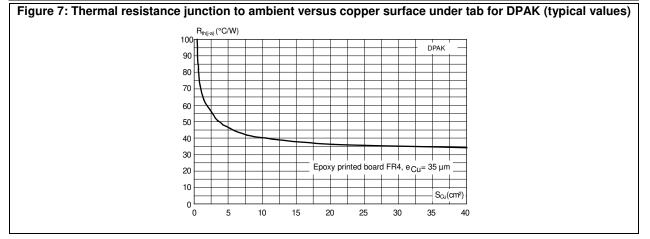


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#### Characteristics

#### FERD15S50S





### 2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: *www.st.com*. ECOPACK<sup>®</sup> is an ST trademark.

- Cooling method: by conduction (C)
- Epoxy meets UL 94,V0

### 2.1 DPAK package information

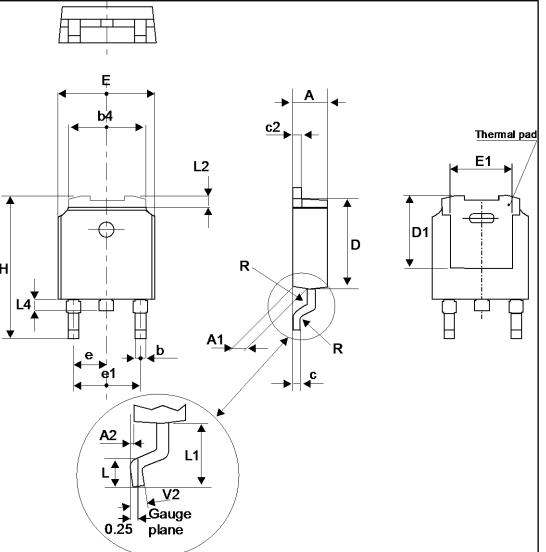


Figure 8: DPAK package outline



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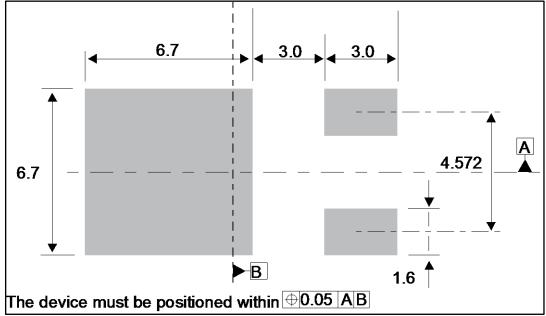
#### Package information

#### FERD15S50S

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Table 5: DPAK package mechanical data				
Dimensions				
Ref.	Millimeters		Incl	hes
	Min.	Max.	Min.	Max.
A	2.18	2.40	0.085	0.094
A1	0.90	1.10	0.035	0.043
A2	0.03	0.23	0.001	0.009
b	0.64	0.90	0.025	0.035
b4	4.95	5.46	0.194	0.215
с	0.46	0.61	0.018	0.024
c2	0.46	0.60	0.018	0.023
D	5.97	6.22	0.235	0.244
D1	4.95	5.60	0.194	0.220
E	6.35	6.73	0.250	0.265
E1	4.32	5.50	0.170	0.216
е	2.2	86 typ.	0.090	) typ.
e1	4.40	4.70	0.173	0.185
Н	9.35	10.40	0.368	0.409
L	1.0	1.78	0.039	0.070
L2		1.27		0.050
L4	0.60	1.02	0.023	0.040
V2	-8°	+8°	-8°	+8°

#### Figure 9: DPAK recommended footprint (dimensions in mm)



## **3** Ordering information

Table 6: Ordering information					
Order code	Marking	Package	Weight	Base qty.	Delivery mode
FERD15S50SB-TR	FERD 15S50	DPAK	0.32 g	2500	Tape and reel

# 4 Revision history

Date	Revision	Changes
09-Feb-2017	1	Initial release.



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