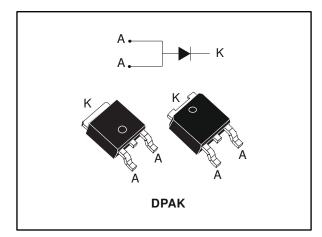


FERD15S50S

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[®]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

DocID030326 Rev 1

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 _{F(RMS)}	Forward rms current 25			
IF(AV)			15	А
IFSM	Surge non repetitive forward current t _p = 10 ms sinusoidal		100	А
T _{stg}	Storage temperature range	-65 to +175	°C	
Tj	Maximum operating junction temperature ⁽¹⁾			°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 _j = 25 °C	V _R = 35 V	-		470	μA	
		T _j = 125 °C	VR = 35 V	-	16	32	mA	
IR ⁽¹⁾	Reverse leakage current	$T_j = 25 \ ^\circ C$		-	250	650	μA	
			T _j = 125 °C	Vr = Vrrm	-	20	40	mA
		T _j = 25 °C	1- 5 4	-	0.36			
			IF = 5 A					

T_j = 125 °C

T_i = 25 °C

T_j = 125 °C

T_j = 25 °C

T_j = 125 °C

Notes:

VF⁽²⁾

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

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

DocID030326 Rev 1



0.31

0.43

0.42

0.49

0.49

_

-

_

-

-

 $I_F = 10 \text{ A}$

I_F = 15 A

0.36

0.48

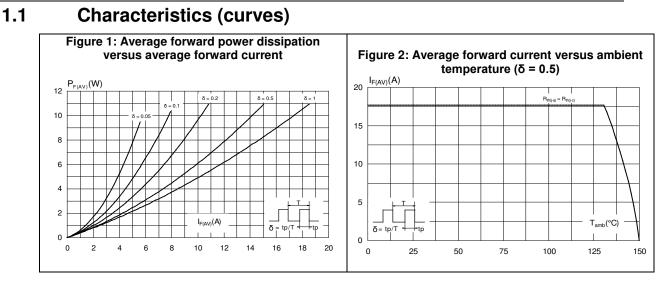
0.46

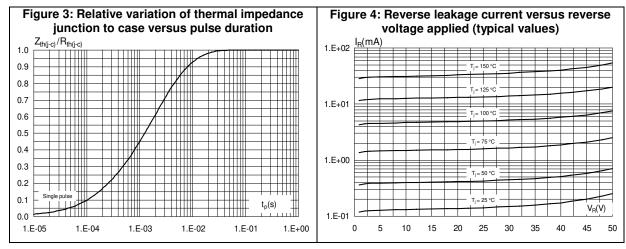
0.55

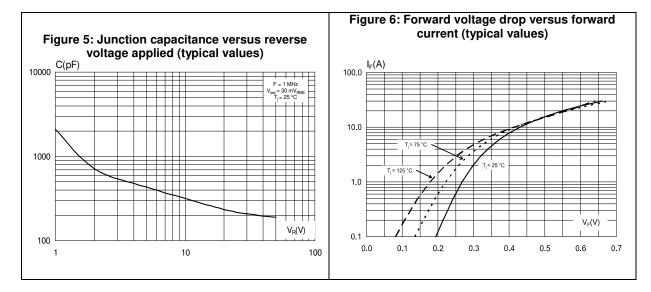
۷

FERD15S50S

5





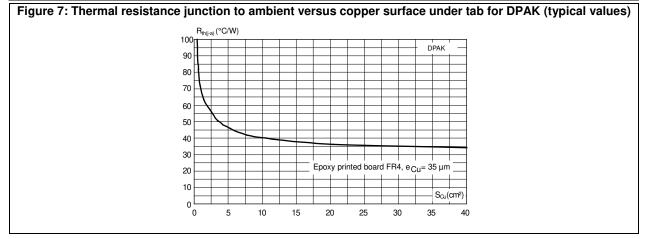


DocID030326 Rev 1

3/8

Characteristics

FERD15S50S





2 Package information

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

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

2.1 DPAK package information

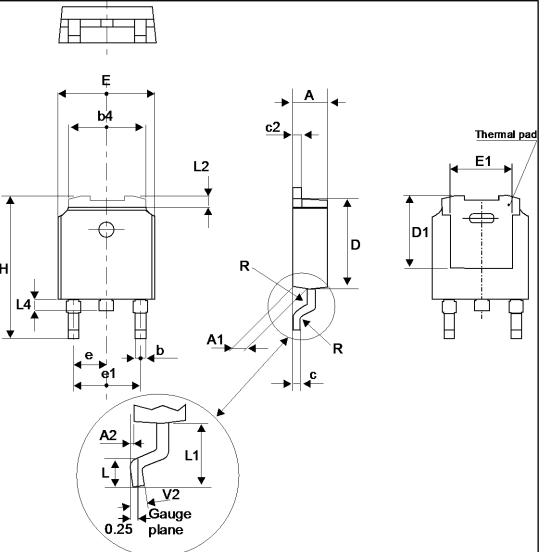


Figure 8: DPAK package outline



DocID030326 Rev 1

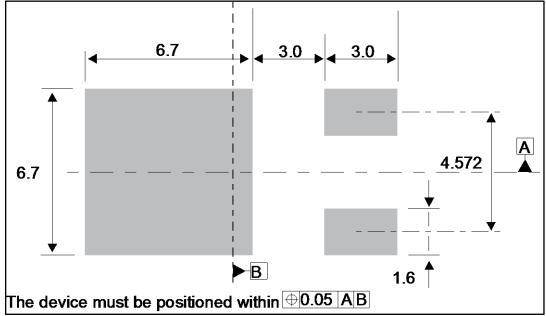
Package information

FERD15S50S

57

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.



IMPORTANT NOTICE - PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2017 STMicroelectronics - All rights reserved

