

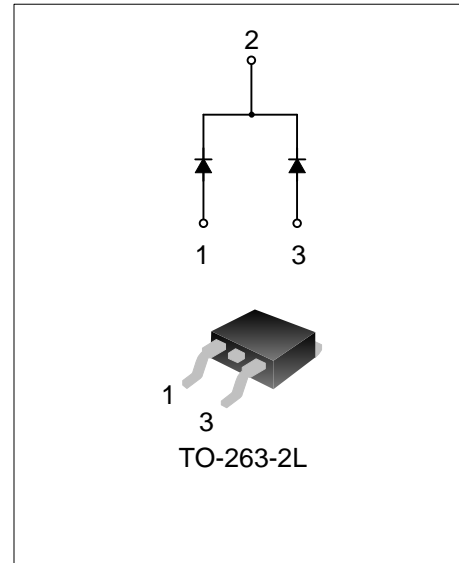
10A, 400V ULTRA-FAST RECOVERY RECTIFIER

GENERAL DESCRIPTION

SFR10S40BS is an Ultra-Fast Recovery Diode, fabricated in advanced silicon planar epitaxial process. The process parameter and the device structure are fine tuned with optimized performance of forward voltage drop and reverse recovery time.

Precise epitaxial doping control, advanced planar junction terminal structure and the platinum doping for life control, guarantee the best overall performance, ruggedness and reliability characteristics.

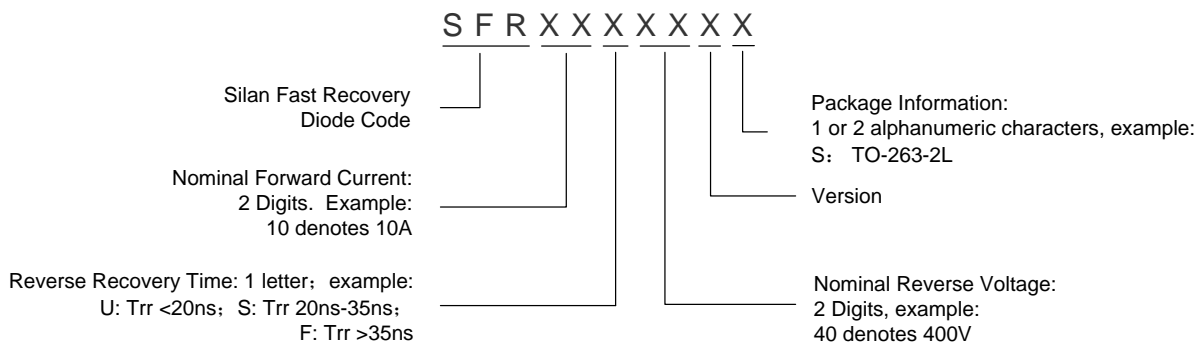
This device is intended for use in the output rectification stage of SMPS, UPS, and DC-DC converters, as well as used as free-wheeling diode in low voltage inverters and chopper motor drivers.



FEATURES

- Ultrafast 35 Nanosecond Recovery Time
- Low Forward Voltage Drop
- Low Reverse Leakage Current

NOMENCLATURE



ORDERING INFORMATION

Part No.	Package	Marking	Hazardous Substance Control	Packing
SFR10S40BS	TO-263-2L	10S40BS	Halogen free	Tube
SFR10S40BSTR	TO-263-2L	10S40BS	Halogen free	Tape&Reel

ABSOLUTE MAXIMUM RATINGS (Unless otherwise specified, $T_C=25^{\circ}\text{C}$)

Characteristics	Symbol	Rating	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	400	V
Average Rectified Forward Current	$I_{F(AV)}$	10	A
Forward Peak Surge Current(Note 1)	I_{FSM}	125	A
Operation Junction Temperature Range	T_J	-40~150	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-40~150	$^{\circ}\text{C}$

Note 1: Test Mode: Tested when pins 1 and 3 are connected in parallel.

THERMAL CHARACTERISTICS (Per leg)

Characteristics	Symbol	Rating	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.7	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (Per leg)

Characteristics	Symbol	Test condition	Min.	Typ.	Max.	Unit	
Reverse Breakdown Voltage	V_R	$I_R=100\mu\text{A}$, $T_C=25^{\circ}\text{C}$	400	--	--	V	
Maximum Forward Voltage	V_{FM}	$I_F=5\text{A}$	$T_C=25^{\circ}\text{C}$	--	--	1.45	V
			$T_C=125^{\circ}\text{C}$	--	--	1.30	V
Maximum Reverse Leakage Current	I_{RM}	Rated DC voltage	$T_C=25^{\circ}\text{C}$	--	--	5	μA
			$T_C=125^{\circ}\text{C}$	--	--	100	μA
Reverse Recovery Time	t_{rr}	$I_F=0.5\text{A}$, $I_R=1.0\text{A}$, $I_{REC}=0.25\text{A}$	--	--	35	ns	
Reverse Recovery Time	t_{rr}	$I_F=10\text{A}$, $V_R=200\text{V}$, $T_C=125^{\circ}\text{C}$;	--	50	--	ns	
Reverse Recovery Current	I_{RP}		--	3.82	--	A	
Change Rate of Reverse Recovery Voltage	dv/dt		--	1.82	--	V/ns	
Change Rate of Reverse Recovery Current	di/dt		--	200	--	A/ μs	

TYPICAL CHARACTERISTICS

Figure 1. Forward Characteristics

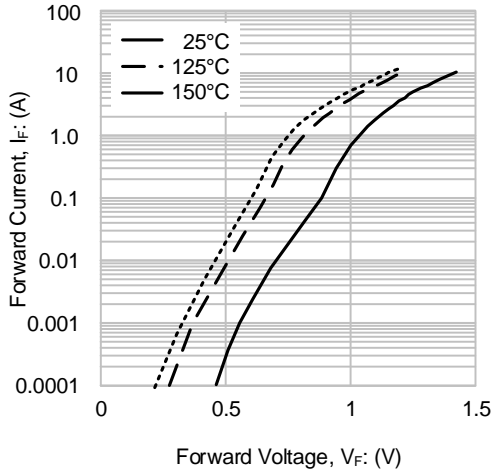


Figure 2. Junction Capacitance Characteristics

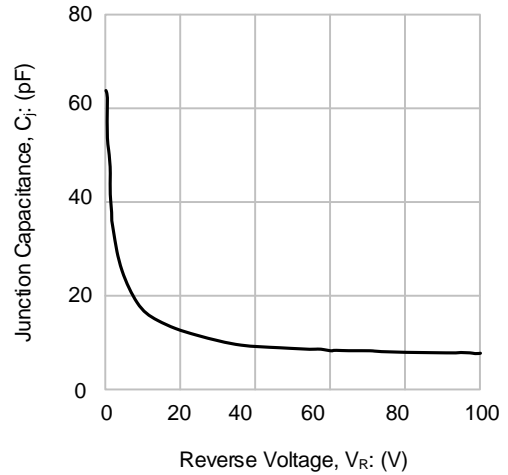


Figure 3. Reverse Characteristics

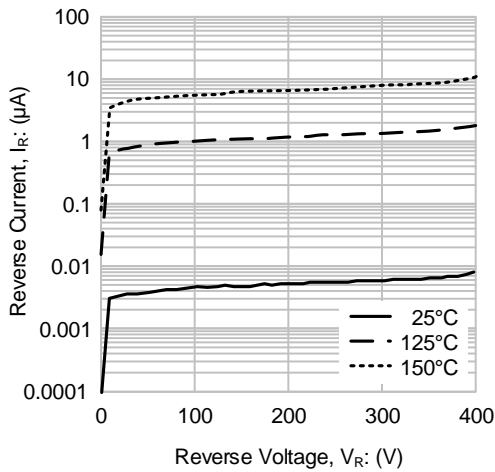


Figure 4. Power Dissipation (Per Leg)

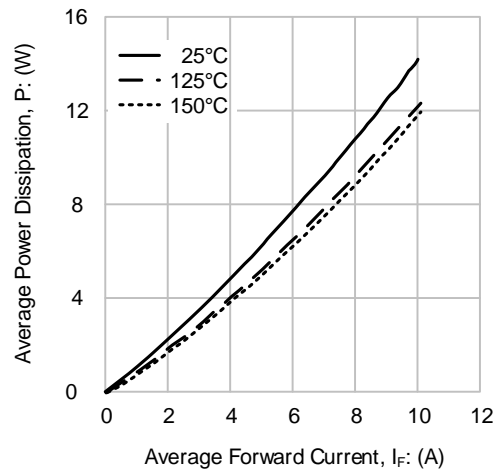
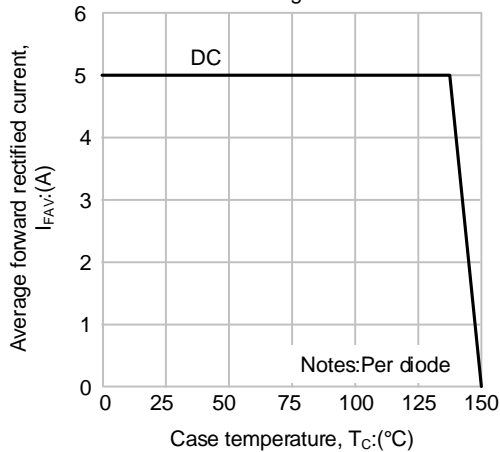
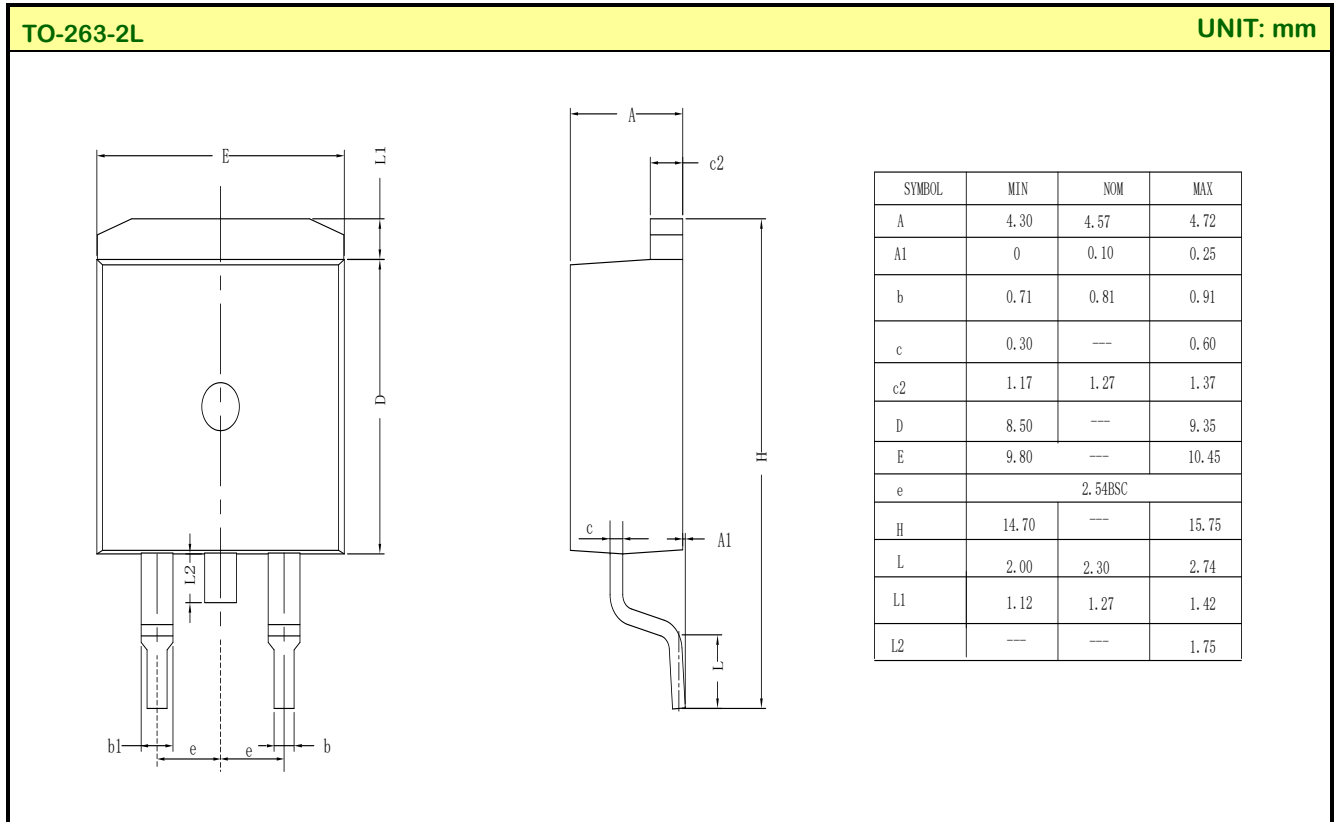


Figure 5. Typical forward current derating curve



PACKAGE OUTLINE



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- Silan reserves the right to make changes to the information herein for the improvement of the design and performance without prior notice! Customers should obtain the latest relevant information before placing orders and should verify that such information is complete and current.
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- Silan will supply the best possible product for customers!

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Rev.: 1.5

Revision History:

1. Add Note 1 of IFSM
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Rev.: 1.4

Revision History:

1. Modify the typical characteristics
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Rev.: 1.3

Revision History:

1. Modify the absolute maximum ratings
 2. Modify the electrical characteristics
-

Rev.: 1.2

Revision History:

1. Modify the absolute maximum ratings of I_{FSM}
 2. Modify the thermal characteristics
-

Rev.: 1.1

Revision History:

1. Add the figure 5
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Rev.: 1.0

Revision History:

1. First release
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