V_{RM} = 200 V, $I_{F(AV)}$ = 10 A, t_{rr} = 30 ns
Fast Recovery Diode

SPXS-2102S

Data Sheet

Description

The SPXS-2102S is a fast recovery diode of 200 V / 10 A. The maximum trr of 30 ns is realized by optimizing a life-time control. The low thermal resistance package achieves high performance in terms of heat dissipation.

Features

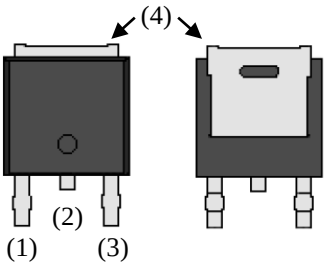
- RoHS Compliant
- V_{RM}---------- 200 V
- $I_{F(AV)}$---------- 10 A
- V_F----------1.25 V
- t_{rr1}----------30 ns.

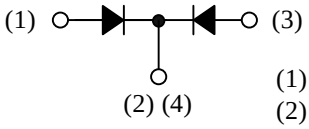
Applications

- White Goods
- Audiovisual Equipment
- Lighting Equipment
- Industrial Electronic Equipment
  (Communication Equipment and Factory Automation)
- Secondary Side Rectifier Diode
  (Flyback Converter, LLC Converter, etc.)
- Freewheel Diode
  (Offline Buck and Buck-boost Converter)

Package

TO252-2L





(1) Anode
(2) Cathode
(3) Anode
(4) Cathode

Not to scale

Absolute Maximum Ratings

Unless otherwise specified, T_A = 25 °C

Parameter	Symbol	Rating	Unit	Conditions
Peak Repetitive Reverse Voltage	V_{RSM}	200	V	
Repetitive Reverse Voltage	V_{RM}	200	V	
Average Forward Current	$I_{F(AV)}$	10	A	See Figure 1 and Figure 2
Surge Forward Current	I_{FSM}	65	A	Half cycle sine-wave, positive side, 10ms, one shot.
I^2t Limiting Value	I^2t	21	A^2s	1ms ≤ t ≤ 10 ms
Junction Temperature	T_J	−40 to 150	°C	
Storage Temperature	T_{STG}	−40 to 150	°C	

Electrical Characteristics

Unless otherwise specified, T_A = 25 °C

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop	V_F	T_J = 25 °C, I_F = 5.0 A	—	—	1.25	V
		T_J = 100 °C, I_F = 5.0 A	—	0.83	—	V
Reverse Leakage Current	I_R	$V_R = V_{RM}$,	—	—	50	μA
Reverse Leakage Current Under High Temperature	$H \cdot I_R$	$V_R = V_{RM}$, T_J = 150 °C	—	—	10	mA
Reverse Recovery Time	t_{rr1}	$I_F = I_{RP}$ = 100 mA 90% recovery point, T_J = 25 °C	—	—	30	ns
	t_{rr2}	I_F = 100 mA, I_{RP} = 200 mA, 75% recovery point, T_J = 25 °C	—	—	25	ns
Thermal Resistance [1]	$R_{th(J-L)}$		—	—	5.0	°C/W

[1] $R_{th\,(J-L)}$ is thermal resistance between junction and lead.

Rating and Characteristic Curves

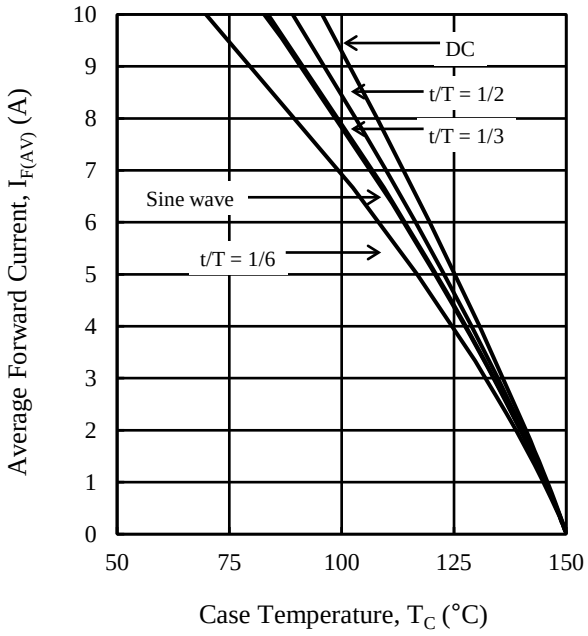


Figure 1. T_C vs. I_F Typical Characteristics (V_R = 0V)

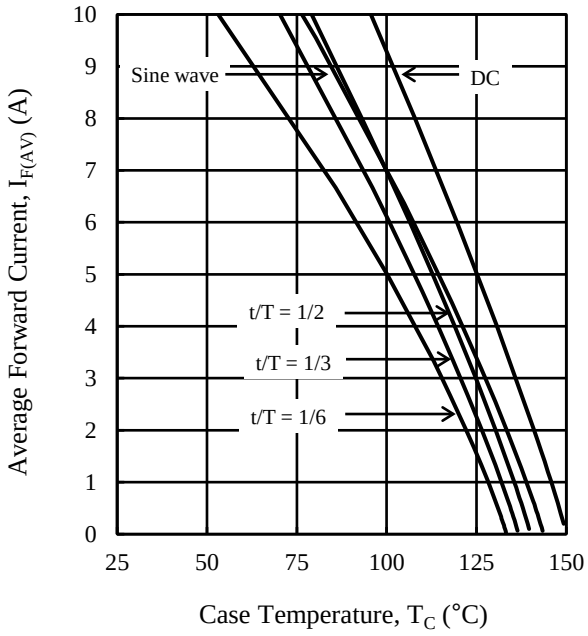


Figure 2. T_C vs. I_F Typical Characteristics (V_R = 200 V)

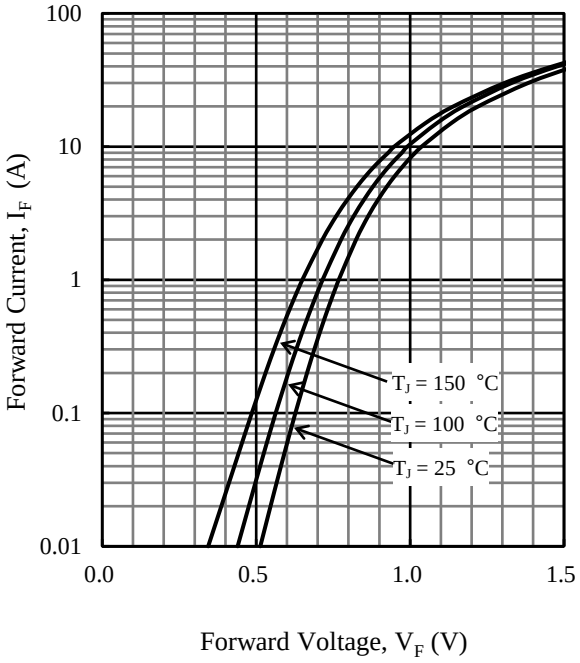


Figure 3. V_F vs. I_F Typical Characteristics

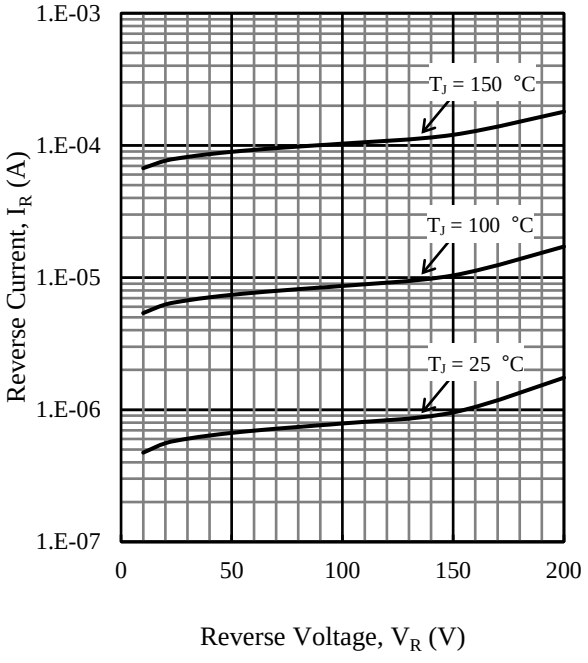
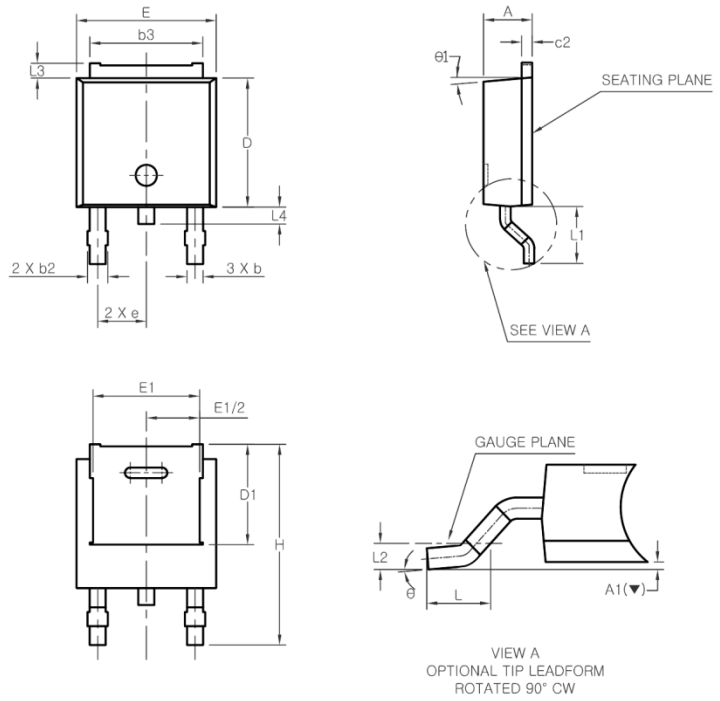


Figure 4. V_R vs. I_R Typical Characteristics

Physical Dimensions

● **TO252-2L**

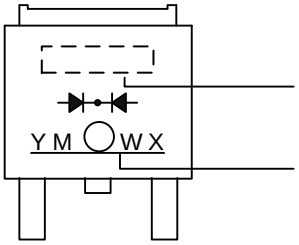


SYMBOL	MIN	NOM	MAX
A	2.20	2.30	2.40
A1 (▼)	0.00	–	0.127
b	0.66	0.76	0.86
b2	–	–	0.96
b3	5.04	5.34	5.64
c2	0.40	0.50	0.60
D	5.90	6.10	6.30
D1		(4.75)	
E	6.40	6.60	6.80
E1		(5.04)	
e		2.30 BSC	
H	9.20	9.50	9.80
L	1.27	1.47	1.67
L1	2.50	2.70	2.90
L2		0.508 BSC	
L3	0.50	0.70	0.90
L4	0.60	0.80	1.00
θ	0°	–	10°
θ1		(5°)	

NOTES:

- Dimensions in millimeters
- These dimensions do not include protrusions of the mold.
- The “( )” mark is the reference.
- Coplanarity: MAX. 0.10 mm
- The “L4” symbol is a protrusion of the lead frame.
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the products, make sure to minimize the working time, within the following limits:
  Flow: 260 ± 5 °C / 10 ± 1 s, 2 times
  Soldering Iron: 380 ± 5 °C / 3.5 ± 0.5 s, 1 time

Marking Diagram



Specific Device Code (See Table 1)

Lot Number:
Y is the last digit of the year of manufacture (0 to 9)
M is the month of the year (1 to 9, O, N, or D)
W is the week of the month (1 to 5)
X is the control number

Table 1. Specific Device Code

Specific Device Code	Part Number
XS2102	SPXS-2102S

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