

# 5SLZ 12L1700

## Fast-Diode Die

$$V_{RRM} = 1700 \text{ V}$$

$$I_F = 225 \text{ A}$$

Ultra low losses

Fast and soft reverse-recovery

Large SOA

Passivation: SIPOS, Nitride plus polyimide



### Maximum rated values <sup>1)</sup>

Parameter	Symbol	Conditions	min	max	Unit
Repetitive peak reverse voltage	$V_{RRM}$	$T_{vj} \geq 25 \text{ }^\circ\text{C}$		1700	V
DC forward current	$I_F$			225	A
Peak forward current	$I_{FRM}$	Limited by $T_{vjmax}$		450	A
Junction temperature	$T_{vj(op)}$		-40	175	$^\circ\text{C}$

<sup>1)</sup> Maximum rated values indicate limits beyond which damage to the device may occur per IEC 60747

### Diode characteristic values <sup>2)</sup>

Parameter	Symbol	Conditions	min	typ	max	Unit
Forward voltage	$V_F$	$I_F = 225 \text{ A}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	1.65	2.2	V
			$T_{vj} = 125 \text{ }^\circ\text{C}$	1.75		V
			$T_{vj} = 175 \text{ }^\circ\text{C}$	1.70		V
Continuous reverse current	$I_R$	$V_R = 1700 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$		1	$\mu\text{A}$
			$T_{vj} = 125 \text{ }^\circ\text{C}$	400		$\mu\text{A}$
			$T_{vj} = 175 \text{ }^\circ\text{C}$	8		mA
Reverse recovery current	$I_{rr}$		$T_{vj} = 25 \text{ }^\circ\text{C}$	240		A
			$T_{vj} = 125 \text{ }^\circ\text{C}$	250		A
			$T_{vj} = 175 \text{ }^\circ\text{C}$	265		A
Recovered charge	$Q_{rr}$	$V_{CC} = 900 \text{ V}$ , $I_F = 225 \text{ A}$ , $di/dt = 2650 \text{ A}/\mu\text{s}$ $L_\sigma = 80 \text{ nH}$ inductive load Switch: 5SMY 12P1730	$T_{vj} = 25 \text{ }^\circ\text{C}$	60		$\mu\text{C}$
			$T_{vj} = 125 \text{ }^\circ\text{C}$	95		$\mu\text{C}$
			$T_{vj} = 175 \text{ }^\circ\text{C}$	130		$\mu\text{C}$
Reverse recovery time	$t_{rr}$		$T_{vj} = 25 \text{ }^\circ\text{C}$	490		ns
			$T_{vj} = 125 \text{ }^\circ\text{C}$	790		ns
			$T_{vj} = 175 \text{ }^\circ\text{C}$	930		ns
Reverse recovery energy	$E_{rec}$		$T_{vj} = 25 \text{ }^\circ\text{C}$	38		mJ
			$T_{vj} = 125 \text{ }^\circ\text{C}$	58		mJ
			$T_{vj} = 175 \text{ }^\circ\text{C}$	78		mJ

<sup>2)</sup> Characteristic values according to IEC 60747 - 2

## Mechanical properties

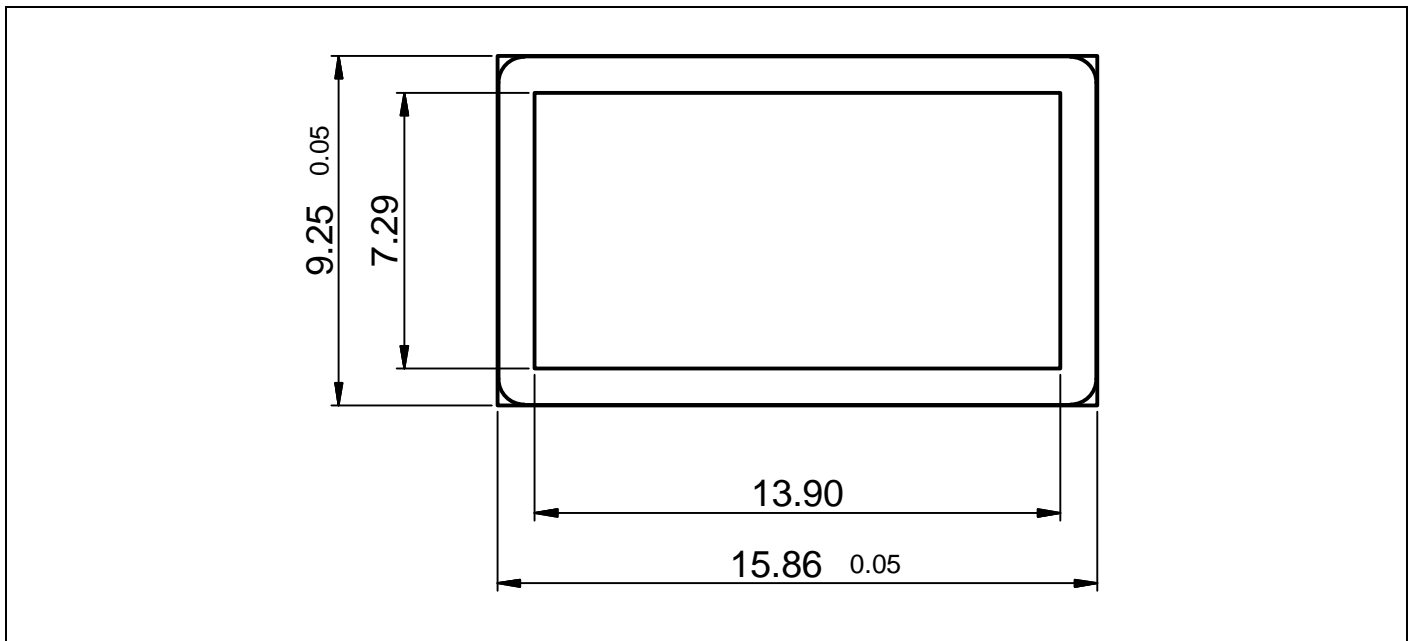
Parameter	Symbol	Conditions	min	Unit
Dimensions	Overall die	L x W	15.86 x 9.25	mm
	exposed front metal thickness	L x W	13.90 x 7.29	mm
			370 ± 15	µm
Metallization <sup>3)</sup>	front (E)	AlSi1	4	µm
	back (C)	Al / Ti / Ni / Ag	1.2	µm

<sup>3)</sup> For assembly instructions refer to: IGBT and Diode chips from ABB Switzerland Ltd, Semiconductors, Doc. No. 5SYA 2033.

## Form of delivery

Description	Part number
Unsawn 6" wafer die (on blue tape)	5SLZ 76L1700
Sawn 6" wafer die (on blue tape)	5SLZ 86L1700

## Outline drawing



Note: all dimensions are shown in millimeters

This is an electrostatic sensitive device, please observe the international standard IEC 60747-1, chap. VIII.  
This product has been designed and qualified for Industrial Level.

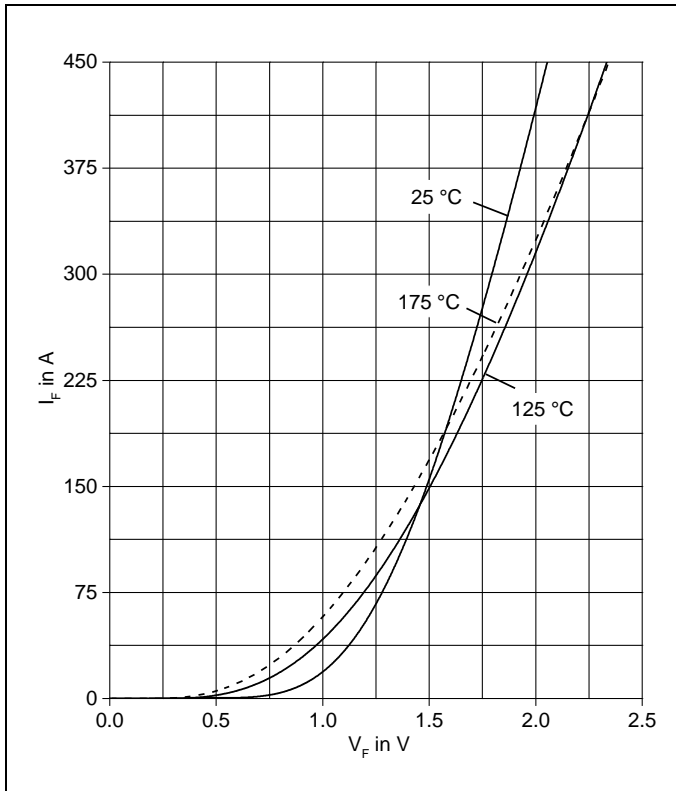


Fig. 1 Typical diode forward characteristics, chip level

**Related documents:**

- 5SYA 2045 Thermal runaway during blocking
- 5SYA 2059 Applying IGBT and Diode dies
- 5SYA 2093-00 Thermal design of IGBT Modules

ABB Switzerland Ltd.  
Semiconductors  
Fabrikstrasse 3  
CH-5600 Lenzburg  
Switzerland

Phone: +41 58 586 1419  
Fax: +41 58 586 1306  
E-Mail: [abbsem@ch.abb.com](mailto:abbsem@ch.abb.com)

[www.abb.com/semiconductors](http://www.abb.com/semiconductors)

We reserve the right to make technical changes or to modify the contents of this document without prior notice.

We reserve all rights in this document and the information contained therein. Any reproduction or utilisation of this document or parts thereof for commercial purposes without our prior written consent is forbidden.

Any liability for use of our products contrary to the instructions in this document is excluded.