

5SLZ 12F1700

Fast-Diode Die

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

$$I_F = 75 \text{ A}$$

Ultra low losses
Fast and soft reverse-recovery
Large SOA
Passivation: SIPOS, Nitride plus polyimide



Maximum rated values ¹⁾

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			75	A
Peak forward current	I_{FRM}	Limited by T_{vjmax}		150	A
Junction temperature	$T_{vj(op)}$		-40	175	$^\circ\text{C}$

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

Diode characteristic values ²⁾

Parameter	Symbol	Conditions	min	typ	max	Unit
Forward voltage	V_F	$I_F = 75 \text{ A}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	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	μA
			$T_{vj} = 125 \text{ }^\circ\text{C}$	125		μA
			$T_{vj} = 175 \text{ }^\circ\text{C}$	2.2		mA
Reverse recovery current	I_{rr}	$V_{cc} = 900 \text{ V},$ $I_F = 75 \text{ A},$ $di/dt = 850 \text{ A}/\mu\text{s}$ $L_\sigma = 240 \text{ nH}$ inductive load Switch: 5SMY 12J1730	$T_{vj} = 25 \text{ }^\circ\text{C}$	83		A
			$T_{vj} = 125 \text{ }^\circ\text{C}$	97		A
			$T_{vj} = 175 \text{ }^\circ\text{C}$	110		A
Recovered charge	Q_{rr}	$V_{cc} = 900 \text{ V},$ $I_F = 75 \text{ A},$ $di/dt = 850 \text{ A}/\mu\text{s}$ $L_\sigma = 240 \text{ nH}$ inductive load Switch: 5SMY 12J1730	$T_{vj} = 25 \text{ }^\circ\text{C}$	22		μC
			$T_{vj} = 125 \text{ }^\circ\text{C}$	33		μC
			$T_{vj} = 175 \text{ }^\circ\text{C}$	45		μC
Reverse recovery time	t_{rr}	$V_{cc} = 900 \text{ V},$ $I_F = 75 \text{ A},$ $di/dt = 850 \text{ A}/\mu\text{s}$ $L_\sigma = 240 \text{ nH}$ inductive load Switch: 5SMY 12J1730	$T_{vj} = 25 \text{ }^\circ\text{C}$	600		ns
			$T_{vj} = 125 \text{ }^\circ\text{C}$	720		ns
			$T_{vj} = 175 \text{ }^\circ\text{C}$	840		ns
Reverse recovery energy	E_{rec}	$V_{cc} = 900 \text{ V},$ $I_F = 75 \text{ A},$ $di/dt = 850 \text{ A}/\mu\text{s}$ $L_\sigma = 240 \text{ nH}$ inductive load Switch: 5SMY 12J1730	$T_{vj} = 25 \text{ }^\circ\text{C}$	12		mJ
			$T_{vj} = 125 \text{ }^\circ\text{C}$	19		mJ
			$T_{vj} = 175 \text{ }^\circ\text{C}$	28		mJ

²⁾ Characteristic values according to IEC 60747 - 2

Mechanical properties

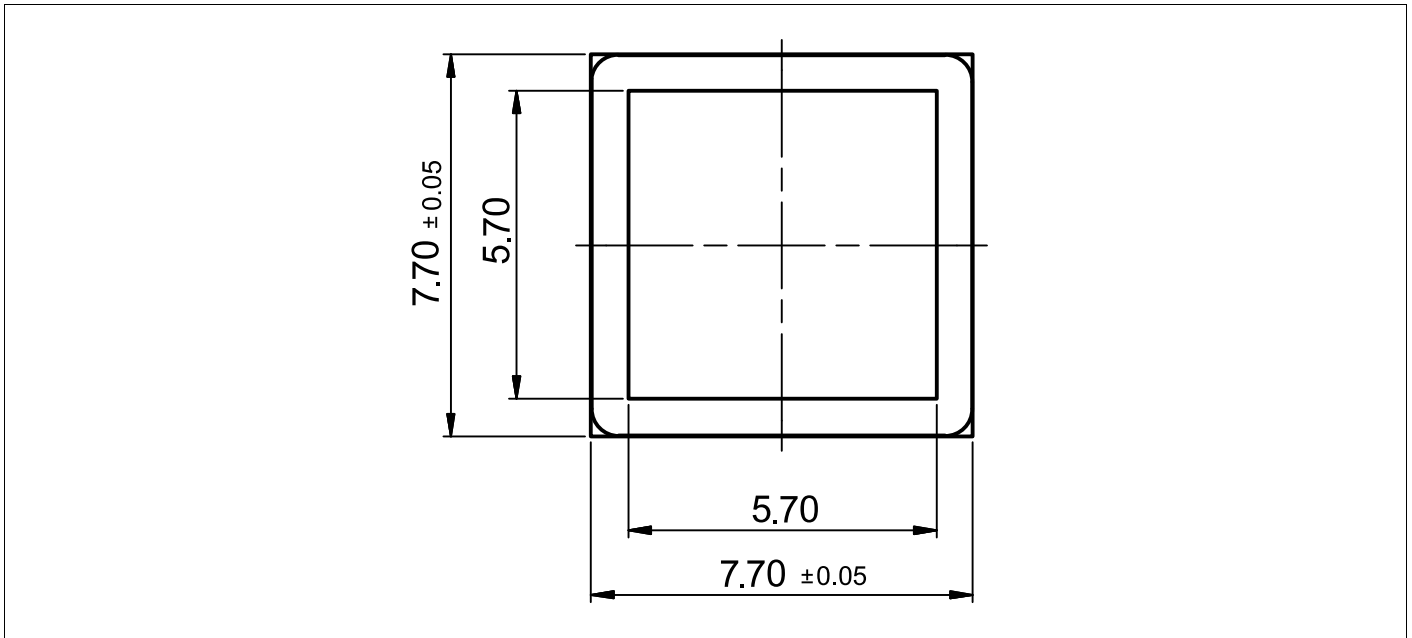
Parameter	Symbol	Conditions	min	Unit
Dimensions	Overall die	L x W	7.70 x 7.70	mm
	exposed front metal	L x W	5.70 x 5.70	mm
	thickness		370 ± 15	µm
Metallization ³⁾	front (E)	AlSi1	4	µm
	back (C)	Al / Ti / Ni / Ag	1.2	µm

³⁾ 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 76F1700

Outline drawing



Note: all dimensions are shown in millimeters

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

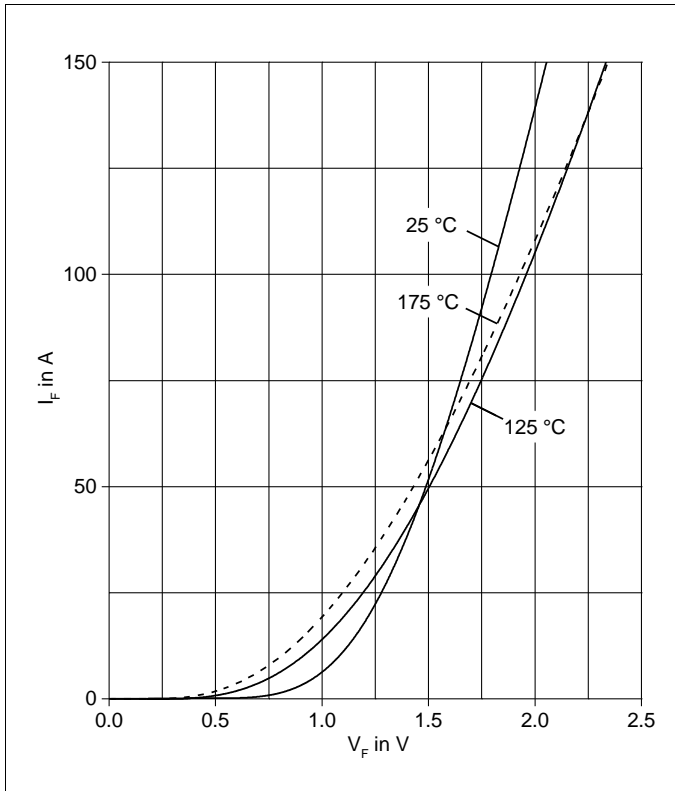


Fig. 1 Typical diode forward characteristics, chip level

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

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.