

5SLY 12J1700

Fast-Diode Die

$V_{RRM} = 1700\text{ V}$
 $I_F = 150\text{ A}$

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}	$T_{vj} \geq 25\text{ °C}$		1700	V
DC forward current	I_F			150	A
Peak forward current	I_{FRM}	Limited by T_{vjmax}		300	A
Junction temperature	T_{vj}			175	°C
	$T_{vj(op)}$		-40	150	

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	$I_F = 150\text{ A}$	$T_{vj} = 25\text{ °C}$		1.8	2.25	V
			$T_{vj} = 125\text{ °C}$		1.95		V
			$T_{vj} = 150\text{ °C}$		1.9		V
Continuous reverse current	I_R	$V_R = 1700\text{ V}$	$T_{vj} = 25\text{ °C}$			0.1	mA
			$T_{vj} = 125\text{ °C}$		0.85		mA
			$T_{vj} = 150\text{ °C}$		2.6		mA
Reverse recovery current	I_{rr}		$T_{vj} = 25\text{ °C}$		115		A
			$T_{vj} = 125\text{ °C}$		130		A
			$T_{vj} = 150\text{ °C}$		140		A
Recovered charge	Q_{rr}	$V_{CC} = 900\text{ V}$, $I_F = 150\text{ A}$, $di/dt = 1320\text{ A}/\mu\text{s}$ $L_{\sigma} = 200\text{ nH}$ inductive load	$T_{vj} = 25\text{ °C}$		37		μC
			$T_{vj} = 125\text{ °C}$		60		μC
			$T_{vj} = 150\text{ °C}$		72		μC
Reverse recovery time	t_{rr}	Switch: 5SMY 12M1721	$T_{vj} = 25\text{ °C}$		540		ns
			$T_{vj} = 125\text{ °C}$		720		ns
			$T_{vj} = 150\text{ °C}$		780		ns
Reverse recovery energy	E_{rec}		$T_{vj} = 25\text{ °C}$		25.2		mJ
			$T_{vj} = 125\text{ °C}$		41.6		mJ
			$T_{vj} = 150\text{ °C}$		48.6		mJ

²⁾ Characteristic values according to IEC 60747 - 2

Mechanical properties

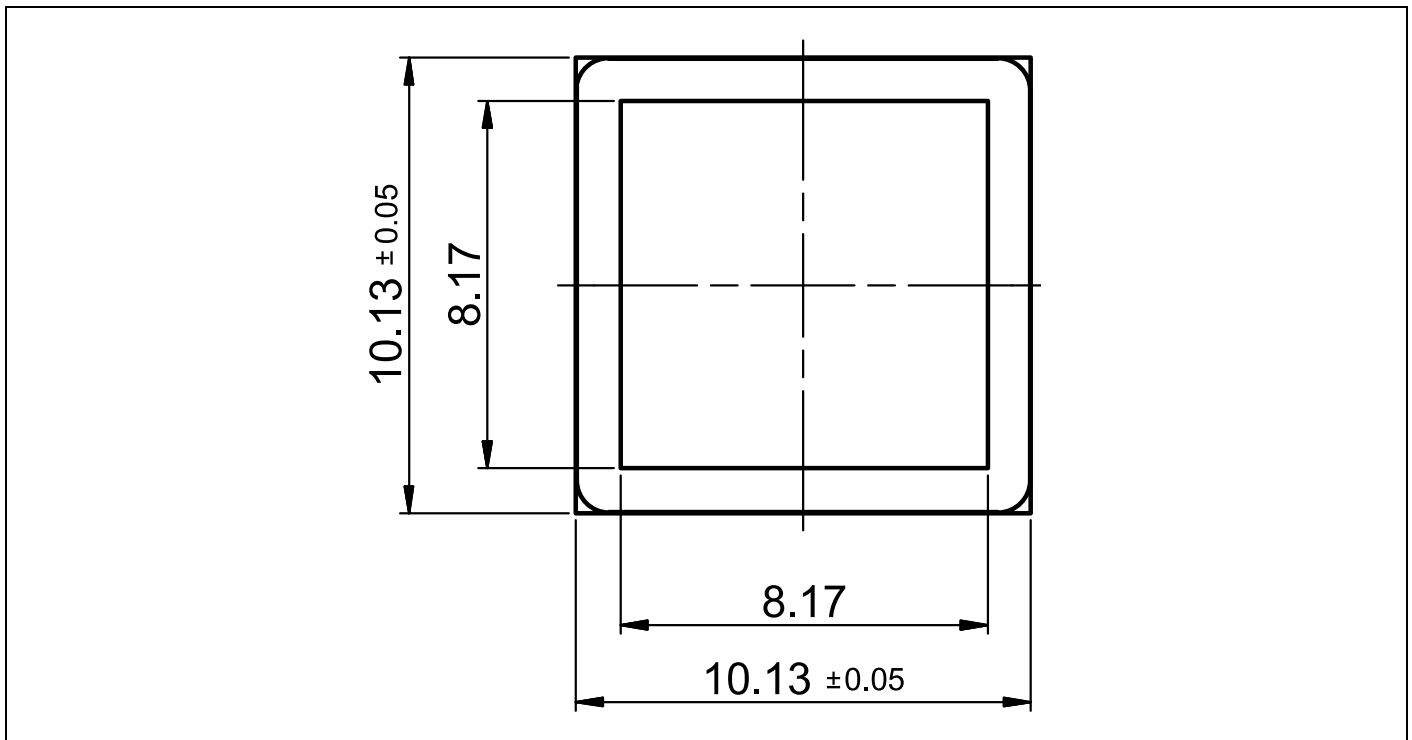
Parameter	Symbol	Conditions	min	Unit
Dimensions	Overall die	L x W	10.13 x 10.13	mm
	exposed front metal thickness	L x W	8.17 x 8.17	mm
			390 ± 15	µm
Metallization ³⁾	front (E)	AlSi1	4	µm
	back (C)	Al / Ti / Ni / Ag	1.2	µm

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
Picked wafer die (waffle pack)	5SLY 12J1700
Sawn 6" wafer die (on blue tape)	5SLY 86J1700

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.

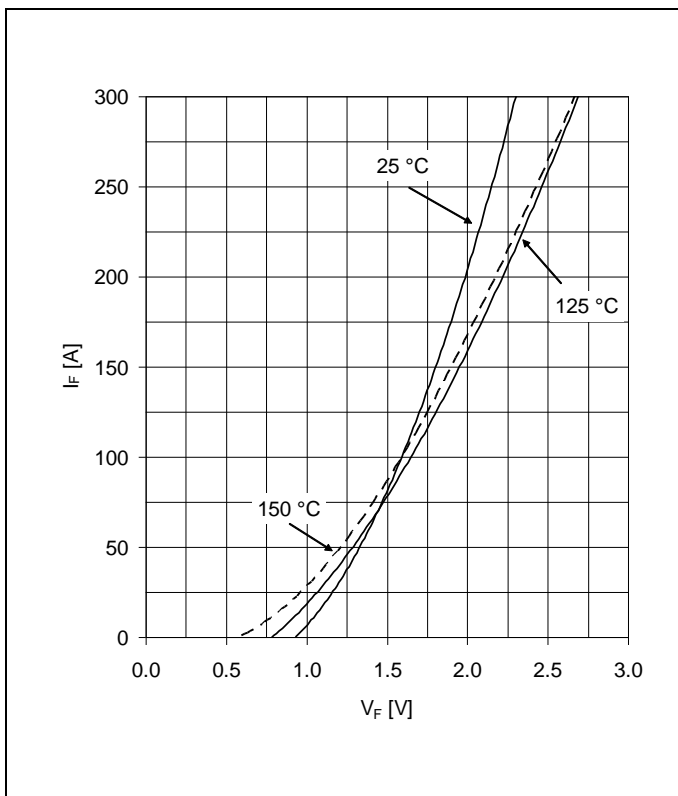


Fig. 1 Typical diode forward characteristics, chip level

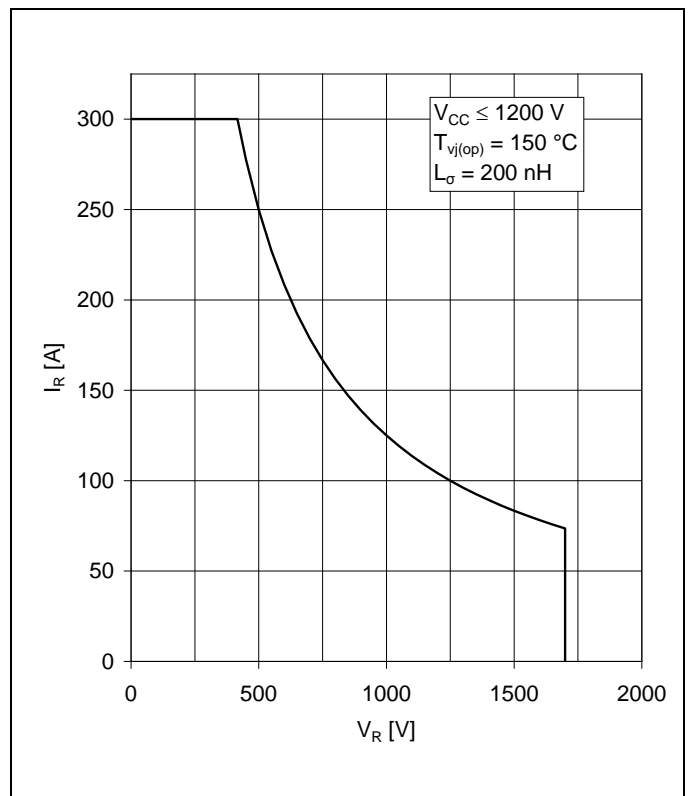


Fig. 2 Safe operating area (FBSOA)

Related documents:

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

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