

$V_{RRM} = 1200 \text{ V}$

$I_F = 75 \text{ A}$

Diode-Die

5SLY 12F1200



Die size: 7.4 x 7.4 mm

Doc. No. 5SYA 1682-03 12 14

- Ultra low losses
- Fast and soft reverse-recovery
- Highly rugged SPT+ design
- Passivation: Silicon Nitride plus Polyimide

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

Parameter	Symbol	Conditions	min	max	Unit
Repetitive peak reverse voltage	$V_{RRM}$			1200	V
Continuous forward current	$I_F$			75	A
Repetitive peak forward current	$I_{FRM}$	Limited by $T_{vjmax}$		150	A
Junction temperature	$T_{vj}$			175	°C
	$T_{vj(op)}$		-40	150	

<sup>1)</sup> Maximum rated values indicate limits beyond which damage to the device may occur per IEC 60747 - 2

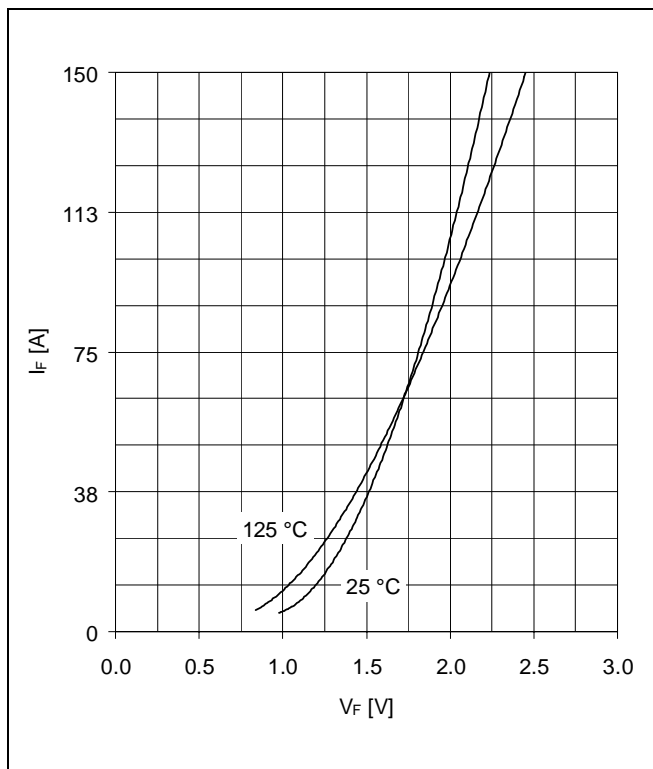
#### Diode characteristic values <sup>2)</sup>

Parameter	Symbol	Conditions	min	typ	max	Unit	
Continuous forward voltage	$V_F$	$I_F = 75 \text{ A}$	$T_{vj} = 25 \text{ °C}$		1.8	2.1	V
			$T_{vj} = 125 \text{ °C}$		1.85		V
Continuous reverse current	$I_R$	$V_R = 1200 \text{ V}$	$T_{vj} = 25 \text{ °C}$			100	μA
			$T_{vj} = 125 \text{ °C}$		0.75		mA
Peak reverse recovery current	$I_{rr}$	$I_F = 75 \text{ A},$ $V_R = 600 \text{ V},$ $di/dt = 1600 \text{ A}/\mu\text{s},$ $L_\sigma = 60 \text{ nH},$ Inductive load, Switch:	$T_{vj} = 25 \text{ °C}$		65		A
			$T_{vj} = 125 \text{ °C}$		85		A
Recovered charge	$Q_{rr}$	$I_F = 75 \text{ A},$ $V_R = 600 \text{ V},$ $di/dt = 1600 \text{ A}/\mu\text{s},$ $L_\sigma = 60 \text{ nH},$ Inductive load, Switch:	$T_{vj} = 25 \text{ °C}$		10		μC
			$T_{vj} = 125 \text{ °C}$		19		μC
Reverse recovery time	$t_{rr}$	$I_F = 75 \text{ A},$ $V_R = 600 \text{ V},$ $di/dt = 1600 \text{ A}/\mu\text{s},$ $L_\sigma = 60 \text{ nH},$ Inductive load, Switch:	$T_{vj} = 25 \text{ °C}$		250		ns
			$T_{vj} = 125 \text{ °C}$		360		ns
Reverse recovery energy	$E_{rec}$	$I_F = 75 \text{ A},$ $V_R = 600 \text{ V},$ $di/dt = 1600 \text{ A}/\mu\text{s},$ $L_\sigma = 60 \text{ nH},$ Inductive load, Switch: 1x 5SMY 12J1280	$T_{vj} = 25 \text{ °C}$		3.6		mJ
			$T_{vj} = 125 \text{ °C}$		7.5		mJ

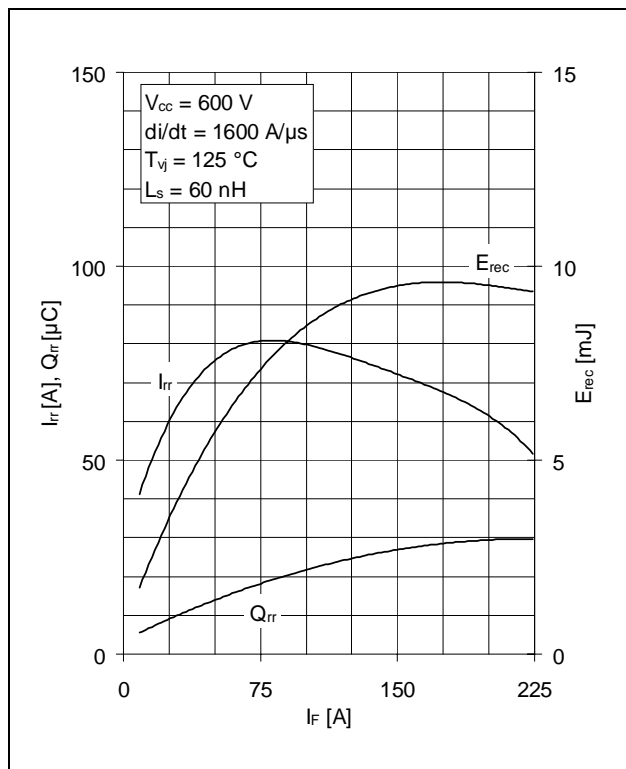
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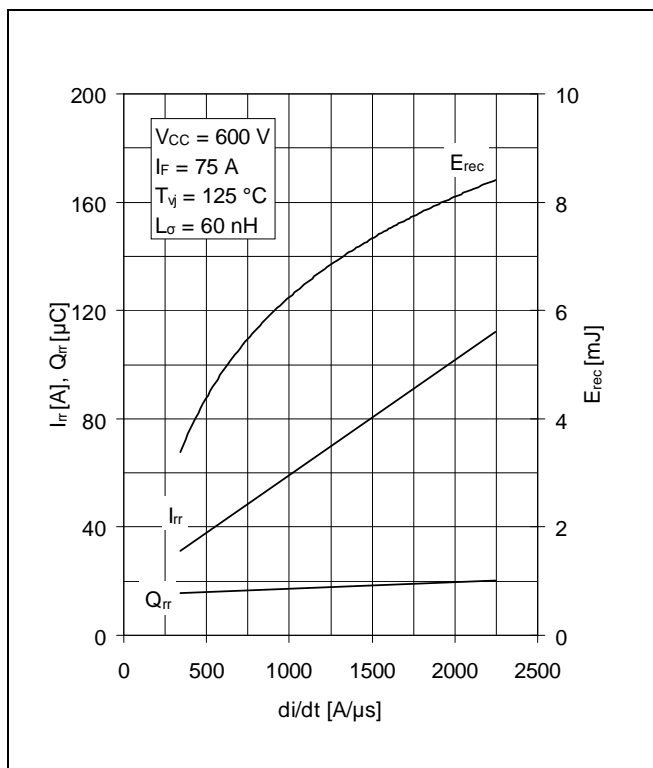
2) Characteristic values according to IEC 60747 - 2



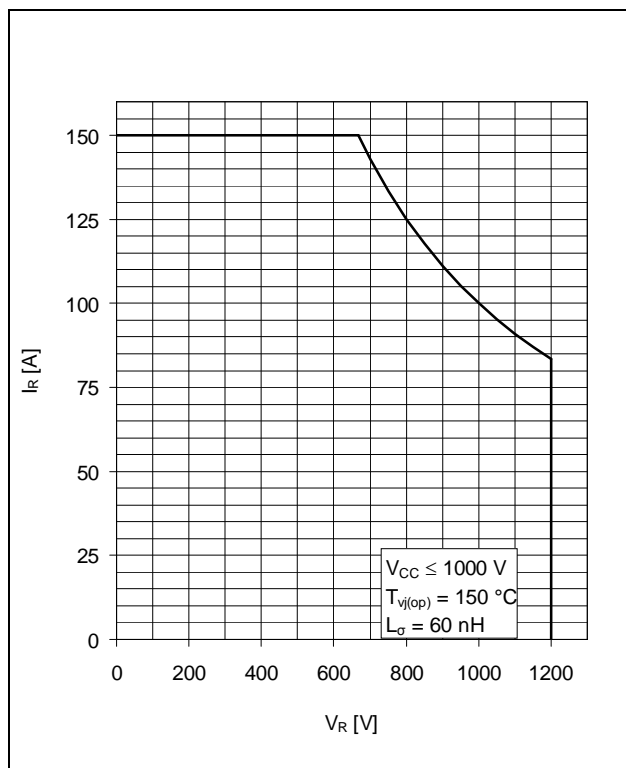
**Fig. 1** Typical diode forward characteristics



**Fig. 2** Typical reverse recovery characteristics vs. forward current



**Fig. 3** Typical reverse recovery vs. di/dt



**Fig. 4** Safe operating area (FBSOA)

## Mechanical properties

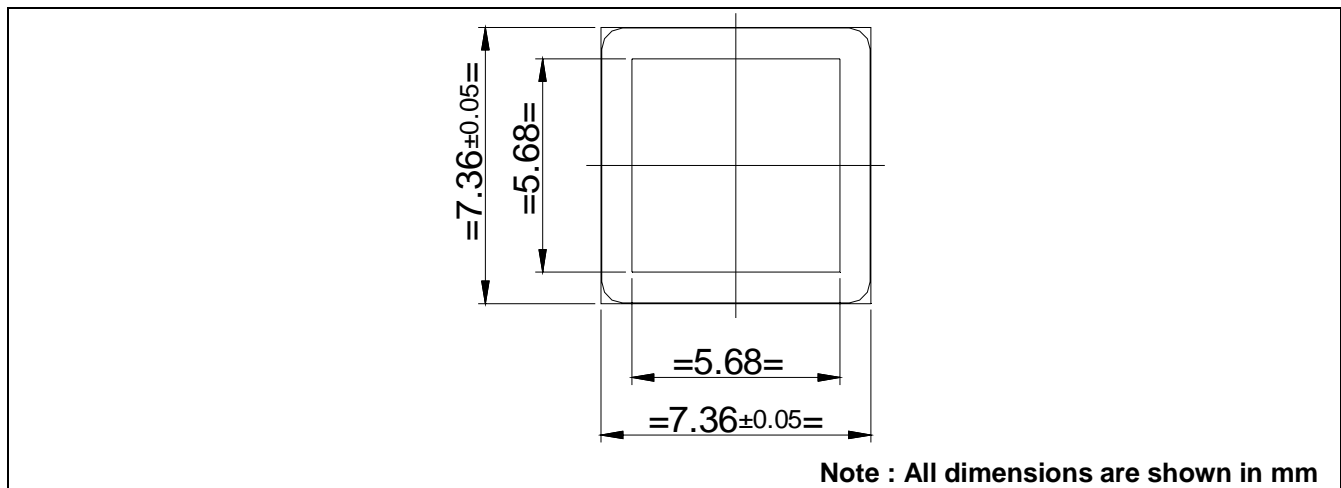
Parameter				Unit
Dimensions	Overall die	L x W	7.4 x 7.4	mm
	exposed front metal	L x W	5.7 x 5.7	mm
	thickness		350 ± 15	µm
Metallization <sup>3)</sup>	front (A)	AlSi1	4	µm
	back (K)	Al / Ti / Ni / Ag	1.2	µm

<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	5SLY 76F1200
Sawn 6" wafer die (on blue tape)	5SLY 86F1200

## Outline Drawing



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.

**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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