

$V_{RRM} = 6500 \text{ V}$ $I_F = 50 \text{ A}$

Fast-Diode Die

5SLX 12M6520

**Die size: 13.6 x 13.6 mm**

Doc. No. 5SYA1666-02 11 11

- **Fast and soft reverse recovery**
- **Low losses**
- **Large SOA**
- **Passivation: SIPOS and Silicon Nitride plus Polyimide**

Maximum rated values ¹⁾

Parameter	Symbol	Conditions	min	max	Unit
Repetitive peak reverse voltage	V_{RRM}	$T_{vj} \geq 25 \text{ }^\circ\text{C}$		6500	V
Continuous forward current	I_F			50	A
Repetitive peak forward current	I_{FRM}	Limited by T_{vjmax}		100	A
Junction temperature	T_{vj}		-40	125	$^\circ\text{C}$

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

Diode characteristic values ²⁾

Parameter	Symbol	Conditions	min	typ	max	Unit
Continuous forward voltage	V_F	$I_F = 50 \text{ A}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	3.2		V
			$T_{vj} = 125 \text{ }^\circ\text{C}$		3.4	
Continuous reverse current	I_R	$V_R = 6500 \text{ V}$	$T_{vj} = 25 \text{ }^\circ\text{C}$	20		μA
			$T_{vj} = 125 \text{ }^\circ\text{C}$	3	6	mA
Peak reverse recovery current	I_{rr}	$I_F = 50 \text{ A},$ $V_R = 3600 \text{ V},$ $di/dt = 230 \text{ A}/\mu\text{s},$ $L_\sigma = 3400 \text{ nH},$ Inductive load, Switch: 2x 5SMX12M6501	$T_{vj} = 25 \text{ }^\circ\text{C}$	70		A
			$T_{vj} = 125 \text{ }^\circ\text{C}$	80		A
Recovered charge	Q_{rr}	$I_F = 50 \text{ A},$ $V_R = 3600 \text{ V},$ $di/dt = 230 \text{ A}/\mu\text{s},$ $L_\sigma = 3400 \text{ nH},$ Inductive load, Switch: 2x 5SMX12M6501	$T_{vj} = 25 \text{ }^\circ\text{C}$	65		μC
			$T_{vj} = 125 \text{ }^\circ\text{C}$	100		μC
Reverse recovery time	t_{rr}	$I_F = 50 \text{ A},$ $V_R = 3600 \text{ V},$ $di/dt = 230 \text{ A}/\mu\text{s},$ $L_\sigma = 3400 \text{ nH},$ Inductive load, Switch: 2x 5SMX12M6501	$T_{vj} = 25 \text{ }^\circ\text{C}$	1700		ns
			$T_{vj} = 125 \text{ }^\circ\text{C}$	2250		ns
Reverse recovery energy	E_{rec}	$I_F = 50 \text{ A},$ $V_R = 3600 \text{ V},$ $di/dt = 230 \text{ A}/\mu\text{s},$ $L_\sigma = 3400 \text{ nH},$ Inductive load, Switch: 2x 5SMX12M6501	$T_{vj} = 25 \text{ }^\circ\text{C}$	100		mJ
			$T_{vj} = 125 \text{ }^\circ\text{C}$	180		mJ

²⁾ Characteristic values according to IEC 60747 - 2

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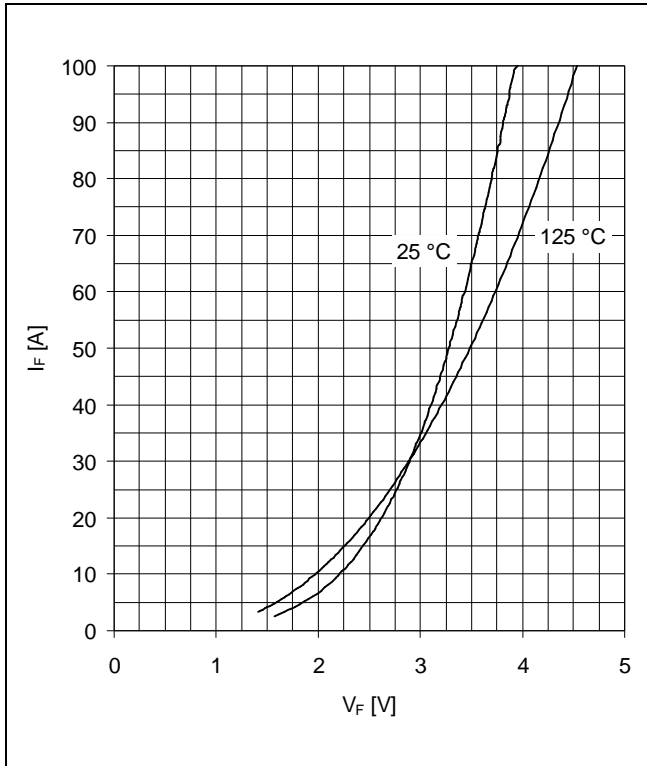


Fig. 1 Typical diode forward characteristics

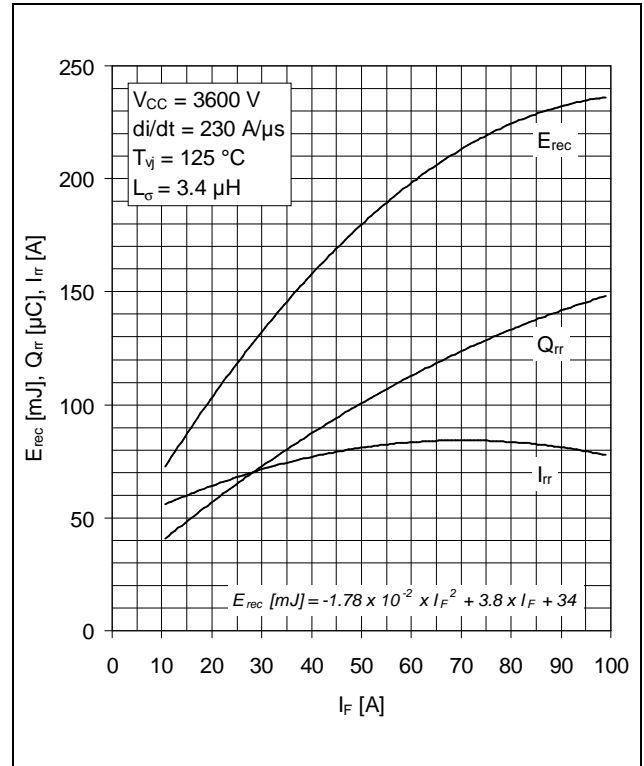


Fig. 2 Typical reverse recovery characteristics vs. forward current

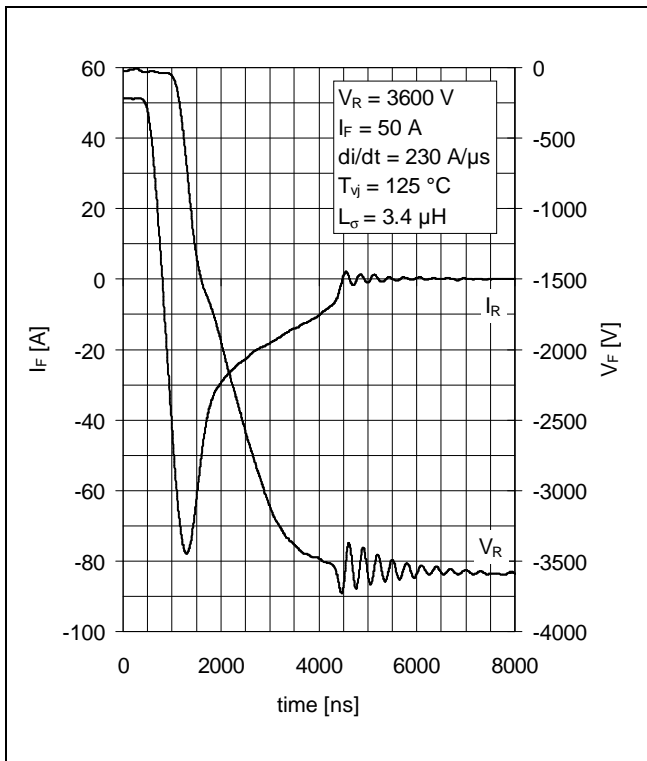


Fig. 3 Typical diode reverse recovery behaviour

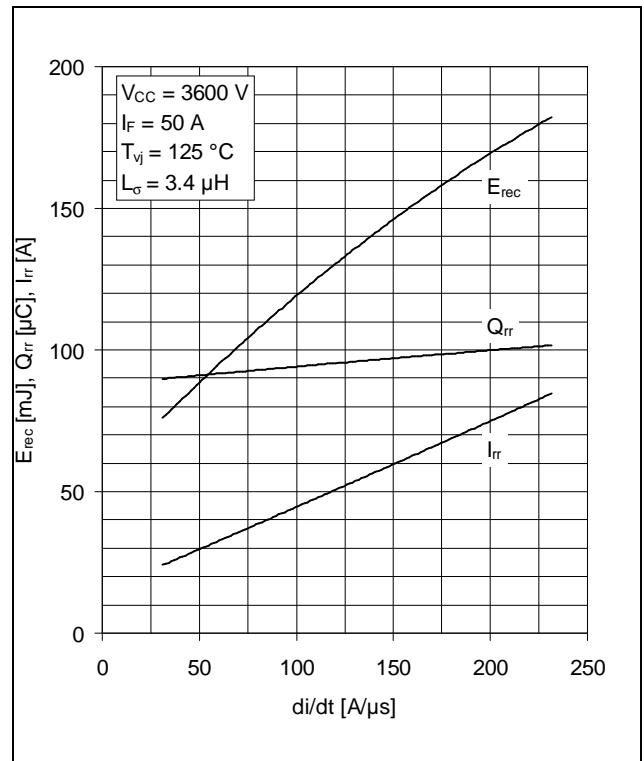


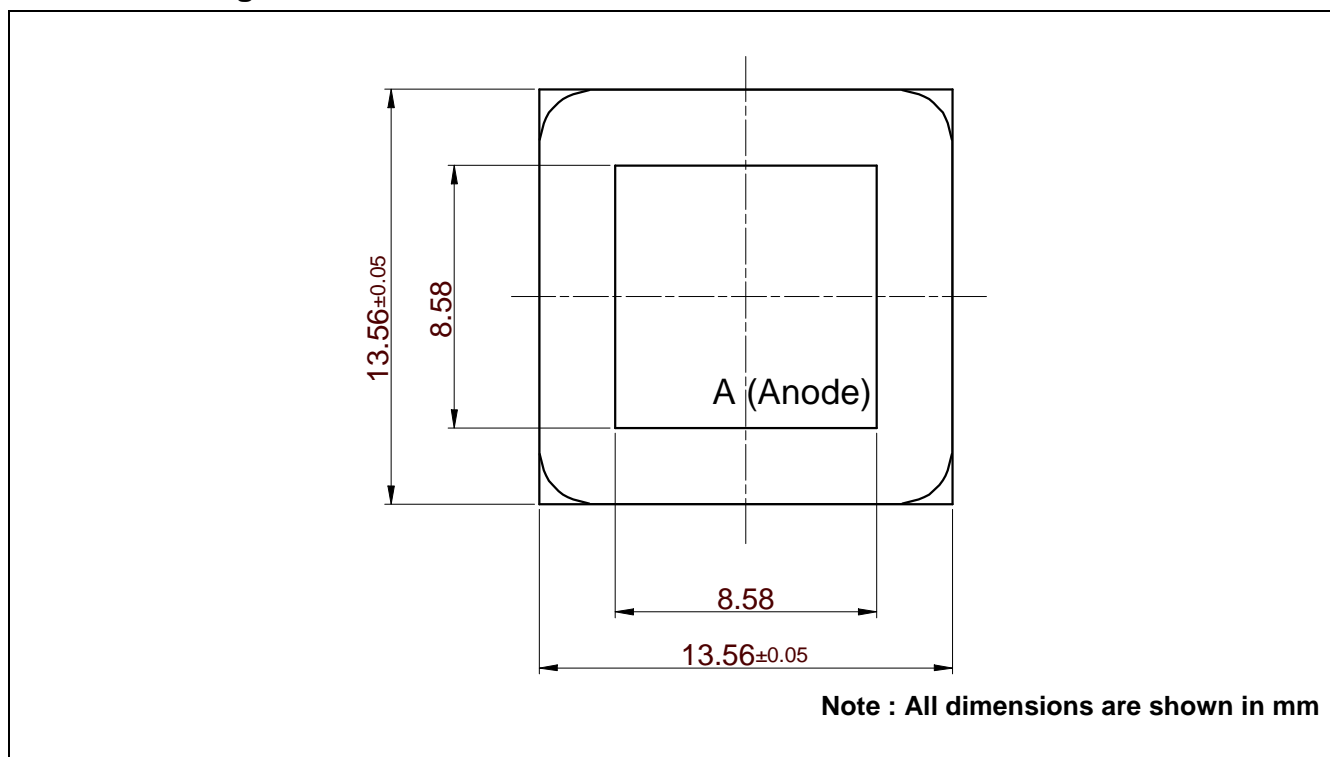
Fig. 4 Typical reverse recovery vs. di/dt

Mechanical properties

Parameter				Unit
Dimensions	Overall die	L x W	13.6 x 13.6	mm
	exposed front metal	L x W	8.58 x 8.58	mm
	thickness		670 ± 20	µm
Metallization ³⁾	front (A)	AlSi1	4	µm
	back (K)	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.

Outline Drawing



This product has been designed and qualified for Industrial Level.

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