V_{RRM} = 4500 V
I_F = 110 A

Fast-Diode Die

5SLY 12N4500

Die size: 14.3 x 14.3 mm

Doc. No. 5SYA 1674-00 Jan 08

- **Ultra low losses**
- **Fast and soft reverse-recovery**
- **Large SOA**
- **Passivation: SIPOS and Silicon Nitride**

Maximum rated values [1)]

Parameter	Symbol	Conditions	min	max	Unit
Repetitive peak reverse voltage	V_{RRM}			4500	V
Continuous forward current	I_F			110	A
Repetitive peak forward current	I_{FRM}	Limited by T_{vjmax}		220	A
Junction temperature	T_{vj}		-40	125	°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 = 110 A	T_{vj} = 25 °C		3.05		V
			T_{vj} = 125 °C		3.50		V
Continuous reverse current	I_R	V_R = 4500 V	T_{vj} = 25 °C		3		µA
			T_{vj} = 125 °C		2	4	mA
Peak reverse recovery current	I_{rr}	I_F = 110 A, V_R = 2800 V, di/dt = 350 A/µs, L_σ = 3000 nH, Inductive load, Switch: 2x 5SMY12N4500	T_{vj} = 25 °C		120		A
			T_{vj} = 125 °C		132		A
Recovered charge	Q_{rr}		T_{vj} = 25 °C		90		µC
			T_{vj} = 125 °C		140		µC
Reverse recovery time	t_{rr}		T_{vj} = 25 °C		1140		ns
			T_{vj} = 125 °C		1730		ns
Reverse recovery energy	E_{rec}		T_{vj} = 25 °C		140		mJ
			T_{vj} = 125 °C		235		mJ

[2)] Characteristic values according to IEC 60747 - 2

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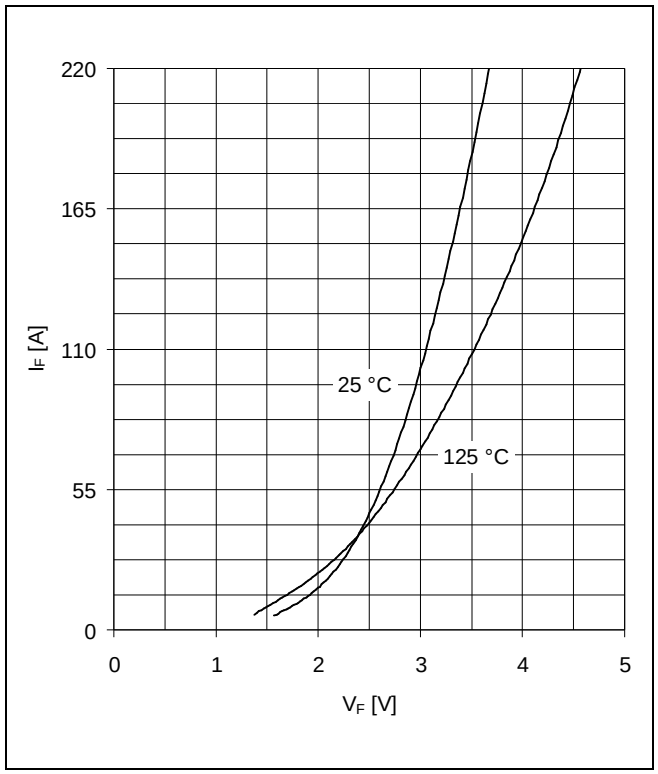


Fig. 1 Typical diode forward characteristics

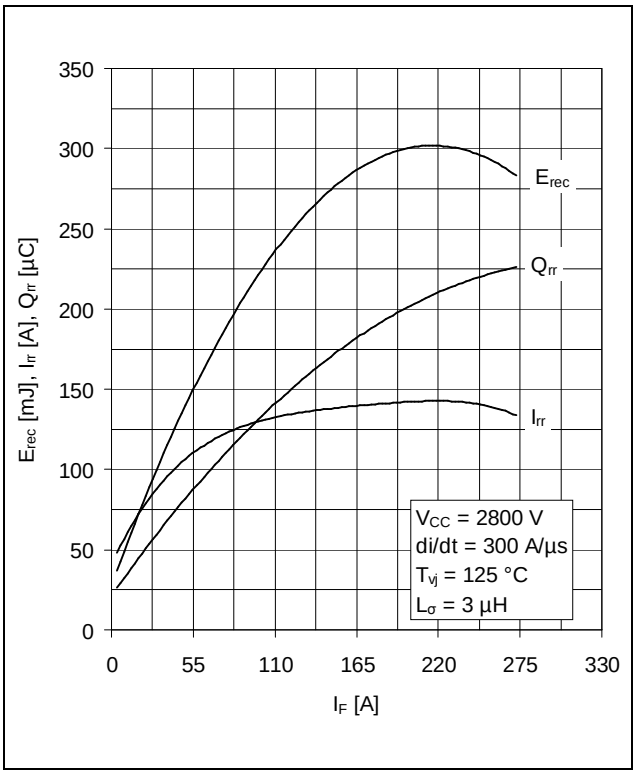


Fig. 2 Typical reverse recovery characteristics vs. forward current

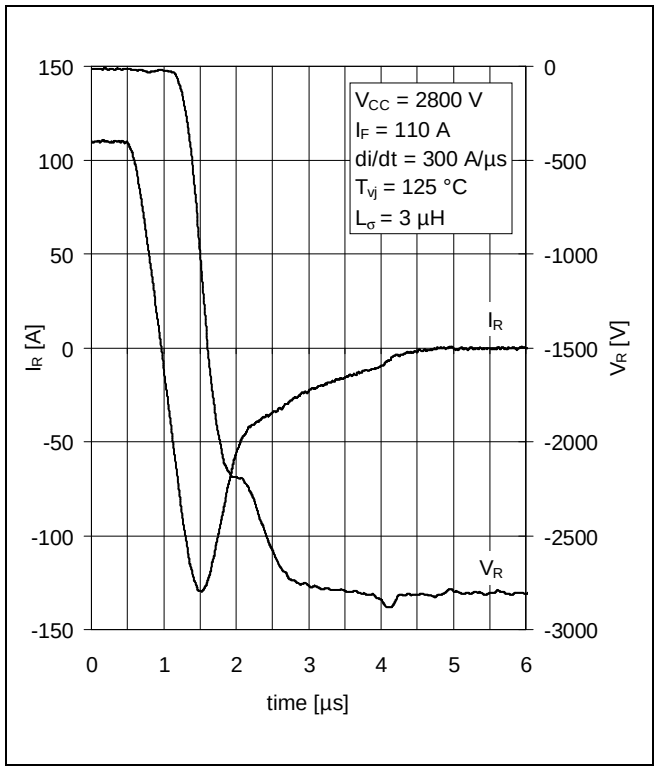


Fig. 3 Typical diode reverse recovery behaviour

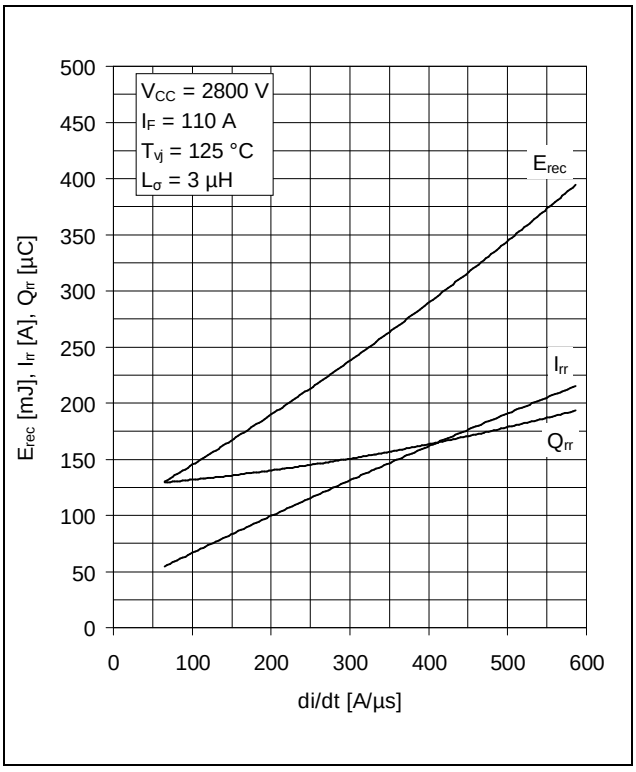


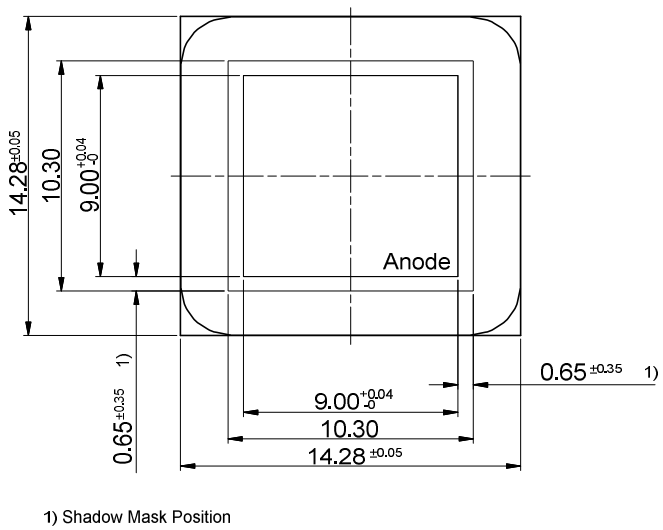
Fig. 4 Typical reverse recovery vs. di/dt

Mechanical properties

Parameter				Unit
Dimensions	Overall die	L x W	14.3 x 14.3	mm
	exposed front metal	L x W	9.0 x 9.0	mm
	thickness		570 ± 15	µm
Metallization [3]	front (A)	AlSi1 + Al	4 + 8	µm
	back (K)	AlSi1 + TiNiAg	1.8 + 1.2	µm

[3] For assembly instructions refer to: IGBT and Diode chips from ABB Switzerland Ltd, Semiconductors, Doc. No. 5SYA 2033.

Outline Drawing



1) Shadow Mask Position

Note : All dimensions are shown in mm

This product has been designed and qualified for Industrial Level.

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