

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

$I_F = 50 \text{ A}$

Diode-Die

5SLY 12E1200



Die size: 6.3 x 6.3 mm

Doc. No. 5SYA 1681-00 Nov 09

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

Maximum rated values ¹⁾

Parameter	Symbol	Conditions	min	max	Unit
Repetitive peak reverse voltage	V_{RRM}			1200	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	150	°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	$I_F = 50 \text{ A}$	$T_{vj} = 25 \text{ °C}$	1.8		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
			$T_{vj} = 125 \text{ °C}$	0.5		mA
Peak reverse recovery current	I_{rr}	$I_F = 50 \text{ A},$ $V_R = 600 \text{ V},$ $di/dt = 1000 \text{ A}/\mu\text{s},$ $L_\sigma = 60 \text{ nH},$ Inductive load, Switch: 1x 5SMY12H1200	$T_{vj} = 25 \text{ °C}$	45		A
			$T_{vj} = 125 \text{ °C}$	55		A
Recovered charge	Q_{rr}	$I_F = 50 \text{ A},$ $V_R = 600 \text{ V},$ $di/dt = 1000 \text{ A}/\mu\text{s},$ $L_\sigma = 60 \text{ nH},$ Inductive load, Switch: 1x 5SMY12H1200	$T_{vj} = 25 \text{ °C}$	6.5		μC
			$T_{vj} = 125 \text{ °C}$	12.7		μC
Reverse recovery time	t_{rr}	$I_F = 50 \text{ A},$ $V_R = 600 \text{ V},$ $di/dt = 1000 \text{ A}/\mu\text{s},$ $L_\sigma = 60 \text{ nH},$ Inductive load, Switch: 1x 5SMY12H1200	$T_{vj} = 25 \text{ °C}$	250		ns
			$T_{vj} = 125 \text{ °C}$	360		ns
Reverse recovery energy	E_{rec}	$I_F = 50 \text{ A},$ $V_R = 600 \text{ V},$ $di/dt = 1000 \text{ A}/\mu\text{s},$ $L_\sigma = 60 \text{ nH},$ Inductive load, Switch: 1x 5SMY12H1200	$T_{vj} = 25 \text{ °C}$	2.4		mJ
			$T_{vj} = 125 \text{ °C}$	5		mJ

²⁾ Characteristic values according to IEC 60747 - 2

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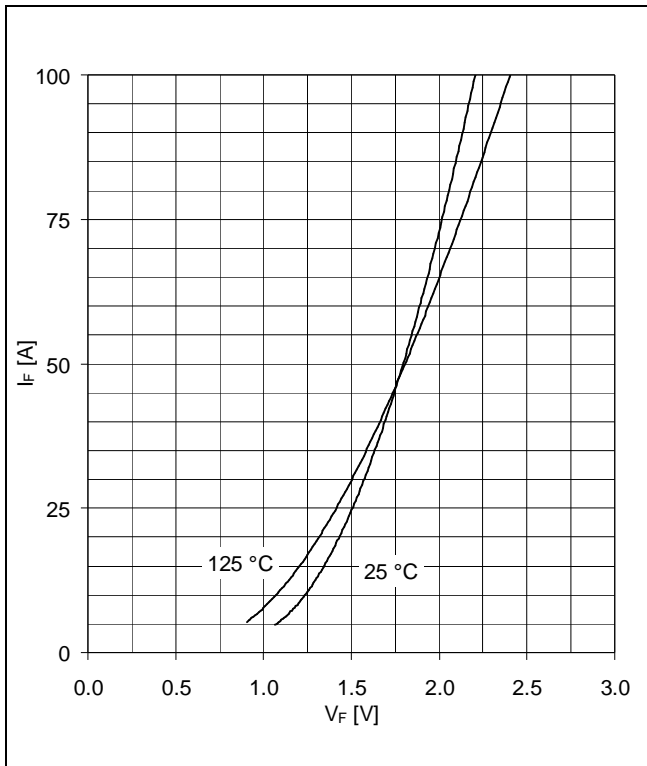


Fig. 1 Typical diode forward characteristics

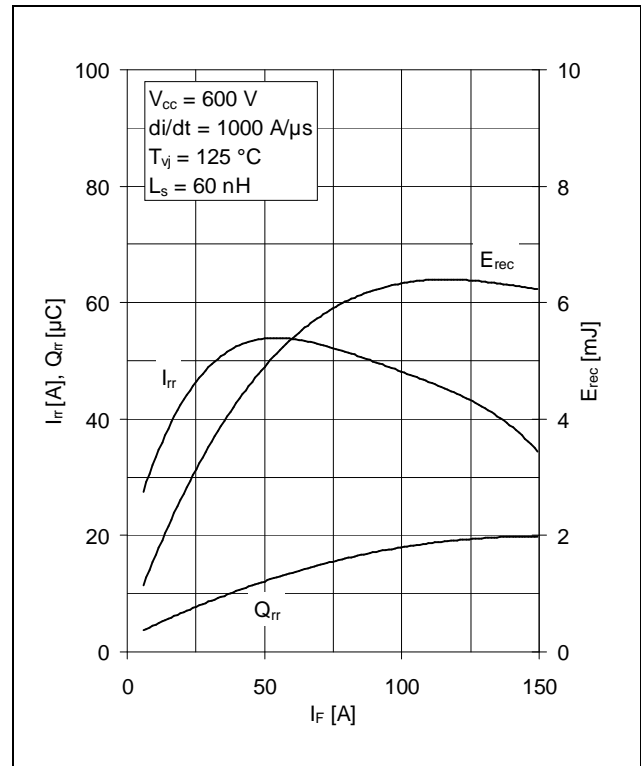


Fig. 2 Typical reverse recovery characteristics vs. forward current

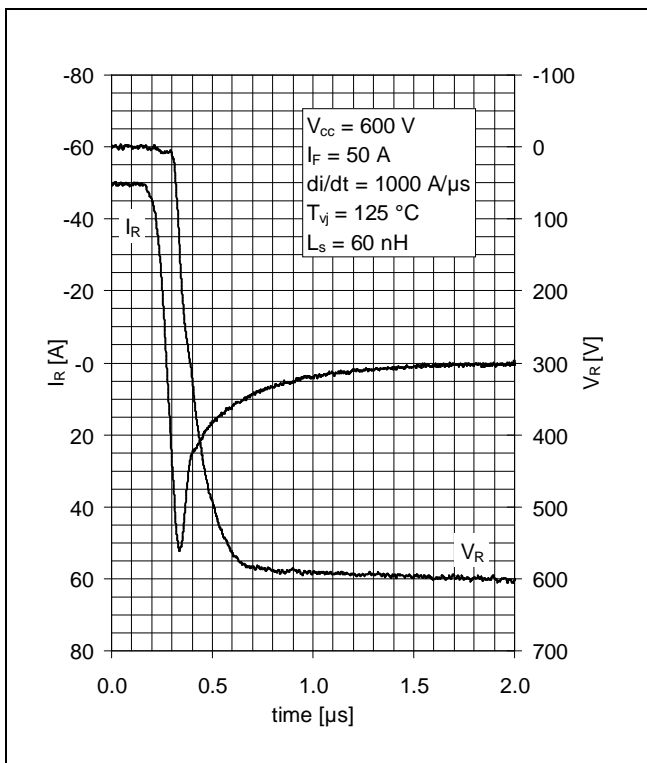


Fig. 3 Typical diode reverse recovery behaviour

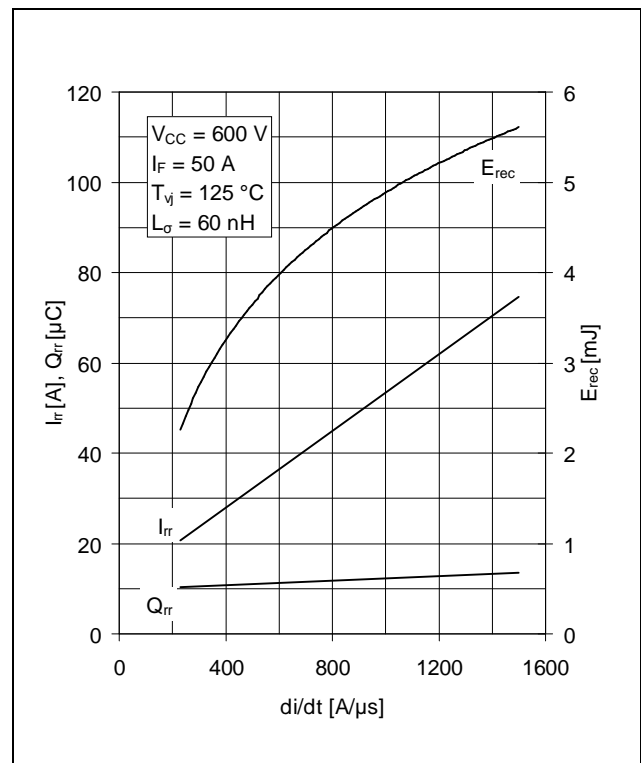


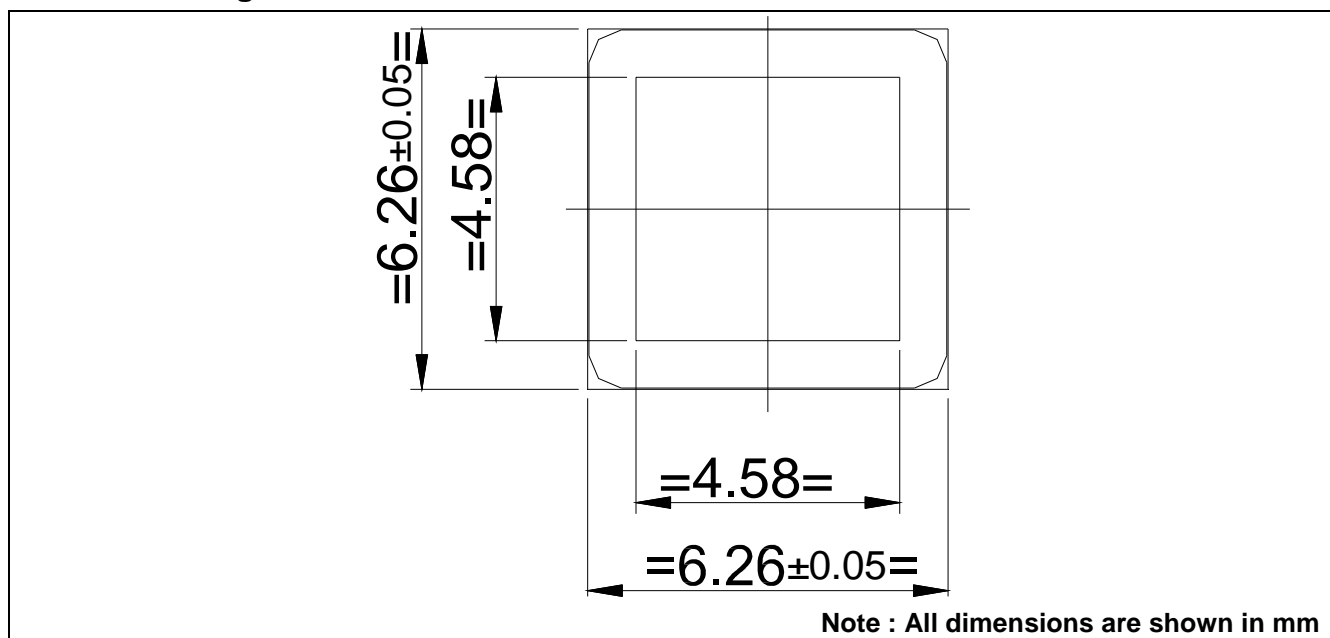
Fig. 4 Typical reverse recovery vs. di/dt

Mechanical properties

Parameter				Unit
Dimensions	Overall die	L x W	6.3 x 6.3	mm
	exposed front metal	L x W	4.6 x 4.6	mm
	thickness		350 ± 15	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.

For detailed information refer to:

- 5SYA 2059 Applying IGBT and FRD dies

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