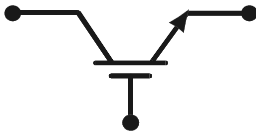
www.DataSheet4U.com

V_{CE} = 1200 V
I_C = 50 A

IGBT-Die
5SMX12H1251



Die size: 9.1 x 9.0 mm

Doc. No. 5SYA1607-01 Aug 02

- **Low loss thin IGBT die**
- **Highly rugged SPT design**
- **Large front bondable area**

Maximum Rated Values

(T_j = 25°C, unless specified otherwise)

Parameter	Symbol	Conditions	Values	Unit
Collector-Emitter Voltage	V_{CES}		1200	V
DC Collector Current	I_C		50	A
Maximum Collector Current	I_{CM}	Limited by T_{jmax}	100	A
Operating Temperature	T_j		-40 ... +150	°C

Characteristic Values

(T_j = 25°C, unless specified otherwise)

Parameter	Symbol	Conditions		min.	typ.	max.	Unit
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 50 A, V_{GE} = 15 V	T_j = 25 °C	1.7	1.9	2.3	V
			T_j = 125 °C		2.1		V
Collector-Emitter leakage Current	I_{CES}	V_{CE} = 1200 V, V_{GE} = 0 V	T_j = 25 °C			100	µA
			T_j = 125 °C		200		µA
Gate-Emitter leakage Current	I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V				±200	nA
Gate-Emitter Threshold Voltage	$V_{GE(TO)}$	I_C = 2 mA, V_{CE} = V_{GE}		4.5		6.5	V
Turn-on delay time	$t_{d(on)}$	I_C = 50 A, V_{CC} = 600 V, R_G = 22 Ω, V_{GE} = ±15 V, T_j = 125 °C, L_σ = 50 nH, Inductive load, FWD : 5SLX12E1200			100		ns
Rise time	t_r				50		ns
Turn-on switching energy	E_{on}				5.5		mJ
Turn-off delay time	$t_{d(off)}$				550		ns
Fall time	t_f				40		ns
Turn-off switching energy	E_{off}				5		mJ
Internal gate resistance	R_{Gint}				5		Ω
Input capacitance	C_{ies}	Vce = 25 V, Vge = 0 V, f = 1 MHz			4.5		nF
Total gate charge	Q_{ge}	Vge = -15 .. +15 V			600		nC

www.DataSheet4U.com

ABB Switzerland Ltd, Semiconductors reserves the right to change specifications without notice.

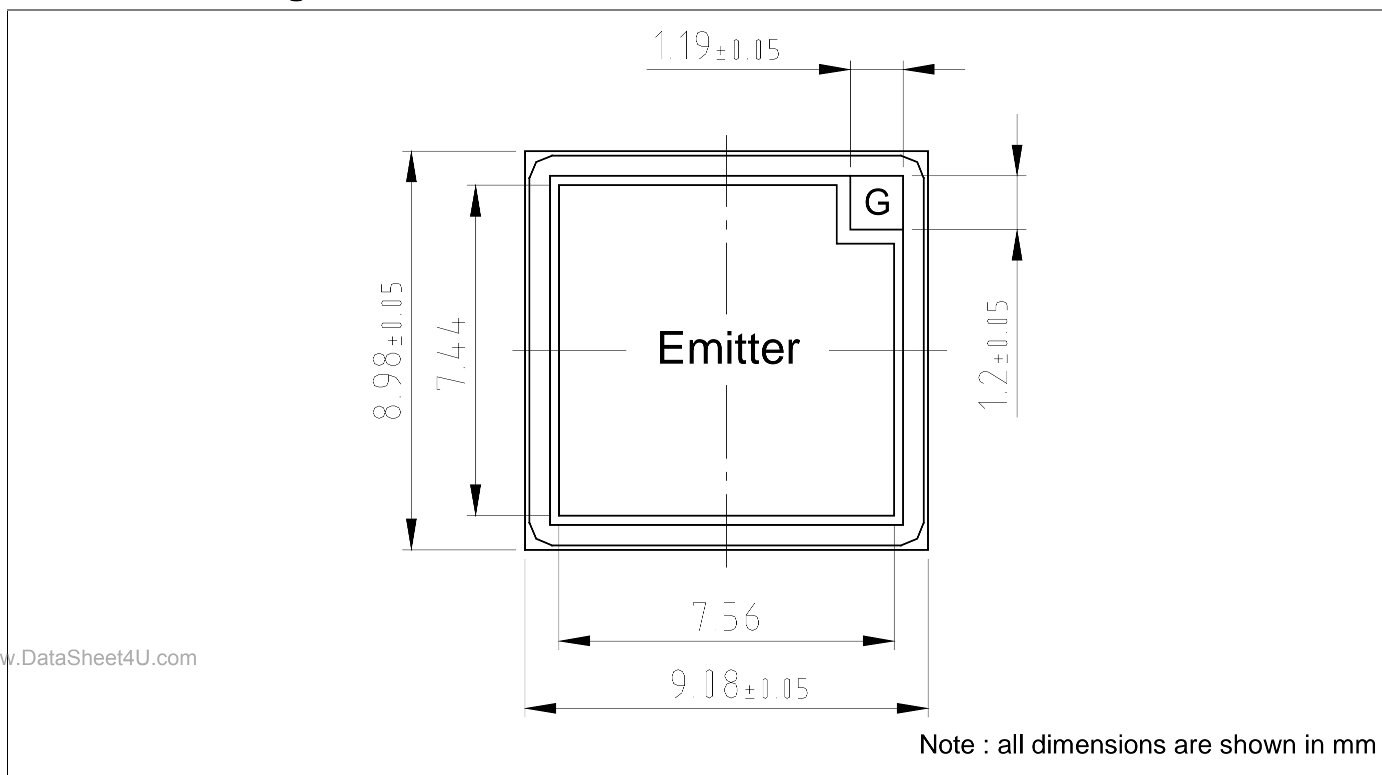
www.DataSheet4U.com

Mechanical Characteristics

Parameter				Unit
Dimensions	Overall die	L x W	9.1 x 9.0	mm
	Exposed Front metal	L x W (except gate pad)	7.6 x 7.5	mm
	Gate pad	L x W	1.2 x 1.2	mm
	Thickness		130 ± 20	µm
Metallization	Front	AlSi1	4	µm
	Back[1)]	Al / Ti / Ni / Ag	1.8	µm

[1)] For assembly instructions refer to : IGBT and Diode chips from ABB Switzerland Ltd, Semiconductors, Doc. No. 5SYA2033-01 April 02.

Outline Drawing



www.DataSheet4U.com

Note : device is sensitive to electrostatic discharge

ABB Switzerland Ltd, Semiconductors reserves the right to change specifications without notice.

ABB Switzerland Ltd
Semiconductors
Fabrikstrasse 3
CH-5600 Lenzburg, Switzerland

Telephone +41 (0)58 586 1419
Fax +41 (0)58 586 1306
Email abbsem@ch.abb.com
Internet www.abbsem.com

Doc. No. 5SYA1607-01 Aug 02