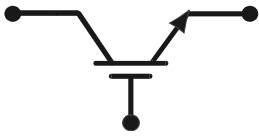


$$V_{CE} = 1200 \text{ V}$$

$$I_C = 50 \text{ A}$$

IGBT-Die

5SMX12H1251



Die size: 9.1 x 9.0 mm

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

Maximum Rated Values

($T_j = 25^\circ\text{C}$, 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	$^\circ\text{C}$

Characteristic Values

($T_j = 25^\circ\text{C}$, unless specified otherwise)

Parameter	Symbol	Conditions	min.	typ.	max.	Unit	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 50 \text{ A}$, $T_j = 25^\circ\text{C}$	1.7	1.9	2.3	V	
		$V_{GE} = 15 \text{ V}$, $T_j = 125^\circ\text{C}$		2.1		V	
Collector-Emitter leakage Current	I_{CES}	$V_{CE} = 1200 \text{ V}$, $T_j = 25^\circ\text{C}$			100	μA	
		$V_{GE} = 0 \text{ V}$, $T_j = 125^\circ\text{C}$		200		μA	
Gate-Emitter leakage Current	I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$			± 200	nA	
Gate-Emitter Threshold Voltage	$V_{GE(TO)}$	$I_C = 2 \text{ mA}$, $V_{CE} = V_{GE}$	4.5		6.5	V	
Turn-on delay time	$t_{d(on)}$	$I_C = 50 \text{ A}$, $V_{CC} = 600 \text{ V}$, $R_G = 22 \Omega$, $V_{GE} = \pm 15 \text{ V}$, $T_j = 125^\circ\text{C}$, $L_\sigma = 50 \text{ nH}$, 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}		$V_{ce} = 25 \text{ V}$, $V_{ge} = 0 \text{ V}$, $f = 1 \text{ MHz}$		4.5		nF
Total gate charge	Q_{ge}		$V_{ge} = -15 \dots +15 \text{ V}$		600		nC

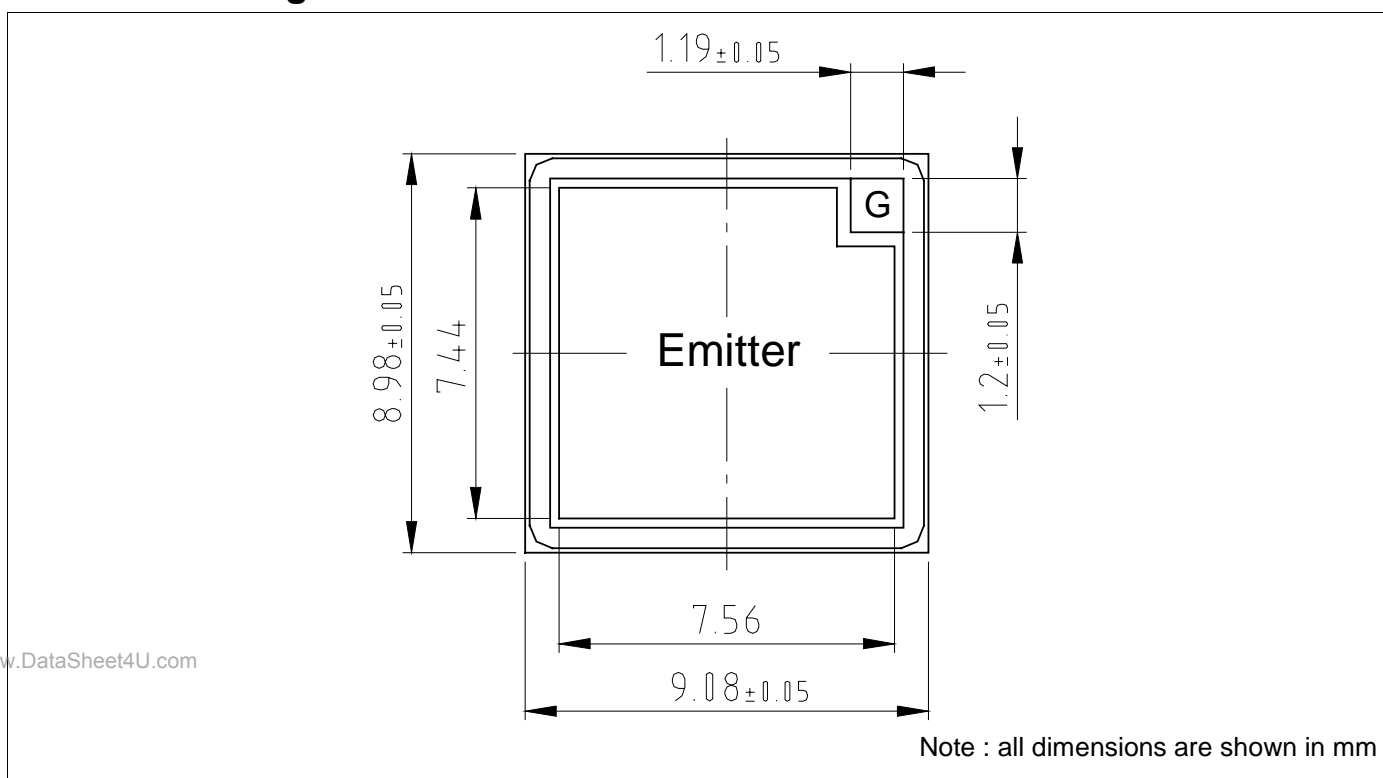
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Mechanical Characteristics

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



Note : device is sensitive to electrostatic discharge

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