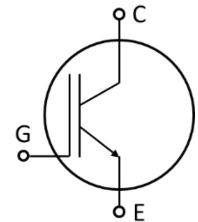
IGBT Chip

Features:

- 1200V Trench & Field stop technology
- Low switching losses
- Positive temperature coefficient
- Easy paralleling

Applications:

- Welding machine
- Induction heating



Mechanical parameters

Parameter	Value	Unit
Die size	11.78×11.18	mm^2
Emitter pad size	See chip drawing	
Gate pad size	1.10×0.70	
Area total	131.70	
Thickness	120	µm
Wafer size	300	mm
Max. possible chips per wafer	458	
Passivation front side	Polyimide	
Pad metal	AlCu with Ti/TiN (5µm & 200A/700A)	
Backside metal	Al/Ti/Ni/Ag	

Maximum Ratings

Parameter	**Symbol**	**Value**	**Unit**
Collector-Emitter voltage	V_{CE}	1200	V
DC collector current	I_C	150	A
Operating junction temperature	T_{vj}	-40 … +175	°C
Gate emitter voltage	V_{GE}	±20	V

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Static Characteristics (tested on wafer), T_{vj}=25°C

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Collector-Emitter breakdown voltage	$V_{(BR)CES}$	V_{GE}=0V, I_C=1mA	1200			V
Collector-Emitter saturation voltage	V_{CEsat}	V_{GE}=15V, I_C=150A		2.10	2.50	
Gate-Emitter threshold voltage	$V_{GE(th)}$	I_C=5.7mA, V_{GE}= V_{CE}	5.40	6.00	6.60	
Zero gate voltage collector current	I_{CES}	V_{CE}=1200V, V_{GE}= 0V			10	uA
Gate-Emitter leakage current	I_{GES}	V_{CE}=0V, V_{GE}= 20V			100	nA
Integrated gate resistor	r_G [a)]			2.92		Ω
Input capacitance	C_{ies} [a)]	V_{CE}=25V, V_{GE}=0V, f=100kHz		14.48		nF
Reverse transfer capacitance	C_{res} [a)]			0.10		

[a)] tested on device

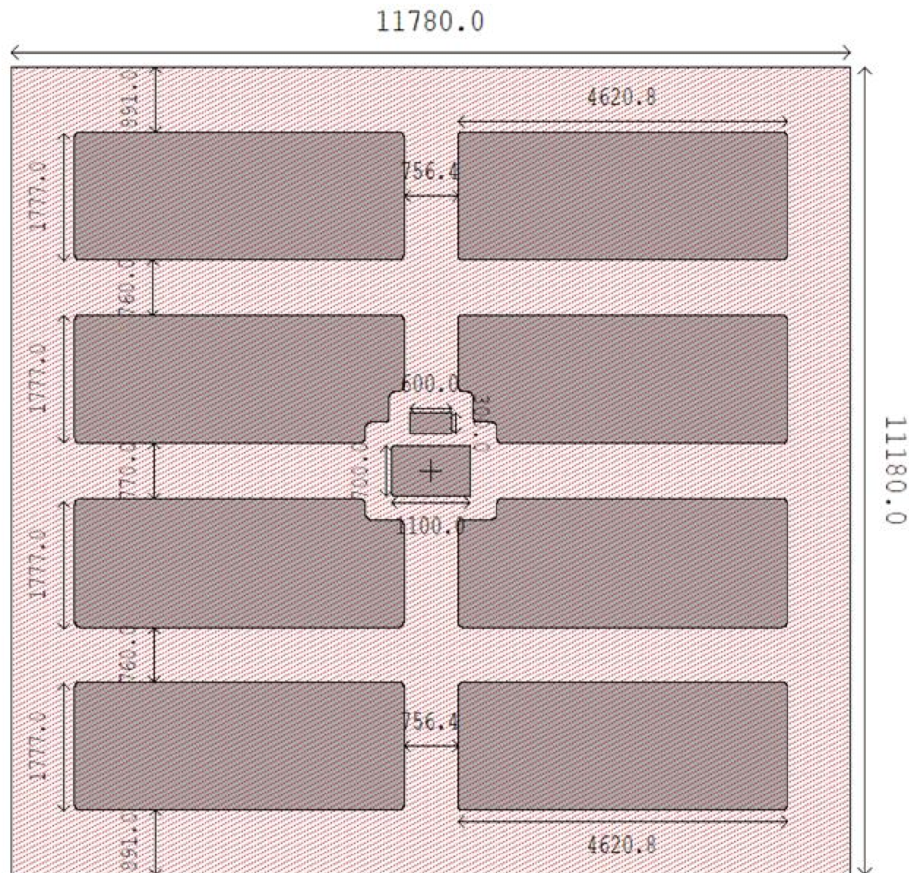
Further Electrical Characteristic

Switching characteristics and thermal properties are depending strongly on module design and mounting technology and can therefore not be specified for a bare die.

Application example	SF300R12E6H

Chip Drawing

Unit：μm



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