

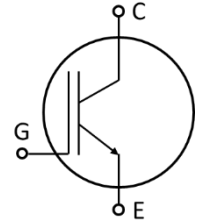
## IGBT Chip

### Features:

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

### Applications:

- Power drives
- Inverter



### Mechanical parameters

Die size	11.78×11.18	mm <sup>2</sup>
Emitter pad size	See chip drawing	
Gate pad size	1.10×0.70	
Area total	131.70	
Thickness	120	μm
Wafer size	200	mm
Max. possible chips per wafer	192	
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 <sub>CE</sub>	1200	V
DC collector current	I <sub>C</sub>	150	A
Operating junction temperature	T <sub>vj</sub>	-40 ... +175	°C
Gate emitter voltage	V <sub>GE</sub>	±20	V
Short circuit data	t <sub>SC</sub>	10	μs

Static Characteristics (tested on wafer),  $T_{vj}=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Collector-Emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0\text{V}, I_C=1\text{mA}$	1200			V
Collector-Emitter saturation voltage	$V_{CESat}$	$V_{GE}=15\text{V}, I_C=150\text{A}$		1.67	2.07	
Gate-Emitter threshold voltage	$V_{GE(th)}$	$I_C=5.7\text{mA}, V_{GE}=V_{CE}$	5.40	6.02	6.60	
Zero gate voltage collector current	$I_{CES}$	$V_{CE}=1200\text{V}, V_{GE}=0\text{V}$			10	$\mu\text{A}$
Gate-Emitter leakage current	$I_{GES}$	$V_{CE}=0\text{V}, V_{GE}=20\text{V}$			100	nA
Integrated gate resistor	$r_G^{a)}$			0.95		$\Omega$
Input capacitance	$C_{ies}^{a)}$	$V_{CE}=25\text{V}, V_{GE}=0\text{V},$		23.37		nF
Reverse transfer capacitance	$C_{res}^{a)}$	$f=100\text{kHz}$		0.22		

<sup>a)</sup> 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	SF300R12E6
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Chip Drawing

