

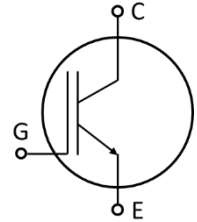
IGBT Chip

Features:

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

Applications:

- Welding machine
- Induction heating



Mechanical parameters

Die size	6.82×7.21	mm ²
Emitter pad size	See chip drawing	
Gate pad size	1.08×1.07	
Area total	49.19	
Thickness	125	μm
Wafer size	200	mm
Max. possible chips per wafer	520	
Passivation front side	Polyimide	
Pad metal	AlCu with Ti/TiN (4μm & 400A/150A)	
Backside metal	Al/Ti/Ni/Ag	

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter voltage	V _{CE}	1200	V
DC collector current	I _C	50	A
Operating junction temperature	T _{vj}	-40 ... +175	°C
Gate emitter voltage	V _{GE}	±20	V
Short circuit data V _{cc} =600V, V _{GE} =±15V, R _g =60Ω, T _j =150°C	t _{sc}	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}	$V_{GE}=15\text{V}, I_C=50\text{A}$		2.19	2.59	
Gate-Emitter threshold voltage	$V_{GE(th)}$	$I_C=1.7\text{mA}, V_{GE}=V_{CE}$	5.20	5.80	6.40	
Zero gate voltage collector current	I_{CES}	$V_{CE}=1200\text{V}, V_{GE}=0\text{V}$			10	μA
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0\text{V}, V_{GE}=20\text{V}$			100	nA
Integrated gate resistor	$r_G^{a)}$			2.60		Ω
Input capacitance	$C_{ies}^{a)}$	$V_{CE}=25\text{V}, V_{GE}=0\text{V},$		2.99		nF
Reverse transfer capacitance	$C_{res}^{a)}$	$f=100\text{kHz}$		0.13		

^{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	SF50R12A6H
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Chip Drawing

