

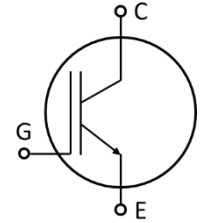
IGBT Chip

Features:

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

Applications:

- Power drives



Mechanical parameters

Die size	6.48×6.64	mm ²
Emitter pad size	See chip drawing	
Gate pad size	1.277×0.809	
Area total	43.03	
Thickness	120	μm
Wafer size	200	mm
Max. possible chips per wafer	577	
Passivation front side	Polyimide	
Pad metal	AlCu with Ti/TiN (4.5μm & 400A/1000A)	
Backside metal	Al/Ti/Ni/Ag	

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter voltage	V _{CE}	1200	V
DC collector current	I _C	40	A
Operating junction temperature	T _{vj}	-40 ... +175	°C
Gate emitter voltage	V _{GE}	±20	V
Short circuit data	t _{SC}	10	μs

Electrical Characteristics, $T_{vj}=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Collector-Emitter breakdown voltage	$V_{(BR)CES}$	$V_{CE}=0\text{V}, I_C=1\text{mA}$	1200			V
Collector-Emitter saturation voltage	V_{CEsat}	$V_{GE}=15\text{V}, I_C=40\text{A}$		1.9		
Gate-Emitter threshold voltage	$V_{GE(th)}$	$I_C=1.5\text{mA}, V_{GE}=V_{CE}$		5.8		
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			7.2		Ω
Input capacitance	C_{ies}	$V_{CE}=25\text{V}, V_{GE}=0\text{V},$ $f=1\text{MHz}$		2.6		nF
Output capacitance	C_{oes}			0.148		
Reverse transfer capacitance	C_{res}			0.098		

Further Electrical Characteristics

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	SD40R12A6
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Chip Drawing

