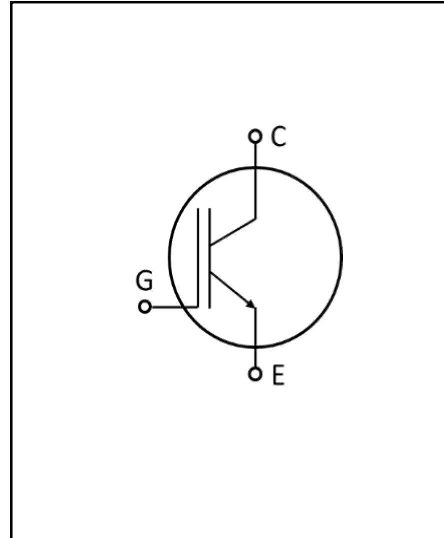
IGBT Chip

Features:

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



Applications:

- Welding machine
- Induction heating

Mechanical parameters

<table>
<tr><td>Die size</td><td>11.88×11.88</td><td rowspan="4">mm²</td></tr>
<tr><td>Emitter pad size</td><td>See chip drawing</td></tr>
<tr><td>Gate pad size</td><td>1.32×0.82</td></tr>
<tr><td>Area total</td><td>141.13</td></tr>
<tr><td>Thickness</td><td>120</td><td rowspan="2">µm</td></tr>
<tr><td>Scribe line Size</td><td>80</td></tr>
<tr><td>Wafer size</td><td>200</td><td>mm</td></tr>
<tr><td>Max. possible chips per wafer</td><td colspan="2">164</td></tr>
<tr><td>Passivation front side</td><td colspan="2">Polyimide</td></tr>
<tr><td>Pad metal</td><td colspan="2">AlCu with Ti/TiN (4.5µm & 400A/1000A)</td></tr>
<tr><td>Backside metal</td><td colspan="2">Al/Ti/Ni/Ag</td></tr>
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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
Short circuit data	t_{SC}	10	μs

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		2.20	2.60	V
Gate-Emitter threshold voltage	$V_{GE(th)}$	I_C=5.3mA, V_{GE}= V_{CE}	5.2	5.8	6.4	V
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			150	nA
Integrated gate resistor	r_G			3.8		Ω
Input capacitance	C_{ies}	V_{CE}=25V, V_{GE}=0V, f=1MHz		11.35		nF
Reverse transfer capacitance	C_{res}	V_{CE}=25V, V_{GE}=0V, f=1MHz		0.40		nF

Chip Drawing