

Trench-FS IGBT

Features

- Trench FS technology
- Low $V_{CE(sat)}$
- Low EMI

Application

- Converters
- Power drivers

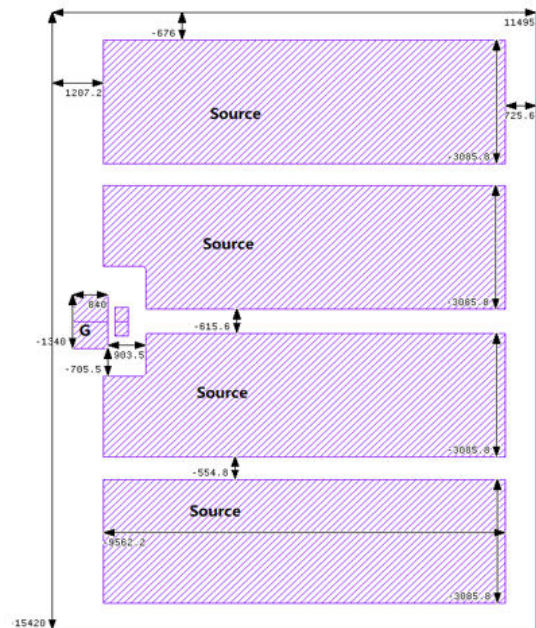
Wafer Size (inch)	8
Chip Size with scribe (mm ²)	11.575 x 15.5
Wafer Thickness (μm)	120±10
Gate PAD Size (mm ²)	0.84 x 1.34
Emitter PAD Size (mm ²)	3.085 x 9.562
Top Metal	AlCu
Top Metal Thickness (μm)	5
Back Metal	Al/Ti/Ni/Ag
Scribe Line (μm)	80
Passivation	Polyimide
Gross Die	144
Recommended Storage Environment	Store in original container, in dry nitrogen, <3months at an ambient temperature of 23±3°C

1200V200A Trench FS IGBT

Parameter	Value	Unit
V_{CE}	1200	V
I_c	200	A
$V_{CE(sat)}$ at $I_c=200A$ (Wafer level test)	2.0	V

Unit: μm

Die Size Without 80μm scribe line



Maximum Ratings (T_j=25°C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V _{CE}	1200	V
Gate-emitter voltage	V _{GE}	+/-20	V
DC collector current	I _C	400	A
T _j =25°C		200	
T _j =100°C	I _{CM}	600	A
Pulsed collector current	t _{SC}	20	us
Short circuit withstand time (V _{GE} =15V, V _{CC} =600V)	T _{vj}	-40~+175	°C
Junction temperature range	T _{vjop}	-40~+150	°C
Operating junction temperature			

Electrical Characteristics at T_j=25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Characteristic (Test on wafer)						
Collector-emitter breakdown voltage	V _{(BR)CES}	V _{GE} =0V, I _C =1mA	1200	-	-	V
Gate-emitter threshold voltage	V _{GE(th)}	I _C =7.5mA, V _{CE} =V _{GE}	5	5.8	6.6	V
Collector-emitter saturation voltage	V _{CE(sat)}	V _{GE} =15V, I _C =200A	-	2.0	2.35	V
Gate leakage current	I _{GES}	V _{CE} =0V, V _{GE} =+/-20V	-	-	500	nA
Collector leakage current	I _{CES}	V _{CE} =1200V, V _{GE} =0V	-	-	250	uA
Dynamic Characteristic ^(a)						
Input capacitance	C _{ies}	V _{GE} =0V, V _{CE} =25V f=1MHz	-	14.5	-	nF
Output capacitance	C _{oes}		-	490	-	pF
Reverse transfer capacitance	C _{res}		-	420	-	pF
Gate charge	Q _g	V _{CC} =960V, I _C =200A V _{GE} =15V	-	4.5	-	uC

(a) Dynamic and switching test data depending on TO264 package, not subject to production test