AK Trench-FS IGBT

Features

- Trench FS technology
- Low $V_{CE(sat)}$
- Low switching loss
- Easy paralleling

Application

- Photovoltaic converters
- Mid to high range switching frequency converters
- UPS

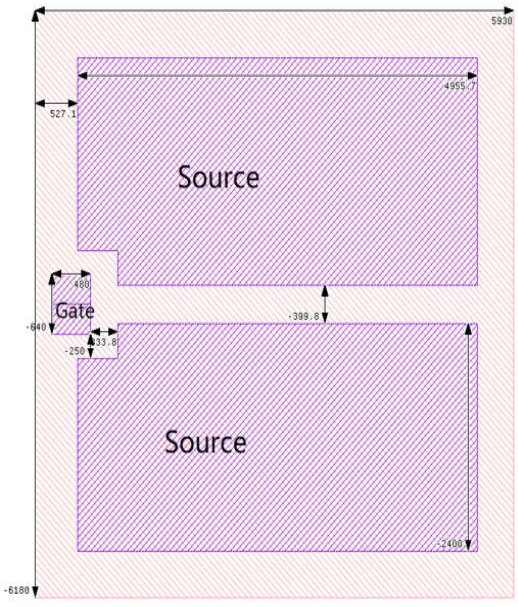
650V100A Trench FS IGBT

Parameter	Value	Unit
V_{CE}	650	V
I_C	100	A
$V_{CE(sat)}$ at Ic=100A (Wafer level test)	1.4	V

Wafer Size (inch)	8
Chip Size with scribe (mm2)	6.09 x 6.34
Wafer Thickness (um)	70±5
Gate PAD Size (mm2)	0.48 x 0.64
Emitter PAD Size (mm2)	4.955 x 2.4
Top Metal	AlCu
Top Metal Thickness (μm)	4
Back Metal	Al/Ti/Ni/Ag
Scribe Line (μm)	80
Passivation	Polyimide
Gross Die	688
Recommended Storage Environment	Store in original container, in dry nitrogen, <3months at an ambient temperature of 23±3℃

Unit: um

Die Size Without 80um scribe line



Maximum Ratings (Tj=25℃, unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CE}	650	V
Gate-emitter voltage	V_{GE}	+/-20	V
DC collector current	I_C		
T_j=25℃		200	A
T_j=100℃		100	A
Pulsed collector current	I_{CM}	400	A
Junction temperature range	T_{vj}	-40~+175	℃
sOperating junction temperature	T_{vjop}	-40~+150	℃

Electrical Characteristics at Tj=25℃ (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=0.1mA	650	-	-	V
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C=1mA, V_{CE}=V_{GE}	4.1	5.1	6.1	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=100A	-	1.4	1.7	V
Gate leakage current	I_{GES}	V_{CE}=0V, V_{GE}=+/-20V	-	-	200	nA
Collector leakage current	I_{CES}	V_{CE}=650V, V_{GE}=0V	-	-	50	uA