

## AK Trench-FS IGBT

### Features

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

### Application

- Converters
- Power drivers

### Recommended

- Power modules, such as Easy PACK, Econo PACK etc

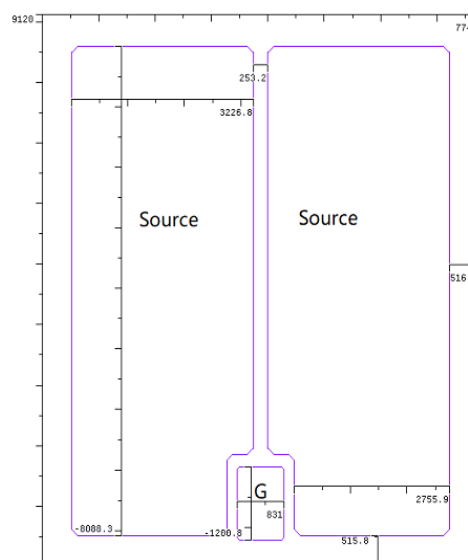
### 1200V75A Trench FS IGBT

Parameter	Value	Unit
$V_{CE}$	1200	V
$I_C$	75	A
$V_{CE(sat)}$ at $I_C=75A$ (Wafer level test)	1.9	V

Wafer Size (inch)	8
Chip Size with scribe (mm <sup>2</sup> )	7.82 x 9.2
Wafer Thickness (um)	120±10
Gate PAD Size (mm <sup>2</sup> )	0.831 x 1.2
Emitter PAD Size (mm <sup>2</sup> )	3.226 x 8.088
Top Metal	AlCu
Top Metal Thickness (μm)	5
Back Metal	Al/Ti/Ni/Ag
Scribe Line (μm)	80
Passivation	Polyimide
Gross Die	356
Recommended Storage Environment	Store in original container, in dry nitrogen, <3months at an ambient temperature of 23±3°C

Unit: um

Die Size Without 80um scribe line



**Maximum Ratings (T<sub>j</sub>=25°C, unless otherwise specified)**

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V <sub>CE</sub>	1200	V
Gate-emitter voltage	V <sub>GE</sub>	+/-20	V
DC collector current	I <sub>C</sub>	150	A
T <sub>J</sub> =25°C		75	
T <sub>J</sub> =100°C			
Pulsed collector current	I <sub>CM</sub>	225	A
Short circuit withstand time (V <sub>GE</sub> =15V, V <sub>CC</sub> =600V)	t <sub>SC</sub>	20	us
Junction temperature range	T <sub>vj</sub>	-40~+175	°C
Operating junction temperature	T <sub>vjop</sub>	-40~+150	°C

**Electrical Characteristics at T<sub>j</sub>=25°C (unless otherwise specified)**

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
<b>Static Characteristic (Test on wafer)</b>						
Collector-emitter breakdown voltage	V <sub>(BR)CES</sub>	V <sub>GE</sub> =0V, I <sub>C</sub> =1mA	1200	-	-	V
Gate-emitter threshold voltage	V <sub>GE(th)</sub>	I <sub>C</sub> =2.6mA, V <sub>CE</sub> =V <sub>GE</sub>	5	5.8	6.6	V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	V <sub>GE</sub> =15V, I <sub>C</sub> =75A	-	1.9	2.25	V
Gate leakage current	I <sub>GES</sub>	V <sub>CE</sub> =0V, V <sub>GE</sub> =+/-20V	-	-	500	nA
Collector leakage current	I <sub>CES</sub>	V <sub>CE</sub> =1200V, V <sub>GE</sub> =0V	-	-	250	uA
Integrated gate resistor	R <sub>G</sub>		-	10	-	Ω
<b>Dynamic Characteristic <sup>(a)</sup></b>						
Input capacitance	C <sub>ies</sub>	V <sub>GE</sub> =0V, V <sub>CE</sub> =25V f=1MHz	-	5200	-	pF
Output capacitance	C <sub>oes</sub>		-	240	-	pF
Reverse transfer capacitance	C <sub>res</sub>		-	215	-	pF
Gate charge	Q <sub>g</sub>	V <sub>CC</sub> =960V, I <sub>C</sub> =75A V <sub>GE</sub> =15V	-	365	-	nC

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