AK Trench-FS IGBT

1200V40A Trench FS IGBT

Parameter	Value	Unit
V_{CE}	1200	V
I_C	40	A
$V_{CE(sat)}$ at Ic=40A (Wafer level test)	1.85	V

Features

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

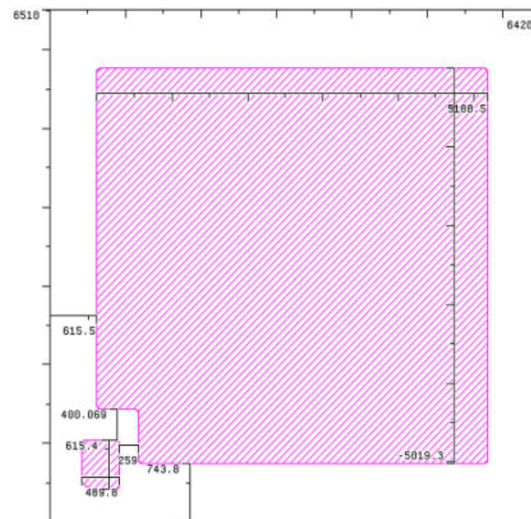
Application

- UPS
- Welding Converters
- High Frequency Converters
- PV Inverters

Wafer Size (inch)	8
Chip Size with scribe (mm2)	6.5 x 6.59
Wafer Thickness (um)	120±10
Gate PAD Size (mm2)	0.489 x 0.616
Emitter PAD Size (mm2)	5.19 x 5.019
Top Metal	AlCu
Top Metal Thickness (µm)	5
Back Metal	Al/Ti/Ni/Ag
Scribe Line (µm)	80
Passivation	Polyimide
Gross Die	610
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}	1200	V
Gate-emitter voltage	V_{GE}	+/-20	V
DC collector current T_j=25℃ T_j=100℃	I_C	 80 40	A
Pulsed collector current	I_{CM}	160	A
Short circuit withstand time (V_{GE}=15V, V_{CC}=600V)	t_{SC}	20	us
Operating junction temperature	T_j	-40~+175	℃

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=1mA	1200	-	-	V
Gate-emitter threshold voltage	$V_{GE(th)}$	V_{CE}=V_{GE}, I_C=1mA	5	5.8	6.6	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=40A	-	1.85	2.15	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	-	-	200	uA
Dynamic Characteristic (a)						
Input capacitance	C_{ies}	V_{GE}=0V, V_{CE}=25V f=1MHz	-	2720	-	pF
Output capacitance	C_{oes}		-	200	-	pF
Reverse transfer capacitance	C_{res}		-	135	-	pF
Gate charge	Q_g	V_{CC}=960V, I_C=40A V_{GE}=15V	-	230	-	nC

(a) Dynamic test data depending on TO247 package, not subject to production test