

AK Trench-FS IGBT

Features

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

Application

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

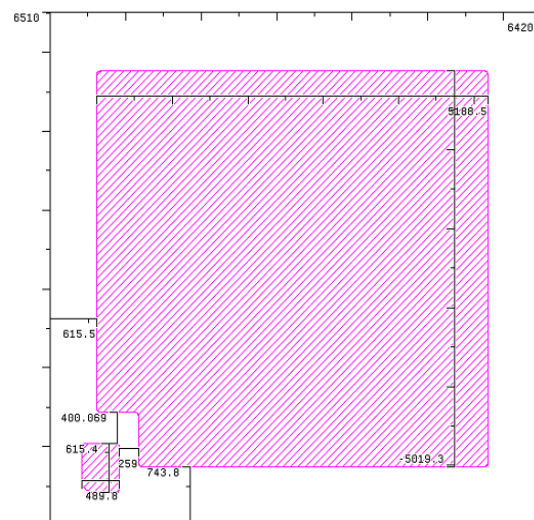
1200V40A Trench FS IGBT

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

Wafer Size (inch)	8
Chip Size with scribe (mm ²)	6.5 x 6.59
Wafer Thickness (um)	120±10
Gate PAD Size (mm ²)	0.489 x 0.616
Emitter PAD Size (mm ²)	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°C

Unit: um

Die Size Without 80um 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	80	A
T _j =25°C		40	
T _j =100°C			
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	°C

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)}	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