650V IGBT Wafer

Ordering Information

Wafer Name	CD192IG650BF	Chip Name	/

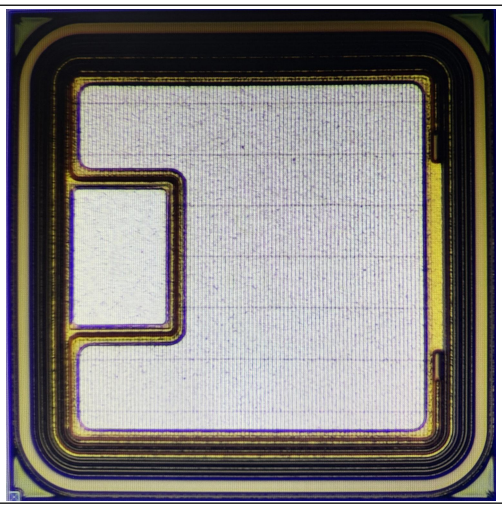
Applications

- Home appliances
- Motor drives
- Fan, Pumps, Vacuum cleaner

Features

① Trench field-stop IGBT technology.
② High ruggedness performance.
③ Positive $V_{CE\ (sat)}$ temperature coefficient.
④ Very tight parameter distribution.

Die outline and Info.



V_{CE}=650V,I_C=6A

$V_{CE(sat)}$ =1.7V

Die Size: 1920 μm * 1920 μm (含划片槽)

Gate Pad Size: 520 μm * 350 μm

Source Pad Size: As Die Drawing, With PA Layer

Back Metal: AlTiNiAg,1.3μm

Front Metal, Thickness: AlSiCu, 5.5μm

Gross Die: 7001

Mechanical Data

Nominal Back Metal Composition:	AlTiNiAg 1.3μm
Nominal Front Metal Composition, Thickness:	AlSiCu(98.5%-1%-0.5%）5.5μm
Wafer Diameter:	200 mm (8 inch)
Wafer Thickness:	85±10μm
Minimum Street Width	80μm
Reject Ink Dot	ink
Recommended Storage Environment:	Store in original container, in desiccated nitrogen, with no contamination
Recommended Die Attach Conditions:	For optimum electrical results, die attach temperature should not exceed 300 °C

Electrical Characteristic Note*

(Device Major Electrical Characteristics for TO-247H package Reference ; T_{vj}=25°C unless otherwise specified.)

Parameter	Description	Min.	Typ.	Max.	Test Conditions	Unit
$V_{(BR)CES}$	Collector-to-Emitter BV	650	--	--	V_{GE} = 0V, I_C = 1mA	V
V_{GES}	Gate-to-Emitter Voltage	--	--	±20	NA	V
I_C	DC collector current	--	6	--	T_C =100℃	A
I_{CM}	Pulsed collector current	--	24	--	V_{GE} = 15 V, t_p limited by $T_{vj\ max}$	A
$V_{CE(sat)}$	Collector-to-Emitter saturation Voltage	--	1.7	2.0	V_{GE} = 15V, I_C = 6A	V
$V_{GE(th)}$	Gate-to-Emitter Threshold Voltage	5.7	6.2	6.7	V_{CE} = V_{GE}, I_C = 1mA	V
I_{CES}	Collector-to-Emitter Leakage Current	--	--	50	V_{CE} = 650V, V_{GE} = 0V, T_{vj} = 25°C	μA
I_{GES}	Gate-to-Emitter Leakage Current	--	--	±100	V_{GE} = ±20V	nA
C_{ies}	Input capacitance	--	480	--	V_{GE} = 0V, V_{CE} = 25V, f = 1MHz	pF
C_{res}	Reverse transfer capcitance	--	8	--		pF
$t_{d(on)}$	Turn-on delay time	--	10	--	V_{CC} = 400V, I_C = 6A V_{GE} = 0/15V Rg = 10Ω	ns
t_r	Rise time	--	8	--		ns
$t_{d(off)}$	Turn-off delay time	--	79	--		ns
t_f	Fall time	--	56	--		ns
E_{off}	Turn-off energy	--	0.10	--		mJ
T_{sc}	Short circuit withstand time	10	--	--	V_{GE}=15V, V_{CE}≤400V, T_J≤150℃	μs
T_{vj} T_{STG}	Operating Junction and Storage Temperature Range	-40°C to 175 °C Max.				°C

Note*

Electrical characteristics are reported for the reference packaged part (TO-247H) and can not be guaranteed in die sales form. Variations in customer packaging materials, dimensions and processes may affect parametric performance.

Shipping

- One shipping options is offered as standard.
- Un-sawn wafer

Handling

- Product must be handled only at ESD safe workstations. Standard ESD precautions and safe work environments are as defined in MIL-HDBK-263.
- Product must be handled only in a class 10,000 or better-designated clean room environment.

Wafer/Die Storage

- Proper storage conditions are necessary to prevent product contamination and/or degradation after shipment.
- Un-sawn wafers and singulated die can be stored for up to 12 months when in the original sealed packaging at room temperature (45% +/- 15% RH controlled environment).
- Un-sawn wafers and singulated die that have been opened can be stored when returned to their containers and placed in a Nitrogen purged cabinet, at room temperature (45% +/- 15% RH controlled environment).
- Note: To reduce the risk of contamination or degradation, it is recommended that product not being used in the assembly process be returned to their original containers and resealed with a vacuum seal process.
- Sawn wafers on a film frame are intended for immediate use and have a limited shelf life.

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