

IGC168T170S8RH

IGBT3 Power Chip

Features:

- 1700V Trench + Field stop technology
- low switching losses and saturation losses
- soft turn off
- positive temperature coefficient
- easy paralleling

This chip is used for:

• power modules

Applications:

drives



Chip Type	V _{CE}	<i>I</i> _C	Die Size	Package
IGC168T170S8RH	1700V	150A	13.38 x 12.58 mm ²	sawn on foil

Mechanical Parameters

	···				
Raster size		13.38 x 12.58			
Emitter pad size (incl. gate pad)		11.159 x 10.353			
Gate pad size		1.674 x 0.899			
Area total		168.3			
Thickness		190	μm		
Wafer size		200	mm		
Max.possible chips pe	er wafer	142			
Passivation frontside		Photoimide			
Pad metal		3200 nm AlSiCu			
Backside metal		Ni Ag –system suitable for epoxy and soft solder die bonding			
Die bond		Electrically conductive glue or solder			
Wire bond		Al, <500μm			
Reject ink dot size		Ø 0.65mm ; max 1.2mm			
Ctore as an incorrect	for original and sealed MBB bags	Ambient atmosphere air, Temperature 17°C – 25°C, < 6 month			
Storage environment	for open MBB bags	Acc. to IEC62258-3: Atmosphere >99% Nitrogen or inert gas, Humidity <25%RH, Temperature 17°C – 25°C, < 6 month			



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Maximum Ratings

Parameter	Symbol	Value	Unit	
Collector-Emitter voltage, T_{vj} =25 °C	V _{CE}	1700	V	
DC collector current, limited by $T_{\rm vj\;max}$	I _C	1)	А	
Pulsed collector current, t_p limited by $T_{vj max}$	$I_{c,puls}$	450	Α	
Gate emitter voltage	V _{GE}	±20	V	
Junction temperature range	T _{vj}	-40 +175	°C	
Operating junction temperature	$T_{\rm vj}$	-40+150	°C	
Short circuit data ²⁾ $V_{GE} = 15V$, $V_{CC} = 1000V$, $T_{vj} = 150$ °C	t_{SC}	10	μs	
Reverse bias safe operating area ²⁾ (RBSOA)	$I_{C,max} = 300A, V_{CE,max} = 1700V$ $T_{vj} \le 150 ^{\circ}C$			

¹⁾ depending on thermal properties of assembly

Static Characteristics (tested on wafer), T_{vj} =25 °C

Parameter	Symbol	Conditions	Value			Unit
Tarameter			min.	typ.	max.	
Collector-Emitter breakdown voltage	V _{(BR)CES}	$V_{\rm GE}$ =0V , $I_{\rm C}$ = 2 mA	1700			
Collector-Emitter saturation voltage	V _{CEsat} ³⁾	V _{GE} =15V, I _C =150A	1.55	1.85	2.15	V
Gate-Emitter threshold voltage	$V_{\rm GE(th)}$	$I_{\rm C}$ =6mA , $V_{\rm GE}$ = $V_{\rm CE}$	5.2	5.8	6.4	
Zero gate voltage collector current	I _{CES}	V _{CE} =1700V , V _{GE} =0V			8	μA
Gate-Emitter leakage current	I _{GES}	V_{CE} =0V , V_{GE} =20V			300	nA
Integrated gate resistor	$r_{\rm G}$			5		Ω

³⁾ Vcesat tested at lower current

Dynamic Characteristics (not subject to production test - verified by design / characterization), T_{vj} =25 °C

Parameter	Symbol	Conditions	Value			Unit
raiailletei	Syllibol	Conditions	min.	typ.	max.	Oilit
Input capacitance	Cies	$V_{CE}=25V$, $V_{GE}=0V$, f=1MHz		13500		pF
Reverse transfer capacitance	Cres			430		

²⁾ not subject to production test - verified by design/characterization



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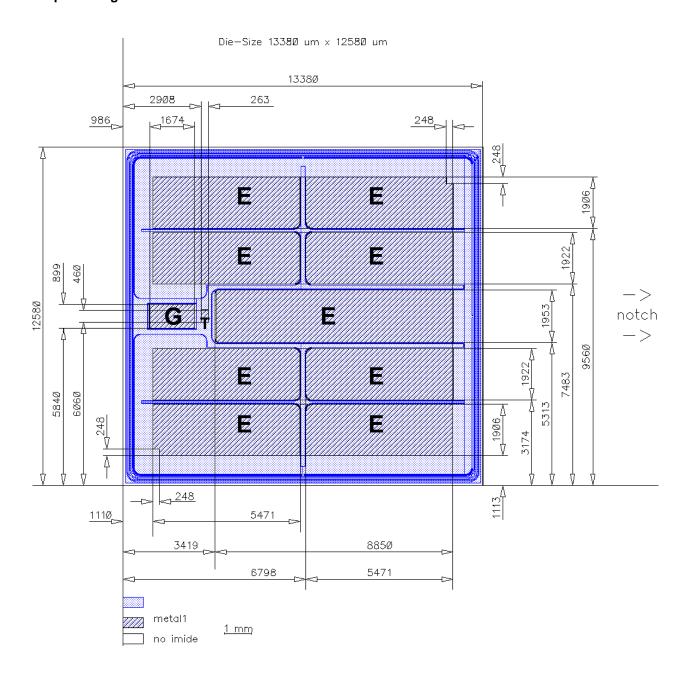
Further Electrical Characteristic

Switching characteristics and thermal properties are depending strongly on module design and mounting technology and can therefore not be specified for a bare die.



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Chip Drawing



E = Emitter

G = Gate

T = Test pad do not contact



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Description
AQL 0,65 for visual inspection according to failure catalogue
Electrostatic Discharge Sensitive Device according to MIL-STD 883

Revision History

Version	Subjects (major changes since last revision)	Date

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