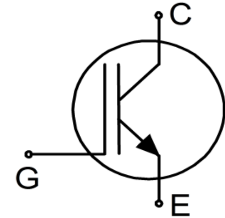
IGC99T120T8RM

TRENCHSTOP™ IGBT4 Medium Power Chip

Features:
- 1200V trench & field stop technology
- Low switching losses
- Soft turn off
- Positive temperature coefficient
- Easy paralleling

Recommended for:
- Medium power modules

Applications:
- Medium power drives



Chip Type	V_{CE}	I_{Cn} [1]	Die Size	Package
IGC99T120T8RM	1200V	100A	9.5mm x 10.39mm	Sawn on foil

Mechanical Parameters

Die size		9.5 x 10.39	mm²
Emitter pad size		See chip drawing	mm²
Gate pad size		1.31 x 0.811	mm²
Area total		98.71	mm²
Thickness		120	µm
Wafer size		200	mm
Maximum possible chips per wafer		258	
Passivation frontside		Photoimide	
Pad metal		3200nm AlSiCu	
Backside metal		Ni Ag – system To achieve a reliable solder connection it is strongly recommended not to consume the Ni layer completely during production process	
Die bond		Electrically conductive epoxy glue and soft solder	
Wire bond		Al, ≤500µm	
Reject ink dot size		∅ 0.65mm; max. 1.2mm	
Storage environment	for original and sealed MBB bags	Ambient atmosphere air, temperature 17°C – 25°C, <6 months	
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 months	

[1] Nominal collector current at T_C=100°C for chip packaged in power modules, see application example cited on page 5.

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage, T_{vj}=25°C	V_{CE}	1200	V
DC collector current, limited by $T_{vj\ max}$ [2]	I_C	-	A
Pulsed collector current, t_p limited by $T_{vj\ max}$ [3]	$I_{C,puls}$	300	A
Gate-emitter voltage	V_{GE}	±20	V
Operating junction temperature	T_{vj}	-40 ... +175	°C
Short circuit data [3/4] V_{GE}=15V, V_{CC}=800V, T_{vj}=150°C	t_{sc}	10	μs

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

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	V_{GE}=0V, I_C=3.8mA	1200	-	-	V
Collector-emitter saturation voltage	V_{CEsat}	V_{GE}=15V, I_C=100A	1.53	1.75	1.97	V
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C=3.8mA, V_{GE}=V_{CE}	5.1	5.8	6.4	V
Zero gate voltage collector current	I_{CES}	V_{CE}=1200V, V_{GE}=0V	-	-	1.3	μA
Gate-emitter leakage current	I_{GES}	V_{CE}=0V, V_{GE}=20V	-	-	120	nA
Integrated gate resistor	r_G			7.5		Ω

Electrical Characteristics [3]

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter saturation voltage	V_{CEsat}	V_{GE}=15V, I_C=100A, T_{vj}=150°C	-	2.05	-	V
Input capacitance	C_{ies}	V_{CE}=25V, V_{GE}=0V, f=1MHz T_{vj}=25°C	-	6300	-	pF
Reverse transfer capacitance	C_{res}	V_{CE}=25V, V_{GE}=0V, f=1MHz T_{vj}=25°C	-	270	-	pF

[2] Depending on thermal properties of assembly.
[3] Not subject to production test - verified by design/characterization.
[4] Allowed number of short circuits: <1000; time between short circuits: >1s.