

IGBT Chip in NPT-technology

FEATURES:

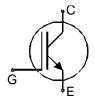
- 1200V NPT technology 175µm chip
- low turn-off losses
- short tail current
- positive temperature coefficient
- · easy paralleling
- integrated gate resistor

This chip is used for:

• IGBT Modules

Applications:

• drives, SMPS, resonant applications



Chip Type	V _{CE}	I _{Cn}	Die Size	Package	Ordering Code
SIGC81T120R2CS	1200V	50A	9.08 X 8.98 mm ²	sawn on foil	Q67050- A4050-A001

MECHANICAL PARAMETER:

Raster size	9.08 X 8.98	mm ²			
Emitter pad size	8 x (2.6 x 1.78)				
Gate pad size	1.46 x 0.8				
Area total / active	81.5 / 63.5				
Thickness	180	μm			
Wafer size	150	mm			
Flat position	90	grd			
Max.possible chips per wafer	167 pcs				
Passivation frontside	Photoimide				
Emitter metallization	3200 nm Al Si 1%				
Collector metallization	1400 nm Ni Ag –system suitable for epoxy and soft solder die b	1400 nm Ni Ag –system suitable for epoxy and soft solder die bonding			
Die bond	electrically conductive glue or solder				
Wire bond	AI, <500μm				
Reject Ink Dot Size	Ø 0.65mm ; max 1.2mm				
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month at an ambient temperature of 23°C				



MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Collector-emitter voltage, T _j =25 °C	V _{CE}	1200	V
DC collector current, limited by T _{jmax}	I _C	1)	Α
Pulsed collector current, t _p limited by T _{jmax}	I _{cpuls}	150	А
Gate emitter voltage	V _{GE}	±20	V
Operating junction and storage temperature	T_j , T_{stg}	-55 + 150	°C

¹⁾ depending on thermal properties of assembly

STATIC CHARACTERISTICS (tested on chip), T_j =25 °C, unless otherwise specified:

Parameter	Symbol	Conditions	Value			Unit
i arameter	- Cymbol	Conditions	min.	typ.	max.	
Collector-emitter breakdown voltage	V _{(BR)CES}	V _{GE} =0V , I _C =3mA	1200			
Collector-emitter saturation voltage	V _{CE(sat)}	V _{GE} =15V, I _C =50A	2.7	3.2	3.7	V
Gate-emitter threshold voltage	$V_{\rm GE(th)}$	I _C =2mA , V _{GE} =V _{CE}	4.5	5.5	6.5	
Zero gate voltage collector current	I _{CES}	V _{CE} =1200V , V _{GE} =0V			6	μA
Gate-emitter leakage current	I _{GES}	V _{CE} =0V , V _{GE} =20V			300	nA
Integrated gate resistor	R _{Gint}			5	7	Ω

ELECTRICAL CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
raiametei	Symbol	Conditions	min.	typ.	max.	Oille
Input capacitance	Ciss	V _{CE} =25V,	-	3.3		nF
Output capacitance	Coss	$V_{GE}=0V$,	-	0.5		
Reverse transfer capacitance	Crss	f=1MHz	-	0.22		

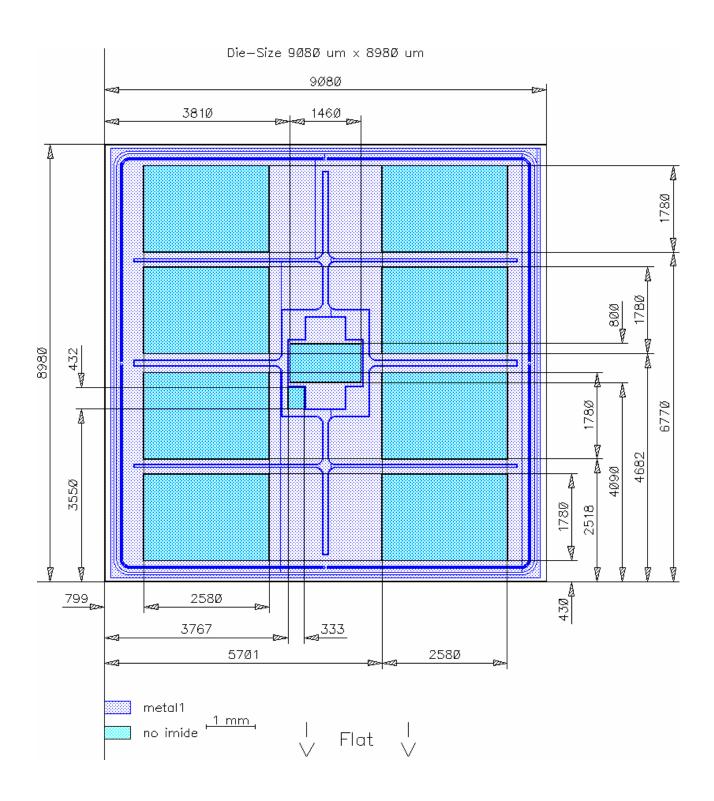
SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions 1)	Value			Unit
raiametei	Symbol	Conditions	min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	<i>T</i> _j =125°C	-	60		ns
Rise time	$t_{\rm r}$	V _{CC} =600V,	-	50		
Turn-off delay time	$t_{d(off)}$	I _C =50A, V _{GE} =-15/15V,	-	400		
Fall time	t_{f}	$R_{\rm G}$ = 15 Ω	-	60		

¹⁾ values also influenced by parasitic L- and C- in measurement and package.



CHIP DRAWING:





FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet	Eupec	FP50R12KS4C					
DESCRIPTION:							
AQL 0,65 for visual inspection according to failure catalog							
Electrostatic Discharge Sensitive Device according to MIL-STD 883							
Test-Normen Villach/Prüffeld							

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