

### IGBT Chip in NPT-technology

#### **FEATURES:**

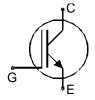
- 1200V NPT technology 175µm chip
- low turn-off losses
- short tail current
- positive temperature coefficient
- easy paralleling

### This chip is used for:

IGBT Modules

## **Applications:**

• drives, SMPS, resonant applications



Chip Type	V <sub>CE</sub>	I <sub>Cn</sub>	Die Size	Package	Ordering Code
SIGC42T120CS2	1200V	25A	6.59 x 6.49 mm <sup>2</sup>	sawn on foil	Q67050- A4338-A101

#### **MECHANICAL PARAMETER:**

MECHANICAL PARAMETER:  Raster size	6.59 x 6.49	mm <sup>2</sup>			
		$\dashv$			
Emitter pad size	2 x (2.18 x 1.58)				
Gate pad size	1.06 x 0.65				
Area total / active	42.8 / 33.5				
Thickness	180	μm			
Wafer size	150	mm			
Flat position	90	grd			
Max.possible chips per wafer	334 pcs				
Passivation frontside	Photoimide	Photoimide			
Emitter metallization	3200 nm Al Si 1%				
Collector metallization	1400 nm Ni Ag –system suitable for epoxy and soft solder die bo	1400 nm 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				
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 <sub>CE</sub>	1200	V
DC collector current, limited by T <sub>jmax</sub>	I <sub>C</sub>	1)	А
Pulsed collector current, t <sub>p</sub> limited by T <sub>jmax</sub>	I <sub>cpuls</sub>	75	А
Gate emitter voltage	V <sub>GE</sub>	±20	V
Operating junction and storage temperature	$T_j$ , $T_{stg}$	-55 <b>+</b> 150	°C

<sup>1)</sup> depending on thermal properties of assembly

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

Parameter	Symbol	Conditions	Value			Unit
i arameter	Symbol	Conditions	min.	typ.	max.	J
Collector-emitter breakdown voltage	V <sub>(BR)CES</sub>	$V_{GE}$ =0V , $I_{C}$ = 1.5mA	1200			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	V <sub>GE</sub> =15V, I <sub>C</sub> =25A	2.7	3.2	3.7	V
Gate-emitter threshold voltage	$V_{\rm GE(th)}$	I <sub>C</sub> =1mA , V <sub>GE</sub> =V <sub>CE</sub>	4.5	5.5	6.5	
Zero gate voltage collector current	I <sub>CES</sub>	V <sub>CE</sub> =1200V , V <sub>GE</sub> =0V			3	μA
Gate-emitter leakage current	I <sub>GES</sub>	V <sub>CE</sub> =0V , V <sub>GE</sub> =20V			120	nA

#### **ELECTRICAL CHARACTERISTICS** (tested at component):

Parameter	Symbol Co	Conditions	Value			Unit
raiailletei	Syllibol	Conditions	min.	typ.	max.	Onne
Input capacitance	Ciss	V <sub>CE</sub> =25V,	-	1.65		nF
Output capacitance	Coss	$V_{GE}=0V$ ,	-	0.25		
Reverse transfer capacitance	Crss	f=1MHz	-	0.11		

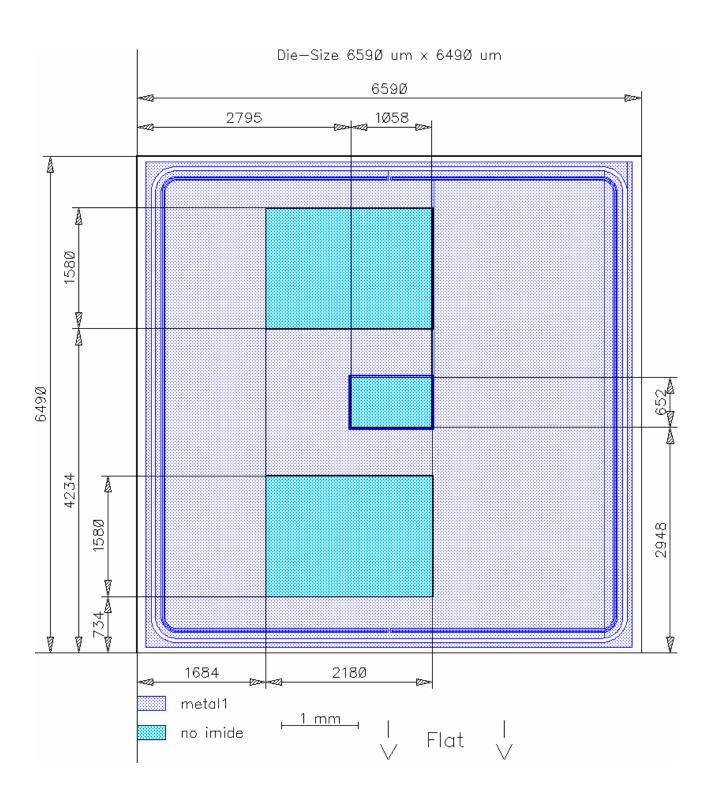
## SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	ool Conditions 1)	Value			Unit
raiametei	Symbol		min.	typ.	max.	Oilit
Turn-on delay time	$t_{d(on)}$	T <sub>j</sub> =125°C	-	60		ns
Rise time	$t_{r}$	V <sub>CC</sub> =600V,	-	50		
Turn-off delay time	$t_{d(off)}$	I <sub>C</sub> =25A, V <sub>GE</sub> =-15/15V,	-	400		
Fall time	$t_{f}$	$R_{\rm G}$ = 27 $\Omega$	-	60		

 $<sup>^{1)}</sup>$  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	FP25R12KS4C					
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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