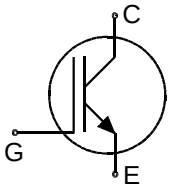
SIGC42T120C

IGBT Chip in NPT-technology

Features:
- 1200V NPT technology
- low turn-off losses
- positive temperature coefficient
- easy paralleling

This chip is used for:
- power module
  BUP 314

Applications:
- drives



Chip Type	V_{CE}	I_C	Die Size	Package
SIGC42T120C	1200V	25A	6.59 x 6.49 mm^2	sawn on foil

Mechanical Parameter

Raster size	6.59 x 6.49	mm^2
Emitter pad size	2 x (1.58 x 2.18)	
Gate pad size	1.06 x 0.65	
Area total	42.8	
Thickness	200	µm
Wafer size	150	mm
Max.possible chips per wafer	334	
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	∅ 0.65mm ; max 1.2mm	
Recommended storage environment	Store in original container, in dry nitrogen, in dark environment, < 6 month at an ambient temperature of 23°C	

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SIGC42T120C

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter voltage, T_{vj} =25 °C	V_{CE}	1200	V
DC collector current, limited by $T_{vj\,max}$	I_C	1)	A
Pulsed collector current, t_p limited by $T_{vj\,max}$	$I_{c,puls}$	75	A
Gate emitter voltage	V_{GE}	±20	V
Junction temperature range	T_{vj}	-55 ... +175	°C
Operating junction temperature	T_{vj}	-55...+150	°C
Short circuit data 2) V_{GE} = 15V, V_{CC} = 900V, T_{vj} = 150°C	t_{SC}	10	µs
Reverse bias safe operating area 2) (RBSOA)	$I_{C,max}$ = 50A, $V_{CE,max}$ = 1200V $T_{vj} \leq 150°C$		

1) depending on thermal properties of assembly

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

Static Characteristic (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= 1.5mA	1200			V
Collector-Emitter saturation voltage	V_{CEsat}	V_{GE}=15V, I_C=25A	2.0	2.5	3.0	
Gate-Emitter threshold voltage	$V_{GE(th)}$	I_C=1mA , V_{GE}=V_{CE}	4.5	5.5	6.5	
Zero gate voltage collector current	I_{CES}	V_{CE}=1200V , V_{GE}=0V			3.1	µA
Gate-Emitter leakage current	I_{GES}	V_{CE}=0V , V_{GE}=20V			120	nA
Integrated gate resistor	r_G			none		Ω

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

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{ies}	V_{CE}=25V,		1650		pF
Output capacitance	C_{oes}	V_{GE}=0V,		250		
Reverse transfer capacitance	C_{res}	f=1MHz		110		