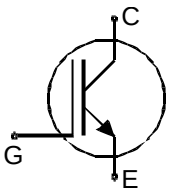
SIGC04T60G

IGBT^3 Chip

FEATURES:
- 600V Trench & Field Stop technology
- low $V_{CE(sat)}$
- low turn-off losses
- short tail current
- positive temperature coefficient
- easy paralleling

This chip is used for:
- power module
- discrete components

Applications:
- drives
- white goods
- resonant applications



Chip Type	V_{CE}	I_{Cn}	Die Size	Package	Ordering Code
SIGC04T60G	600V	6A	1.89 x 2.17 mm^2	sawn on foil	Q67050-A4346-A101

MECHANICAL PARAMETER:

Raster size	1.89 x 2.17	mm^2
Emitter pad size	1.007 x 1.33	
Gate pad size	0.361 x 0.513	
Area total / active	4.1 / 2.15	mm^2
Thickness	70	µm
Wafer size	150	mm
Flat position	270	deg
Max. possible chips per wafer	3659 pcs	
Passivation frontside	Photoimide	
Emitter metallization	3200 nm AlSiCu	
Collector metallization	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	∅ 0.65mm ; max 1.2mm	
Recommended storage environment	store in original container, in dry nitrogen, < 6 month at an ambient temperature of 23°C	

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MAXIMUM RATINGS:

Parameter		Symbol	Value	Unit
Collector-emitter voltage, T_j= 25 °C		V_{CE}	600	V
DC collector current, limited by T_{jmax}		I_C	[1]	A
Pulsed collector current, t_p limited by T_{jmax}		I_{cpuls}	18	A
Gate emitter voltage		V_{GE}	±20	V
Operating junction and storage temperature		T_j, T_{stg}	-40 … +175	°C
SC data, V_{GE} = 15V, V_{CC} = 360V	Tvj = 150°C	*tp*	6	µs
	Tvj = 25°C		8	

[1] depending on thermal properties of assembly

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

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	V_{GE}=0V , I_C= 2mA	600			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=6A	1.1	1.5	1.9	
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C=90µA , V_{GE}=V_{CE}	5.0	5.8	6.5	
Zero gate voltage collector current	I_{CES}	V_{CE}=600V , V_{GE}=0V			0.4	µA
Gate-emitter leakage current	I_{GES}	V_{CE}=0V , V_{GE}=20V			300	nA
Integrated gate resistor	R_{Gint}			none		Ω

ELECTRICAL CHARACTERISTICS (verified by design/characterization):

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	V_{CE}=25V, V_{GE}=0V, *f*=1MHz		368		pF
Output capacitance	C_{oss}			28		
Reverse transfer capacitance	C_{rss}			11		

SWITCHING CHARACTERISTICS (verified by design/characterization), inductive load

Parameter	Symbol	Conditions	Value [2]			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	T_j=125°C, V_{CC}=300V, I_C=6A, V_{GE}= -15/15V, R_G= 47Ω		12		ns
Rise time	t_r			13		
Turn-off delay time	$t_{d(off)}$			120		
Fall time	t_f			130		

[2] values also influenced by parasitic L- and C- in measurement and package.

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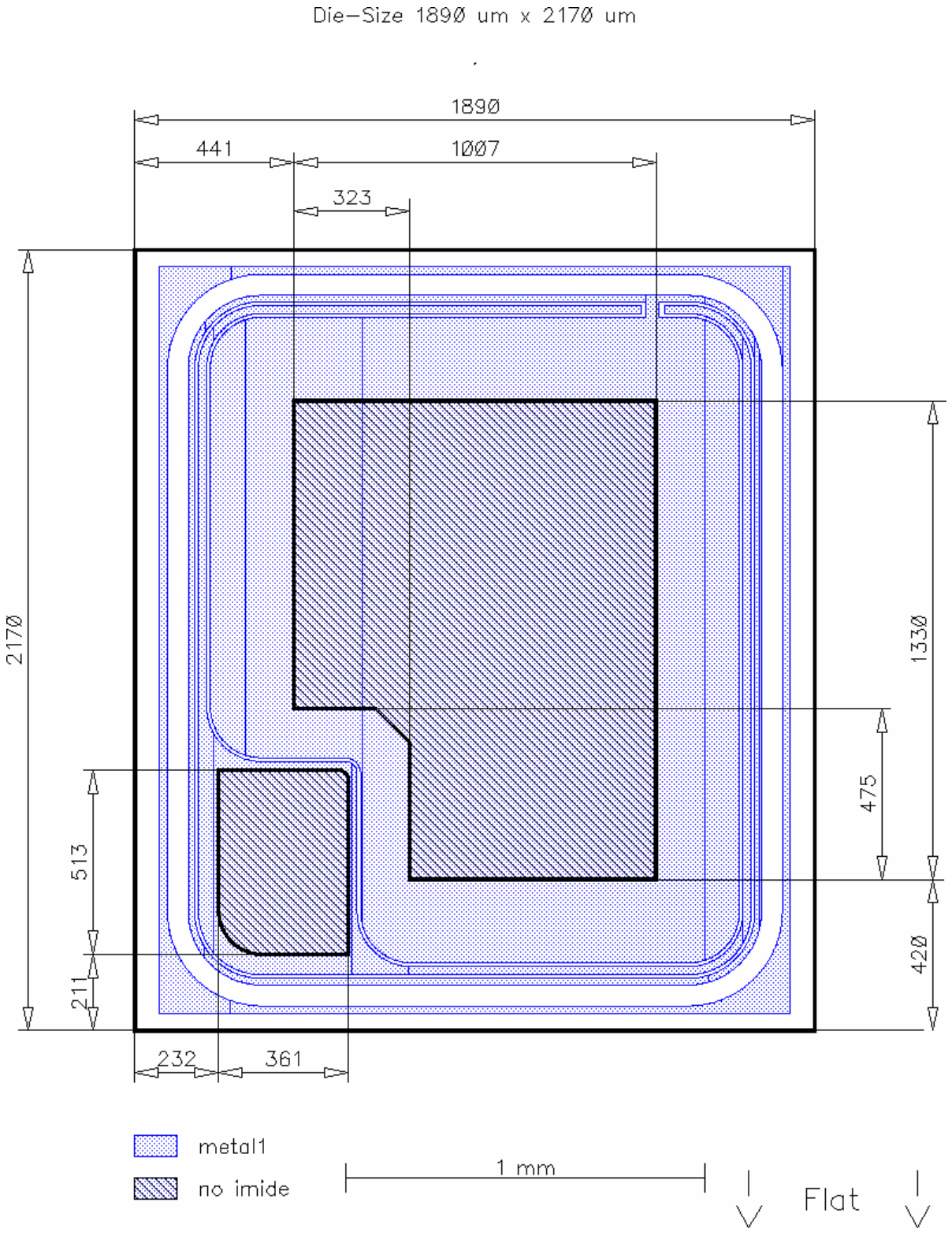
CHIP DRAWING:



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FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet		

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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