

## IGBT Chip in NPT-technology

### FEATURES:

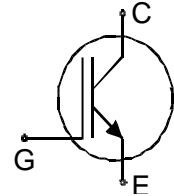
- 600V NPT technology
- 100µm chip
- short circuit prove
- positive temperature coefficient
- easy paralleling

### This chip is used for:

- IGBT-Modules

### Applications:

- drives



| Chip Type       | V <sub>CE</sub> | I <sub>Cn</sub> | Die Size                    | Package      | Ordering Code     |
|-----------------|-----------------|-----------------|-----------------------------|--------------|-------------------|
| SIGC156T60SNR2C | 600V            | 200A            | 12.5 x 12.5 mm <sup>2</sup> | sawn on foil | Q67050-A4154-A003 |

### MECHANICAL PARAMETER:

|                                 |  |                 |
|---------------------------------|--|-----------------|
| Raster size                     | 12.5 x 12.5  | mm <sup>2</sup> |
| Area total / active             | 156.25 / 138.2   |                 |
| Emitter pad size                | 8x( 2.58x4.78 )  |                 |
| Gate pad size                   | 0.8 x 1.46   |                 |
| Thickness                       | 100  | µm              |
| Wafer size                      | 150  | mm              |
| Flat position                   | 90   | deg             |
| Max.possible chips per wafer    | 84   |                 |
| Passivation frontside           | Photoimide   |                 |
| Emitter metallization           | 3200 nm Al Si 1%   |                 |
| Collector metallization         | 1400 nm Ni Ag –system<br>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,<br>< 6 month at an ambient temperature of 23°C |                 |

## MAXIMUM RATINGS:

| Parameter   | Symbol         | Value         | Unit |
|---|----------------|---------------|------|
| Collector-emitter voltage, $T_j=25\text{ °C}$         | $V_{CE}$       | 600           | V    |
| DC collector current, limited by $T_{jmax}$           | $I_C$          | <sup>1)</sup> | A    |
| Pulsed collector current, $t_p$ limited by $T_{jmax}$ | $I_{CPuls}$    | 600           | A    |
| Gate emitter voltage                                  | $V_{GE}$       | $\pm 20$      | V    |
| Operating junction and storage temperature            | $T_j, T_{stg}$ | -55 ... +150  | °C   |

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

## STATIC CHARACTERISTICS (tested on chip), $T_j=25\text{ °C}$ , unless otherwise specified:

| Parameter                            | Symbol        | Conditions               | Value |      |      | Unit     |
|--------------------------------------|---------------|--------------------------|-------|------|------|----------|
|                                      |               |                          | min.  | typ. | max. |          |
| Collector-emitter breakdown voltage  | $V_{(BR)CES}$ | $V_{GE}=0V, I_C=5mA$     | 600   |      |      | V        |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $V_{GE}=15V, I_C=200A$   | 1.6   | 2    | 2.5  |          |
| Gate-emitter threshold voltage       | $V_{GE(th)}$  | $I_C=4mA, V_{GE}=V_{CE}$ | 3     | 4    | 5    |          |
| Zero gate voltage collector current  | $I_{CES}$     | $V_{CE}=600V, V_{GE}=0V$ |       |      | 13.5 | $\mu A$  |
| Gate-emitter leakage current         | $I_{GES}$     | $V_{CE}=0V, V_{GE}=20V$  |       |      | 600  | nA       |
| Integrated gate resistor             | $R_{Gint}$    |                          |       | 5    |      | $\Omega$ |

## DYNAMIC CHARACTERISTICS (tested at component):

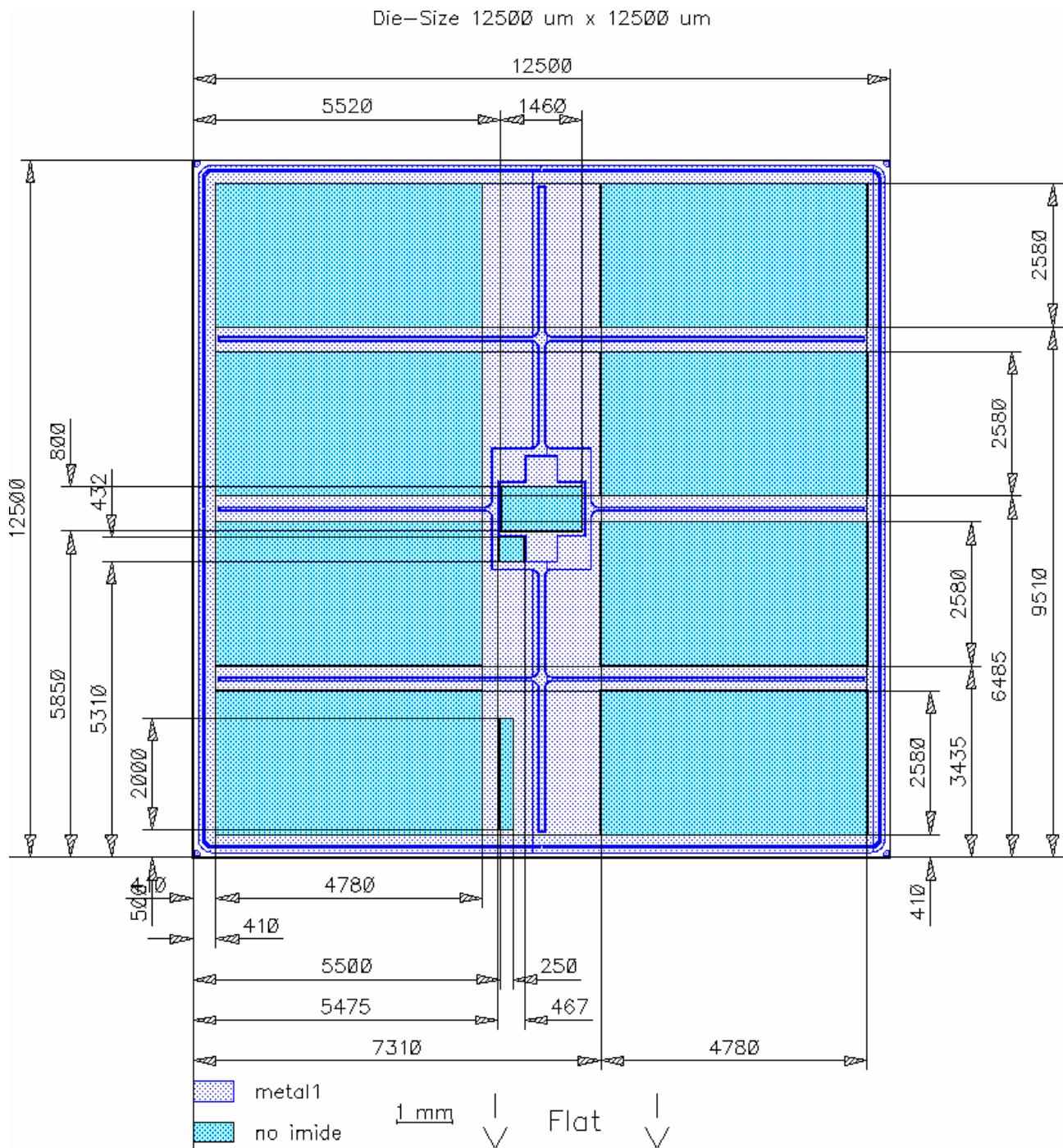
| Parameter                    | Symbol     | Conditions   | Value |       |       | Unit |
|------------------------------|------------|--------------|-------|-------|-------|------|
|                              |            |              | min.  | typ.  | max.  |      |
| Input capacitance            | $C_{iss}$  | $V_{CE}=25V$ | -     | 10330 | 12400 | pF   |
| Output capacitance           | $C_{oss}$  | $V_{GE}=0V$  | -     | 970   | 1160  |      |
| Reverse transfer capacitance | $C_{riss}$ | $f=1MHz$     | -     | 594   | 710   |      |

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

| Parameter           | Symbol       | Conditions <sup>2)</sup>             | Value |      |      | Unit |
|---------------------|--------------|--------------------------------------|-------|------|------|------|
|                     |              |                                      | min.  | typ. | max. |      |
| Turn-on delay time  | $t_{d(on)}$  | $T_j=150\text{ °C}$<br>$V_{CC}=400V$ | -     | 70   | 98   | ns   |
| Rise time           | $t_r$        | $I_C=200A$                           | -     | 60   | 84   |      |
| Turn-off delay time | $t_{d(off)}$ | $V_{GE}=+15/0V$<br>$R_G=1.7\Omega$   | -     | 500  | 700  |      |
| Fall time           | $t_f$        |                                      | -     | 100  | 140  |      |

<sup>2)</sup> switching conditions different to 600V Standard IGBT 2, under comparable switching conditions 40% faster turnoff than Standard IGBT 2. Values also influenced by parasitic L- and C- in measurement and package.

**CHIP DRAWING:**





# SIGC156T60SNR2C

---

## 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

---

**Published by**  
**Infineon Technologies AG,**  
**Bereich Kommunikation**  
**St.-Martin-Strasse 53,**  
**D-81541 München**  
**© Infineon Technologies AG 2002**  
**All Rights Reserved.**

### Attention please!

The information herein is given to describe certain components and shall not be considered as warranted characteristics.

Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Infineon Technologies is an approved CECC manufacturer.

### Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office in Germany or our Infineon Technologies Representatives world-wide (see address list).

### Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and / or maintain and sustain and / or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

单击下面可查看定价，库存，交付和生命周期等信息

[>>Infineon Technologies\(英飞凌\)](#)