

## IGBT Chip in NPT-technology

### FEATURES:

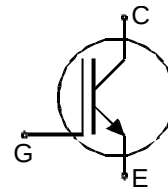
- 600V NPT technology
- 100µm chip
- positive temperature coefficient
- easy paralleling

### This chip is used for:

- IGBT-Modules

### Applications:

- drives



| Chip Type   | V <sub>CE</sub> | I <sub>CN</sub> | Die Size                  | Package      | Ordering Code     |
|-------------|-----------------|-----------------|---------------------------|--------------|-------------------|
| SIGC07T60NC | 600V            | 6A              | 2.6 x 2.6 mm <sup>2</sup> | sawn on foil | Q67050-A4134-A001 |

### MECHANICAL PARAMETER:

|                                 |                                                                                              |                 |
|---------------------------------|----------------------------------------------------------------------------------------------|-----------------|
| Raster size                     | 2.6 x 2.6                                                                                    | mm <sup>2</sup> |
| Area total / active             | 6.76 / 4.3                                                                                   |                 |
| Emitter pad size                | 1.11 x 1.78                                                                                  |                 |
| Gate pad size                   | 0.5 x 0.7                                                                                    |                 |
| Thickness                       | 100                                                                                          | µm              |
| Wafer size                      | 150                                                                                          | mm              |
| Flat position                   | 0                                                                                            | deg             |
| Max.possible chips per wafer    | 2249                                                                                         |                 |
| 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                             | $V_{CE}$       | 600           | V    |
| DC collector current, limited by $T_{jmax}$           | $I_C$          | <sup>1)</sup> | A    |
| Pulsed collector current, $t_p$ limited by $T_{jmax}$ | $I_{cpuls}$    | 24            | 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), $T_j=25^\circ\text{C}$ , unless otherwise specified:

| Parameter                            | Symbol        | Conditions                    | Value |      |      | Unit    |
|--------------------------------------|---------------|-------------------------------|-------|------|------|---------|
|                                      |               |                               | min.  | typ. | max. |         |
| Collector-emitter breakdown voltage  | $V_{(BR)CES}$ | $V_{GE}=0V, I_C=500\mu A$     | 600   |      |      | V       |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $V_{GE}=15V, I_C=6A$          | 1.7   | 2.0  | 2.5  |         |
| Gate-emitter threshold voltage       | $V_{GE(th)}$  | $I_C=200\mu A, V_{GE}=V_{CE}$ | 4.5   | 5.5  | 6.5  |         |
| Zero gate voltage collector current  | $I_{CES}$     | $V_{CE}=600V, V_{GE}=0V$      |       |      | 30   | $\mu A$ |
| Gate-emitter leakage current         | $I_{GES}$     | $V_{CE}=0V, V_{GE}=30V$       |       |      | 120  | nA      |

## DYNAMIC CHARACTERISTICS (tested at component):

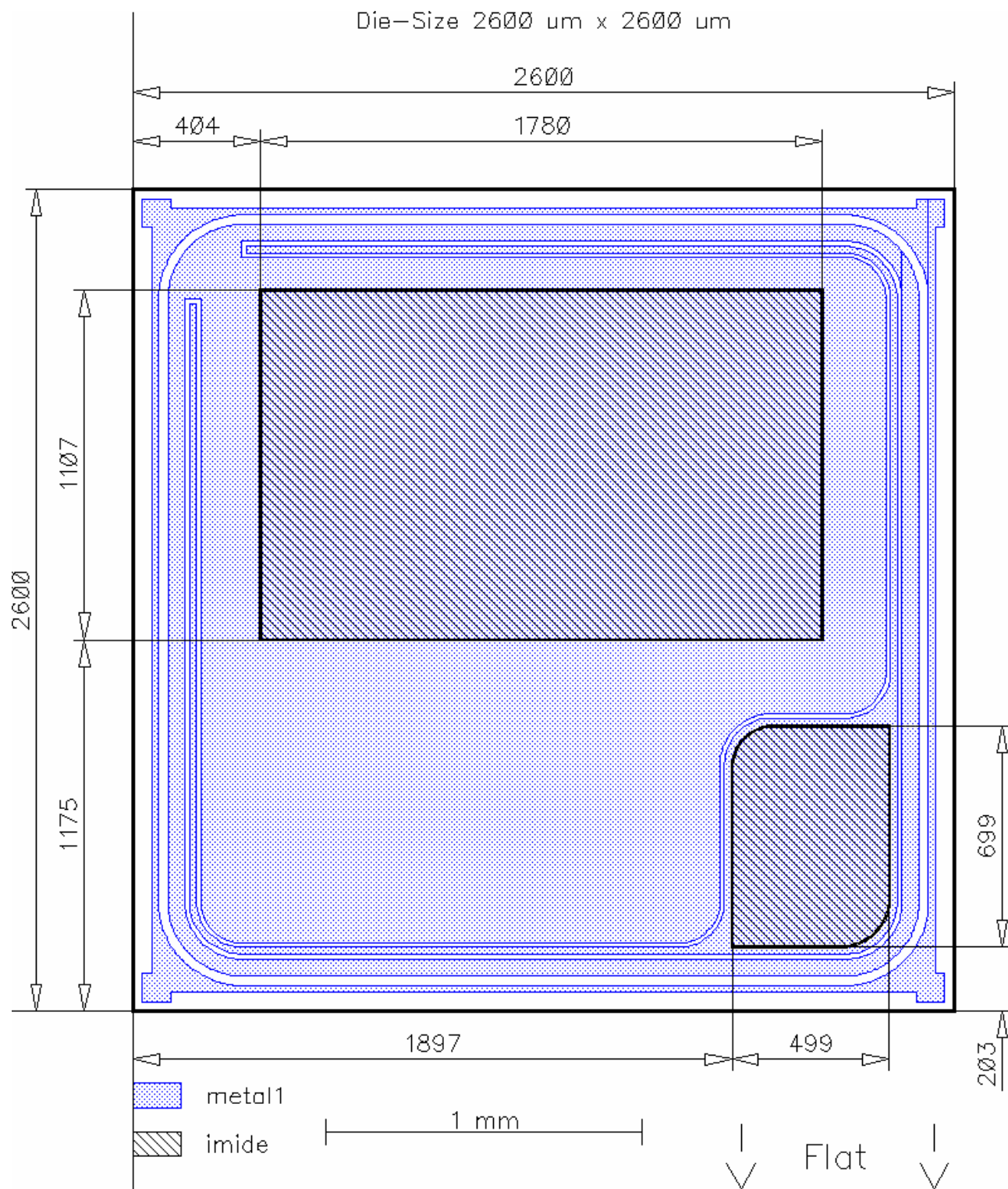
| Parameter                    | Symbol    | Conditions      | Value |      |      | Unit |
|------------------------------|-----------|-----------------|-------|------|------|------|
|                              |           |                 | min.  | typ. | max. |      |
| Input capacitance            | $C_{iss}$ | $V_{CE}=25V,$   |       | tbd  |      | nF   |
| Output capacitance           | $C_{oss}$ | $V_{GE}=0V,$    |       | tbd  |      |      |
| Reverse transfer capacitance | $C_{rss}$ | $f=1\text{MHz}$ |       | tbd  |      |      |

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

| Parameter           | Symbol       | Conditions <sup>2)</sup>                                                                   | Value |      |      | Unit |
|---------------------|--------------|--------------------------------------------------------------------------------------------|-------|------|------|------|
|                     |              |                                                                                            | min.  | typ. | max. |      |
| Turn-on delay time  | $t_{d(on)}$  | $T_j=125^\circ\text{C}$<br>$V_{CC}=300V$<br>$I_C=6A$<br>$V_{GE}=\pm 15V$<br>$R_G=--\Omega$ |       | tbd  |      | ns   |
| Rise time           | $t_r$        |                                                                                            |       | tbd  |      |      |
| Turn-off delay time | $t_{d(off)}$ |                                                                                            |       | tbd  |      |      |
| Fall time           | $t_f$        |                                                                                            |       | tbd  |      |      |

<sup>2)</sup> values also influenced by parasitic L- and C- in measurement and package.

## CHIP DRAWING:



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**FURTHER ELECTRICAL CHARACTERISTICS:**

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This chip data sheet refers to the  
device data sheet

tbd

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**Description:**

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AQL 0,65 for visual inspection according to failure catalog

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Electrostatic Discharge Sensitive Device according to MIL-STD 883

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Test-Normen Villach/Prüffeld

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**Published by**  
**Infineon Technologies AG,**  
**Bereich Kommunikation**  
**St.-Martin-Strasse 53,**  
**D-81541 München**  
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