

IGBT Chip in NPT-technology

FEATURES:

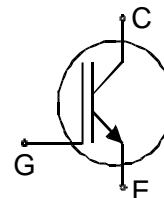
- 600V NPT technology
- 100µm chip
- short circuit prove
- positive temperature coefficient
- easy paralleling

This chip is used for:

- SGP10N60

Applications:

- drives



| Chip Type | V _{CE} | I _{Cn} | Die Size | Package | Ordering Code |
|--------------|-----------------|-----------------|---------------------------|--------------|-------------------|
| SIGC12T60SNC | 600V | 10A | 3.5 x 3.5 mm ² | sawn on foil | Q67041-A4664-A001 |
| SIGC12T60SNC | 600V | 10A | 3.5 x 3.5 mm ² | unsawn | Q67041-A4664-A002 |

MECHANICAL PARAMETER:

| | | |
|---------------------------------|--|-----------------|
| Raster size | 3.5 x 3.5 | mm ² |
| Area total / active | 12.25 / 8.7 | |
| Emitter pad size | 1.99 x 1.58 | |
| Gate pad size | 1.1 x 0.694 | |
| Thickness | 100 | µm |
| Wafer size | 150 | mm |
| Flat position | 270 | deg |
| Max.possible chips per wafer | 1219 | |
| Passivation frontside | Photoimide | |
| Emitter metallization | 3200 nm Al Si 1% | |
| 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 | 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, $T_j=25\text{ °C}$ | 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} | 30 | A |
| Gate emitter voltage | V_{GE} | ± 20 | V |
| Operating junction and storage temperature | T_j, T_{stg} | -55 ... +150 | $^{\circ}\text{C}$ |

¹⁾ 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 | $V_{(BR)CES}$ | $V_{GE}=0V, I_C=500\mu A$ | 600 | | | V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $V_{GE}=15V, I_C=10A$ | 1.6 | 2 | 2.5 | |
| Gate-emitter threshold voltage | $V_{GE(th)}$ | $I_C=300\mu A, V_{GE}=V_{CE}$ | 3 | 4 | 5 | |
| Zero gate voltage collector current | I_{CES} | $V_{CE}=600V, V_{GE}=0V$ | | | 0.85 | μA |
| Gate-emitter leakage current | I_{GES} | $V_{CE}=0V, V_{GE}=20V$ | | | 100 | nA |

DYNAMIC CHARACTERISTICS (tested at component):

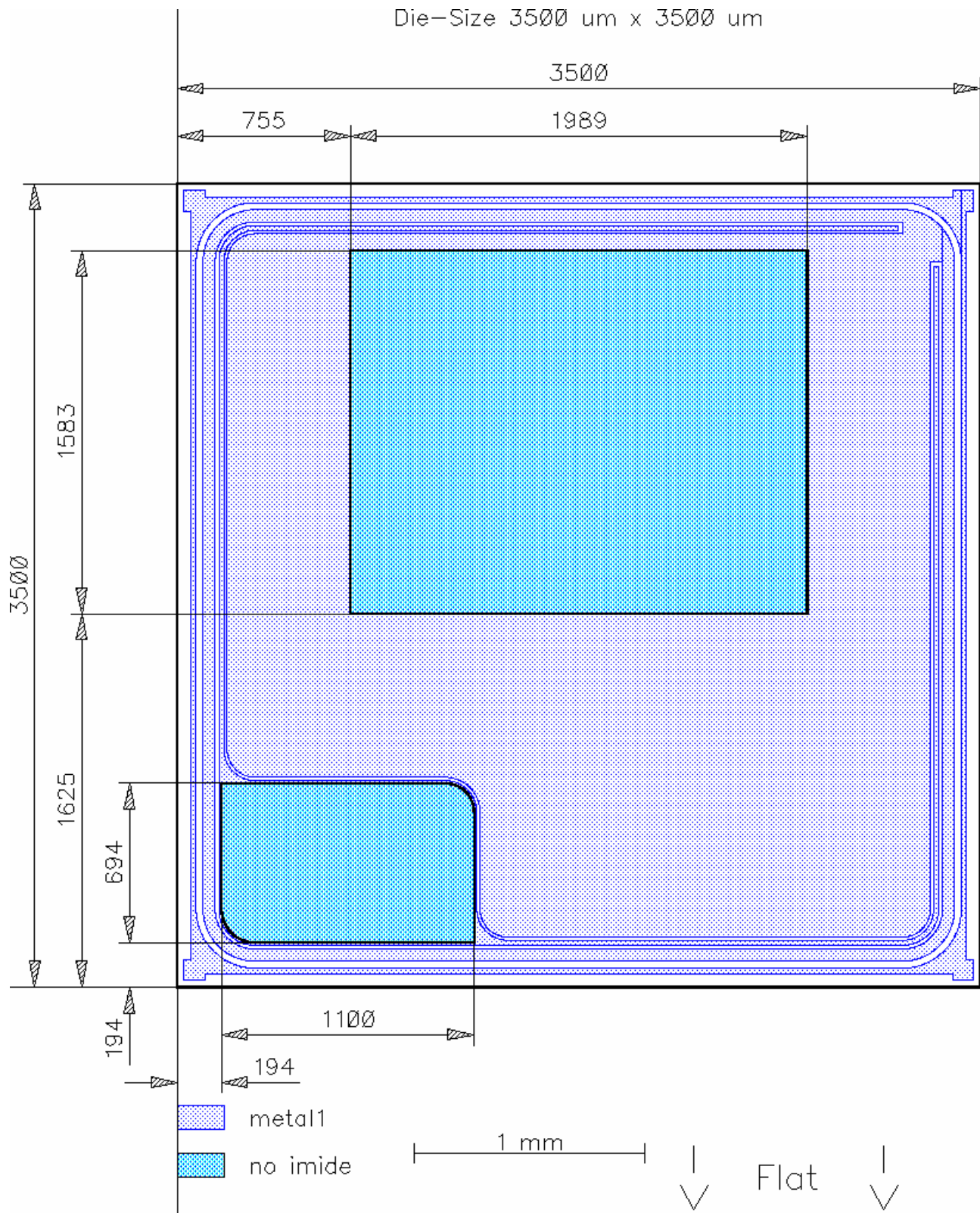
| Parameter | Symbol | Conditions | Value | | | Unit |
|------------------------------|------------|--------------|-------|------|------|------|
| | | | min. | typ. | max. | |
| Input capacitance | C_{iss} | $V_{CE}=25V$ | - | 580 | 696 | pF |
| Output capacitance | C_{oss} | $V_{GE}=0V$ | - | 70 | 84 | |
| Reverse transfer capacitance | C_{riss} | $f=1MHz$ | - | 50 | 60 | |

SWITCHING CHARACTERISTICS (tested at component), Inductive Load:

| Parameter | Symbol | Conditions ²⁾ | Value | | | Unit |
|---------------------|--------------|--------------------------------------|-------|------|------|------|
| | | | min. | typ. | max. | |
| Turn-on delay time | $t_{d(on)}$ | $T_j=150\text{ °C}$ $V_{CC}=400V$ | - | 29 | 35 | ns |
| Rise time | t_r | $I_C=10A$ | - | 21 | 25 | |
| Turn-off delay time | $t_{d(off)}$ | $V_{GE}=+15/0V$ $R_G=25\Omega$ | - | 266 | 319 | |
| Fall time | t_f | | - | 63 | 76 | |

²⁾ 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:





SIGC12T60SNC

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet

SGP10N60

Package :TO220

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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