



# SIDC02D60C6

## Fast switching diode chip in EMCON 3-Technology

### FEATURES:

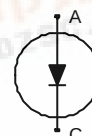
- 600V EMCON 3 technology 70 µm chip
- soft, fast switching
- low reverse recovery charge
- small temperature coefficient

### This chip is used for:

- power module
- discrete components

### Applications:

- drives
- white goods
- resonant applications



| Chip Type   | V <sub>R</sub> | I <sub>F</sub> | Die Size                   | Package      |
|-------------|----------------|----------------|----------------------------|--------------|
| SIDC02D60C6 | 600V           | 6A             | 1.4 x 1.65 mm <sup>2</sup> | sawn on foil |

### MECHANICAL PARAMETER:

|                                 |                                                                                              |                 |
|---------------------------------|----------------------------------------------------------------------------------------------|-----------------|
| Raster size                     | 1.4 x 1.65                                                                                   | mm <sup>2</sup> |
| Area total / active             | 2.31 / 1.31                                                                                  |                 |
| Anode pad size                  | 0.98 x 1.23                                                                                  |                 |
| Thickness                       | 70                                                                                           | µm              |
| Wafer size                      | 150                                                                                          | mm              |
| Flat position                   | 180                                                                                          | deg             |
| Max. possible chips per wafer   | 6468 pcs                                                                                     |                 |
| Passivation frontside           | Photoimide                                                                                   |                 |
| Anode metallization             | 3200 nm AlSiCu                                                                               |                 |
| Cathode metallization           | 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 |                 |





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## Maximum Ratings

| Parameter                                                | Symbol         | Condition | Value         | Unit |
|----------------------------------------------------------|----------------|-----------|---------------|------|
| Repetitive peak reverse voltage                          | $V_{RRM}$      |           | 600           | V    |
| Continuous forward current limited by $T_{jmax}$         | $I_F$          |           | <sup>1)</sup> | A    |
| Maximum repetitive forward current limited by $T_{jmax}$ | $I_{FRM}$      |           | 12            |      |
| Operating junction and storage temperature               | $T_j, T_{stg}$ |           | -40...+175    | °C   |

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

Static Electrical Characteristics (tested on chip),  $T_j=25\text{ °C}$ , unless otherwise specified

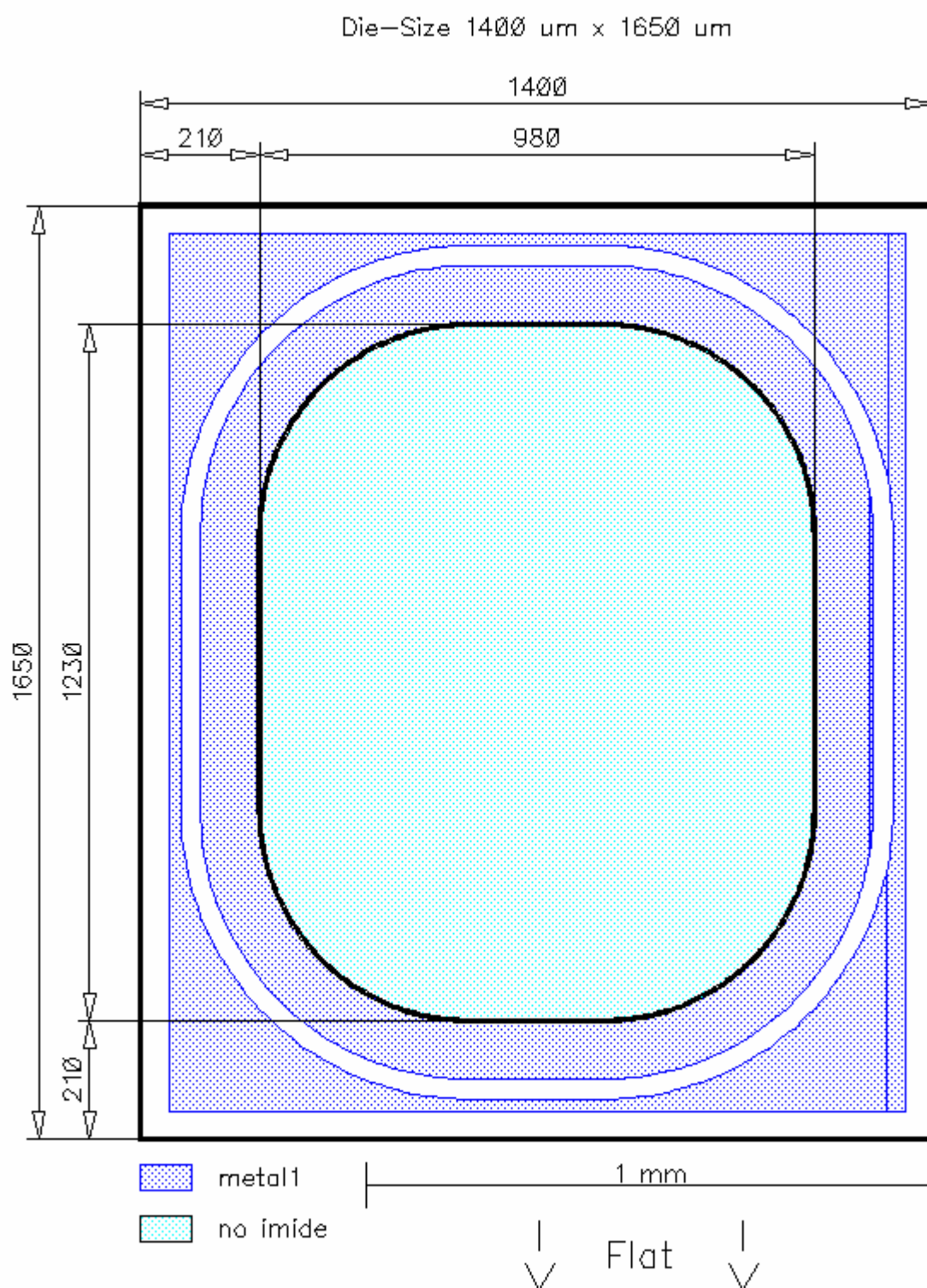
| Parameter                       | Symbol   | Conditions   |                    | Value |      |      | Unit |
|---------------------------------|----------|--------------|--------------------|-------|------|------|------|
|                                 |          |              |                    | min.  | Typ. | max. |      |
| Reverse leakage current         | $I_R$    | $V_R=600V$   | $T_j=25\text{ °C}$ |       |      | 27   | μA   |
| Cathode-Anode breakdown Voltage | $V_{Br}$ | $I_R=0.25mA$ | $T_j=25\text{ °C}$ | 600   |      |      | V    |
| Forward voltage drop            | $V_F$    | $I_F=6A$     | $T_j=25\text{ °C}$ | 1.25  | 1.6  | 1.95 | V    |

Dynamic Electrical Characteristics (verified by design/characterization), inductive load

| Parameter                     | Symbol    | Conditions                                                  |                                                                        | Value <sup>2)</sup> |                       |      | Unit |
|-------------------------------|-----------|-------------------------------------------------------------|------------------------------------------------------------------------|---------------------|-----------------------|------|------|
|                               |           |                                                             |                                                                        | min.                | Typ.                  | max. |      |
| Peak reverse recovery current | $I_{RM}$  | $I_F=6A$<br>$di/dt=800A/ms$<br>$V_R=300V$<br>$V_{GE}= -15V$ | $T_j = 25\text{ °C}$<br>$T_j = 125\text{ °C}$<br>$T_j = 150\text{ °C}$ |                     | 10.5<br>11.5<br>12.0  |      | A    |
| Recovered charge              | $Q_r$     | $I_F=6A$<br>$di/dt=800A/ms$<br>$V_R=300V$<br>$V_{GE}= -15V$ | $T_j = 25\text{ °C}$<br>$T_j = 125\text{ °C}$<br>$T_j = 150\text{ °C}$ |                     | 0.35<br>0.60<br>0.70  |      | μC   |
| Reverse recovery energy       | $E_{rec}$ | $I_F=6A$<br>$di/dt=800A/ms$<br>$V_R=300V$<br>$V_{GE}= -15V$ | $T_j = 25\text{ °C}$<br>$T_j = 125\text{ °C}$<br>$T_j = 150\text{ °C}$ |                     | 0.065<br>0.12<br>0.16 |      | mJ   |

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

## CHIP DRAWING:





## SIDC02D60C6

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### FURTHER ELECTRICAL CHARACTERISTICS:

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|                                                      |           |  |
|------------------------------------------------------|-----------|--|
| This chip data sheet refers to the device data sheet | FS6R06VE3 |  |
|------------------------------------------------------|-----------|--|

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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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