

Fast switching diode chip in EMCON-Technology

FEATURES:

- 1200V EMCON technology 120 µm chip
- soft, fast switching
- low reverse recovery charge
- small temperature coefficient

This chip is used for:

- EUPEC power modules and discrete devices



Applications:

- SMPS, resonant applications, drives

| Chip Type | V _R | I _F | Die Size | Package | Ordering Code |
|--------------|----------------|----------------|---------------------------|--------------|-------------------|
| SIDC42D120H6 | 1200V | 75A | 6.5 x 6.5 mm ² | sawn on foil | Q67050-A4099-A102 |

MECHANICAL PARAMETER:

| | | |
|---------------------------------|--|-----------------|
| Raster size | 6.5 x 6.5 | mm ² |
| Area total / active | 42.25 / 33.99 | |
| Anode pad size | 5.78 x 5.78 | |
| Thickness | 120 | µm |
| Wafer size | 150 | mm |
| Flat position | 180 | deg |
| Max. possible chips per wafer | 334 pcs | |
| Passivation frontside | Photoimide | |
| Anode metallisation | 3200 nm AlSiCu | |
| Cathode metallisation | 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 | Condition | Value | Unit |
|--|----------------|---------------------------------|------------|------|
| Repetitive peak reverse voltage | V_{RRM} | | 1200 | V |
| Continuous forward current limited by T_{jmax} | I_F | | 75 | A |
| Single pulse forward current (depending on wire bond configuration) | I_{FSM} | $t_p = 10\text{ ms sinusoidal}$ | tbd | |
| Maximum repetitive forward current limited by T_{jmax} | I_{FRM} | | 150 | |
| Operating junction and storage temperature | T_j, T_{stg} | | -55...+150 | °C |

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 | $V_R=1200\text{ V}$ | $T_j=25\text{ °C}$ | | | 27 | µA |
| Cathode-Anode breakdown Voltage | V_{Br} | $I_R=4\text{ mA}$ | $T_j=25\text{ °C}$ | 1200 | | | V |
| Forward voltage drop | V_F | $I_F=75\text{ A}$ | $T_j=25\text{ °C}$ | | 1.6 | | V |

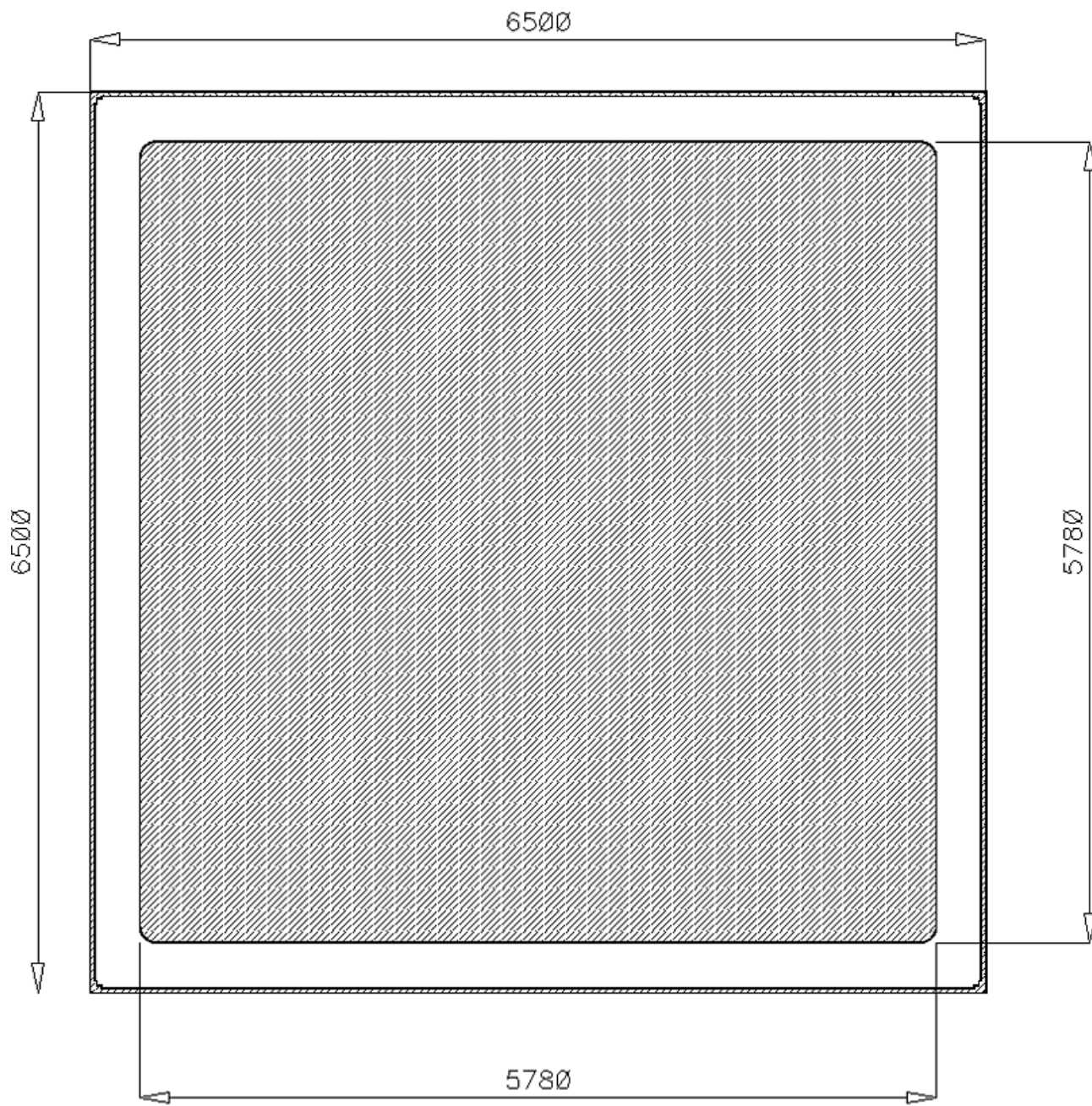
Dynamic Electrical Characteristics, at $T_j = 25\text{ °C}$, unless otherwise specified, tested at component

| Parameter | Symbol | Conditions | | Value | | | Unit |
|---|---------------|--|-----------------------|-------|------|------|------|
| | | | | min. | Typ. | max. | |
| Reverse recovery time | t_{rr1} | $I_F=75\text{ A}$ | $T_j = 25\text{ °C}$ | | tbd | | ns |
| | t_{rr2} | $di/dt=825\text{ A/ms}$ $V_R=600\text{ V}$ | $T_j = 125\text{ °C}$ | | | | |
| Peak recovery current | I_{RRM1} | $I_F=75\text{ A}$ | $T_j = 25\text{ °C}$ | | 91.8 | | A |
| | I_{RRM2} | $di/dt=825\text{ A/ms}$ $V_R= 600\text{ V}$ | $T_j = 125\text{ °C}$ | | 97.5 | | |
| Reverse recovery charge | Q_{rr1} | $I_F=75\text{ A}$ | $T_j=25\text{ °C}$ | | 7.6 | | µC |
| | Q_{rr2} | $di/dt=825\text{ A/ms}$ $V_R= 600\text{ V}$ | $T_j=125\text{ °C}$ | | 13.7 | | |
| Peak rate of fall of reverse recovery current | di_{rr1}/dt | $I_F=75\text{ A}$ | $T_j = 25\text{ °C}$ | | tbd | | A/µs |
| | di_{rr2}/dt | $di/dt=825\text{ A/ms}$ $V_R= 600\text{ V}$ | $T_j=125\text{ °C}$ | | | | |
| Softness | S1 | $I_F=75\text{ A}$ | $T_j=25\text{ °C}$ | | tbd | | 1 |
| | S2 | $di/dt=825\text{ A/ms}$ $V_R= 600\text{ V}$ | $T_j=125\text{ °C}$ | | | | |

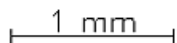
CHIP DRAWING:

L419B1 mm²

Die-Size 6500 um x 6500 um



 imide

 1 mm



Flat





Preliminary

SIDC42D120H6

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet

INFINEON TECHNOLOGIES /
EUPEC

tbd

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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