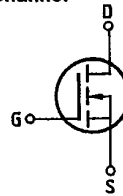


SIEMENS AKTIENGESELLSCHAFT

Main ratings

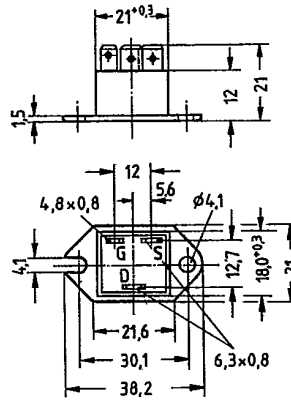
Drain-source voltage $V_{DS} = 50\text{ V}$
 Continuous drain current $I_D = 37\text{ A}$
 Drain-source on-resistance $R_{DS(on)} = 0,03\ \Omega$

N-Channel



Description SiPMOS, N-channel, enhancement mode
Case Plastic package TO 238 AA with insulated metal base plate in accordance with JEDEC, compatible with TO 3; AMP plug-in connections.
 Approx. weight 21 g

| | |
|--------|-----------------|
| Type | Ordering code |
| BUZ 18 | C67078-A1601-A2 |



Dimensions in mm

Maximum ratings

| Description | Symbols | Ratings | Units | Conditions |
|---|---------------|------------------|-------------------|----------------------------------|
| Drain-source voltage | V_{DS} | 50 | V | |
| Drain-gate voltage | V_{DGR} | 50 | V | $R_{GS} = 20\text{ k}\Omega$ |
| Continuous drain current | I_D | 37 | A | $T_C = 25\text{ }^\circ\text{C}$ |
| Pulsed drain current | $I_{D(puls)}$ | 145 | A | $T_C = 25\text{ }^\circ\text{C}$ |
| Gate-source voltage | V_{GS} | ± 20 | V | |
| Max. power dissipation | P_D | 83,3 | W | $T_C = 25\text{ }^\circ\text{C}$ |
| Operating and storage temperature range | T_J | $-40 \dots +150$ | $^\circ\text{C}$ | |
| Isolation test voltage | V_{is} | 3500 | Vdc ¹⁾ | $t = 1\text{ min}$ |
| DIN humidity category | | F | - | DIN 40040 |
| IEC climatic category | | 40/150/56 | - | DIN IEC 68-1 |

Thermal resistance

Chip - case | R_{thJC} | $\leq 1,5$ | K/W |

¹⁾ Isolation test voltage between drain and base plate referred to standard climate 23/50 in accordance with DIN 50014.

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Electrical characteristics

(at $T_j = 25^\circ\text{C}$ unless otherwise specified)

| Description | Symbol | Characteristics | | | Unit | Conditions |
|-------------|--------|-----------------|------|------|------|------------|
| | | min. | typ. | max. | | |

Static ratings

| | | | | | | |
|---------------------------------|---------------|-----|-------|------|----------|--|
| Drain-source breakdown voltage | $V_{(BR)OSS}$ | 550 | 65 | — | V | $V_{GS} = 0V$ $I_D = 0,25mA$ |
| Gate threshold voltage | $V_{GS(th)}$ | 2,1 | 3,0 | 4,0 | | $V_{DS} = V_{GS}$ $I_D = 1mA$ |
| Zero gate voltage drain current | I_{DSS} | — | 20 | 250 | μA | $T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $V_{DS} = 50V$ $V_{GS} = 0V$ |
| Gate-source leakage current | I_{GSS} | — | 10 | 100 | nA | $V_{GS} = 20V$ $V_{DS} = 0V$ |
| Drain-source on-resistance | $R_{DS(on)}$ | — | 0,025 | 0,03 | Ω | $V_{GS} = 10V$ $I_D = 22A$ |

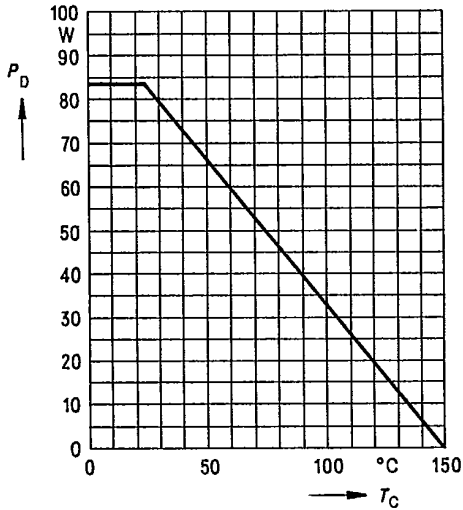
Dynamic ratings

| | | | | | | |
|---|--------------|-----|------|------|----|---|
| Forward transconductance | g_{fs} | 7,0 | 18,0 | — | S | $V_{DS} = 25V$ $I_D = 22A$ |
| Input capacitance | C_{iss} | — | 1600 | 2100 | pF | $V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1MHz$ |
| Output capacitance | C_{oss} | — | 1300 | 2000 | | |
| Reverse transfer capacitance | C_{rss} | — | 500 | 800 | | |
| Turn-on time t_{on} ($t_{on} = t_{d(on)} + t_r$) | $t_{d(on)}$ | — | 30 | 45 | ns | $V_{CC} = 30V$ $I_D = 3A$ $V_{GS} = 10V$ $R_{GS} = 50\Omega$ |
| | t_r | — | 110 | 170 | | |
| Turn-off time t_{off} ($t_{off} = t_{d(off)} + t_f$) | $t_{d(off)}$ | — | 330 | 430 | | |
| | t_f | — | 250 | 330 | | |

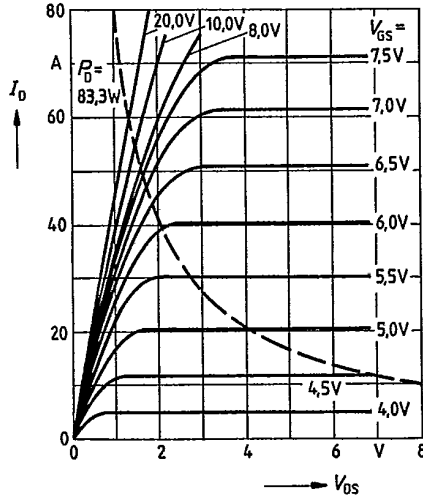
Reverse diode

| | | | | | | |
|----------------------------------|-----------|---|-----|-----|---------|--|
| Continuous reverse drain current | I_{DR} | — | — | 37 | A | $T_C = 25^\circ\text{C}$ |
| Pulsed reverse drain current | I_{DRM} | — | — | 145 | | |
| Diode forward on-voltage | V_{SD} | — | 1,5 | 2,2 | V | $I_F = 2 \times I_{DR}$ $V_{GS} = 0V, T_j = 25^\circ\text{C}$ |
| Reverse recovery time | t_{rr} | — | 150 | — | ns | $T_j = 25^\circ\text{C}$ |
| Reverse recovery charge | Q_{rr} | — | 1,0 | — | μC | $I_F = I_{DR}$ $dI_F/dt = 100A/\mu s$ $V_R = 30V$ |

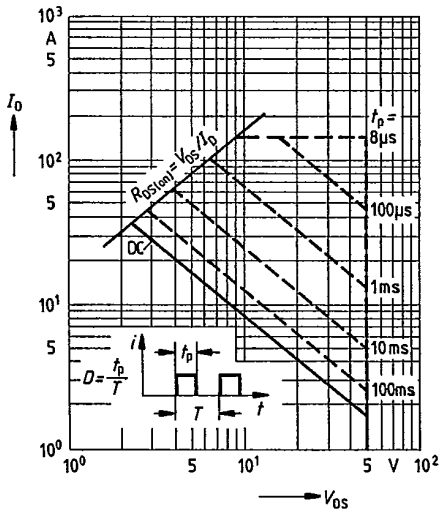
Power dissipation $P_D = f(T_C)$



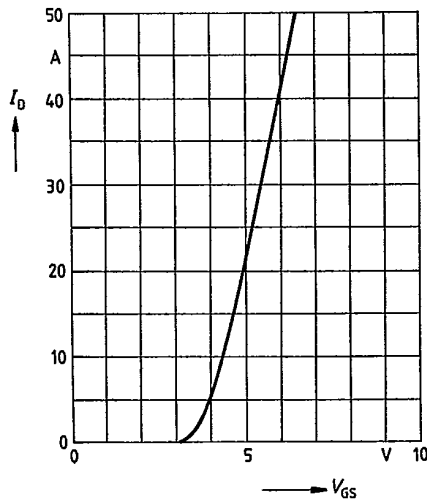
Typical output characteristics $I_D = f(V_{DS})$
parameter: 80 μ s pulse test,
 $T_j = 25^\circ\text{C}$



Safe operating area $I_D = f(V_{DS})$
parameter: $D = 0.01$, $T_C = 25^\circ\text{C}$

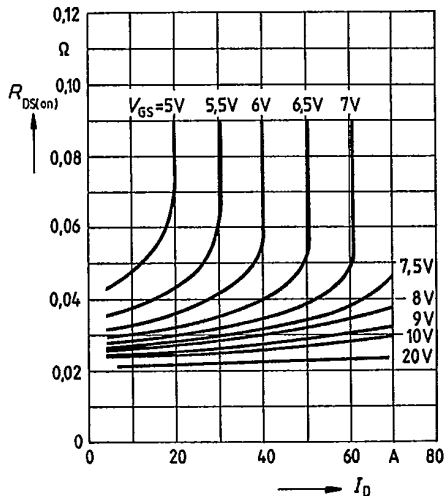


Typical transfer characteristic $I_D = f(V_{GS})$
parameter: 80 μ s pulse test,
 $V_{DS} = 25\text{V}$, $T_j = 25^\circ\text{C}$



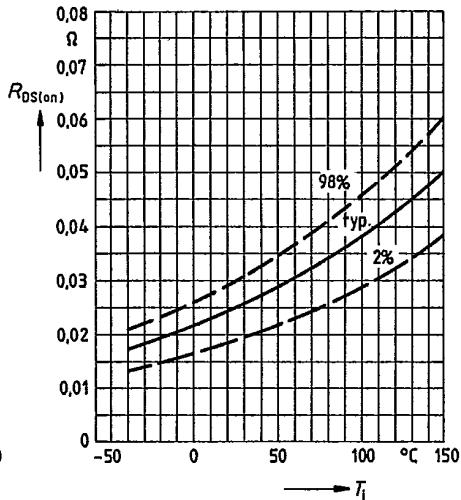
Typical drain-source on-state resistance

$R_{DS(on)} = f(I_D)$
parameter: $V_{GS} = 7.5V$, $T_j = 25^\circ C$



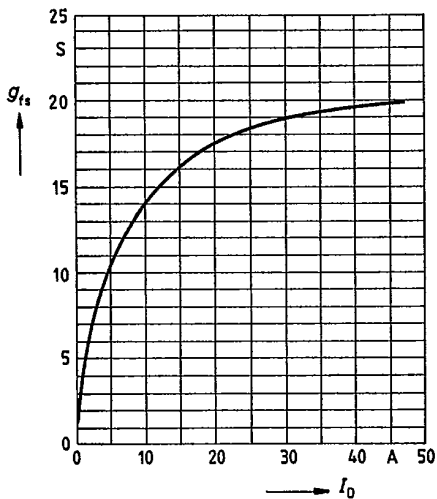
Drain-source on-state resistance

$R_{DS(on)} = f(T_j)$
parameter: $I_D = 22A$, $V_{GS} = 10V$
(spread)



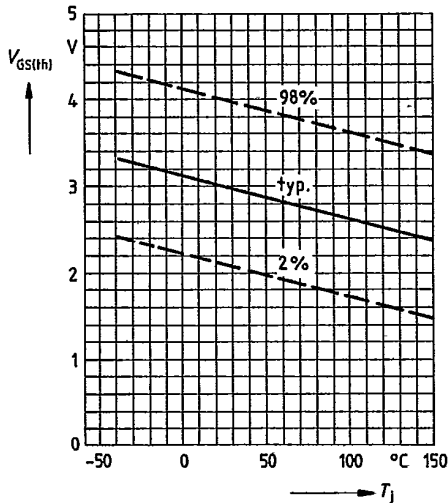
Typical transconductance $g_{fs} = f(I_D)$

parameter: 80 μs pulse test,
 $V_{DS} = 25V$, $T_j = 25^\circ C$

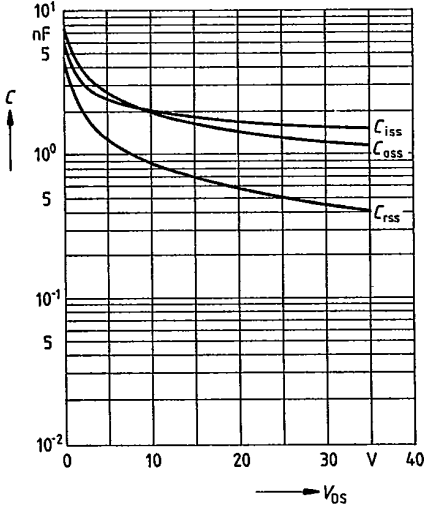


Gate threshold voltage $V_{GS(th)} = f(T_j)$

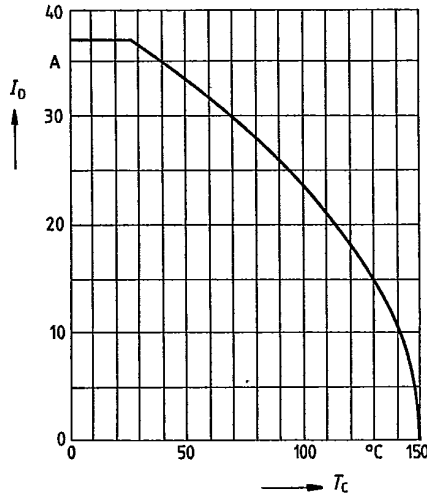
parameter: $V_{DS} = V_{GS}$, $I_D = 1mA$
(spread)



Typical capacitances $C = f(V_{GS})$
parameter: $V_{GS} = 0, f = 1\text{MHz}$

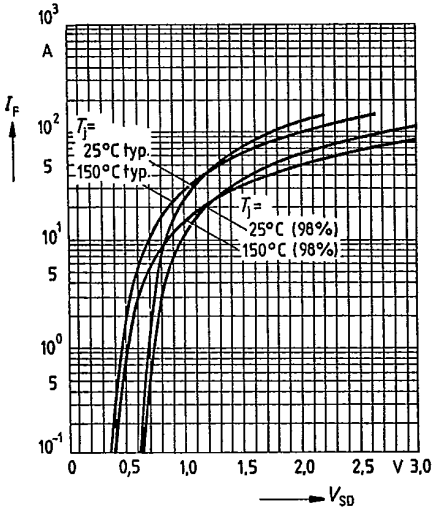


Continuous drain current $I_D = f(T_C)$
parameter: $V_{GS} \geq 10\text{V}$



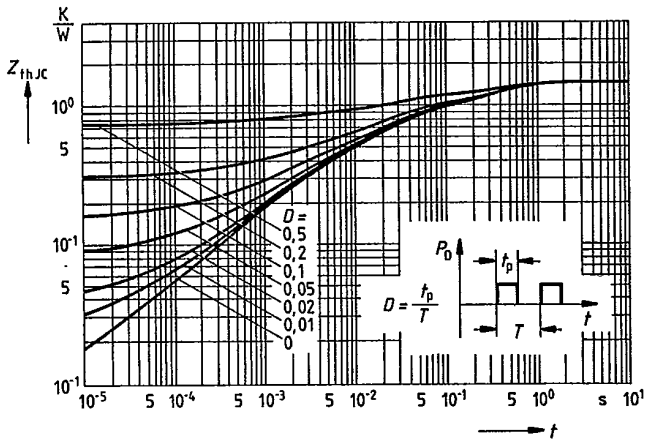
Forward characteristic of reverse diode

$I_F = f(V_{SD})$
parameter: $T_j, t_p = 80 \mu\text{s}$
(spread)



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Transient thermal impedance $Z_{thJC} = f(t)$
 parameter: $D = t_p / T$



Typical gate-charge $V_{GS} = f(Q_{Gate})$
 parameter: $I_{D\ pulse} = 67,5A$

