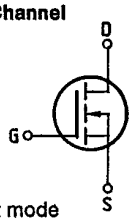
SIEMENS AKTIENGESELLSCHAF

## Main ratings

**Drain-source voltage** $V_{DS}$ = 800 V
**Continuous drain current** $I_D$ = 3,6 A
**Drain-source on-resistance** $R_{DS(on)}$ = 3,0 Ω

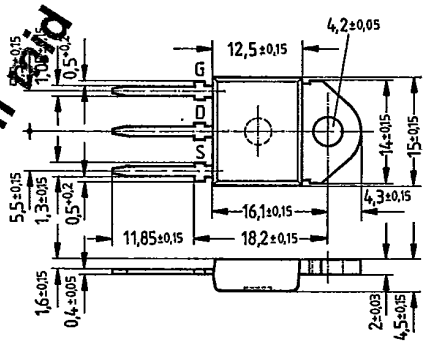
**N-Channel**




**Description** FREDET with fast-recovery reverse diode, N-channel, enhancement mode
**Case** Plastic package 15 in accordance with DIN 41 869 or
TO 218 AA (TOP 3) in accordance with JEDEC.
The drain terminal is conductively connected to the mounting flange.
Approx. weight 4,5 g

| Type | Ordering code |
|---|---|
| BUZ 360 | C67078-A3204-A2 |






Dimensions in mm

## Maximum ratings

| Description | Symbols | Ratings | Units | Conditions |
|---|---|---|---|---|
| Drain-source voltage | $V_{DS}$ | 800 | V | |
| Drain-gate voltage | $V_{DGR}$ | 800 | V | $R_{GS}$ = 20 kΩ |
| Continuous drain current | $I_D$ | 3,6 | A | $T_C$ = 25 °C |
| Pulsed drain current | $I_{Dpuls}$ | 14 | A | $T_C$ = 25 °C |
| Gate-source voltage | $V_{GS}$ | ±20 | V | |
| Max. power dissipation | $P_D$ | 75 | W | $T_C$ = 25 °C |
| Operating and storage temperature range | $T_j$ $T_{stg}$ | −55... +150 | °C | |
| DIN humidity category | | E | – | DIN 40040 |
| IEC climatic category | | 55/150/56 | | DIN IEC 68-1 |
| **Thermal resistance** | | | | |
| Chip – case | $R_{th\,JC}$ | ≤1,67 | K/W | |
| Chip – ambient | $R_{th\,JA}$ | ≤45 | K/W | |

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## Electrical characteristics

(at $T_j$ = 25 °C unless otherwise specified)

| Description | Symbol | Characteristics min. | typ. | max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| **Static ratings** | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)\,DSS}$ | 800 | – | – | V | $V_{GS}$ = 0V<br>$I_D$ = 0,25mA |
| Gate threshold voltage | $V_{GS\,(th)}$ | 2,1 | 3,0 | 4,0 | | $V_{DS}$ = $V_{GS}$<br>$I_D$ = 1mA |
| Zero gate voltage drain current | $I_{DSS}$ | –<br>– | 20<br>100 | 250<br>1000 | µA | $T_j$ = 25 °C<br>$T_j$ = 125 °C<br>$V_{DS}$ = 800V<br>$V_{GS}$ = 0V |
| Gate-source leakage current | $I_{GSS}$ | – | 10 | 100 | nA | $V_{GS}$ = 20V<br>$V_{DS}$ = 0V |
| Drain-source on-resistance | $R_{DS\,(on)}$ | – | 2,0 | 3,0 | Ω | $V_{GS}$ = 10V<br>$I_D$ = 2,3A |
| **Dynamic ratings** | | | | | | |
| Forward transconductance | $g_{fs}$ | 1,0 | 2,4 | – | S | $V_{DS}$ = 25V<br>$I_D$ = 2,3A |
| Input capacitance | $C_{iss}$ | – | 1,6 | 2,1 | nF | $V_{GS}$ = 0V<br>$V_{DS}$ = 25V<br>$f$ = 1MHz |
| Output capacitance | $C_{oss}$ | – | 90 | 150 | pF | |
| Reverse transfer capacitance | $C_{rss}$ | – | 30 | 55 | | |
| Turn-on time $t_{on}$ ($t_{on}$ = $t_{d\,(on)}$ + $t_r$) | $t_{d\,(on)}$ | – | 30 | 45 | ns | $V_{CC}$ = 30V<br>$I_D$ = 2,3A<br>$V_{GS}$ = 10V<br>$R_{GS}$ = 50Ω |
| | $t_r$ | – | 50 | 60 | | |
| Turn-off time $t_{off}$ ($t_{off}$ = $t_{d\,(off)}$ + $t_f$) | $t_{d\,(off)}$ | – | 100 | 140 | | |
| | $t_f$ | – | 60 | 80 | | |
| **Fast-recovery reverse diode** | | | | | | |
| Continuous reverse drain current | $I_{DR}$ | – | – | 3,6 | A | $T_C$ = 25 °C |
| Pulsed reverse drain current | $I_{DRM}$ | – | – | 14 | | |
| Diode forward on-voltage | $V_{SD}$ | – | 1,15 | 1,5 | V | $I_F$ = 2× $I_{DR}$<br>$V_{GS}$ = 0V, $T_j$ = 25 °C |
| Reverse recovery time | $t_{rr}$ | – | 180 | 250 | ns | $T_j$ = 25 °C<br>= 150 °C |
| | | – | 220 | 300 | | |
| Reserve recovery charge | $Q_{rr}$ | – | 0,65 | 1,2 | µC | $T_j$ = 25 °C<br>= 150 °C |
| | | – | 2,6 | 5,0 | | |
| Repetitive peak reverse current | $I_{RRM}$ | – | – | – | A | $T_j$ = 25 °C<br>= 150 °C |
| | | – | 15 | – | | |

$I_F$ = $I_{DR}$, $dI_F/dt$ = 100A/µs, $V_R$ = 100V



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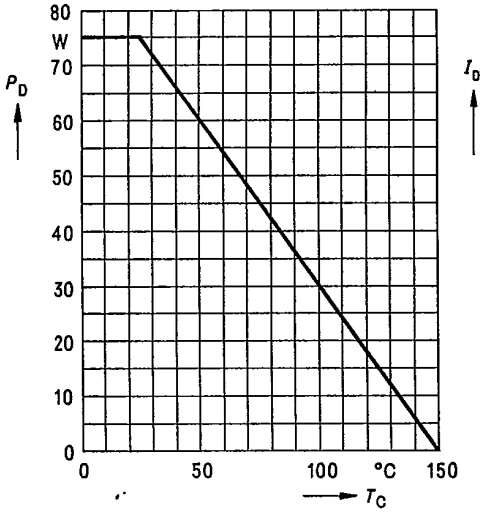
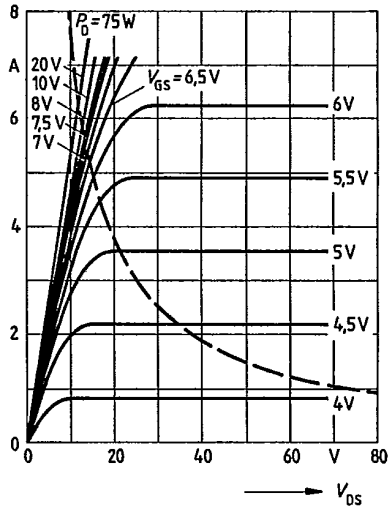
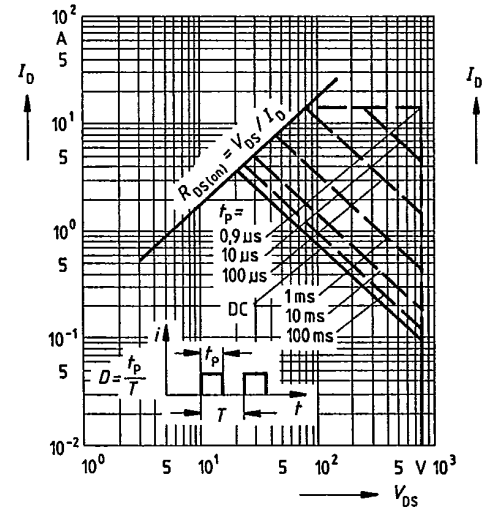
**Power dissipation** $P_D = f(T_C)$



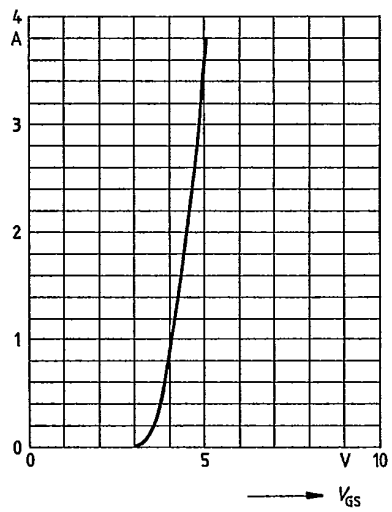

**Typical output characteristics** $I_D = f(V_{DS})$
parameter: 80 µs pulse test,
$T_j = 25°C$



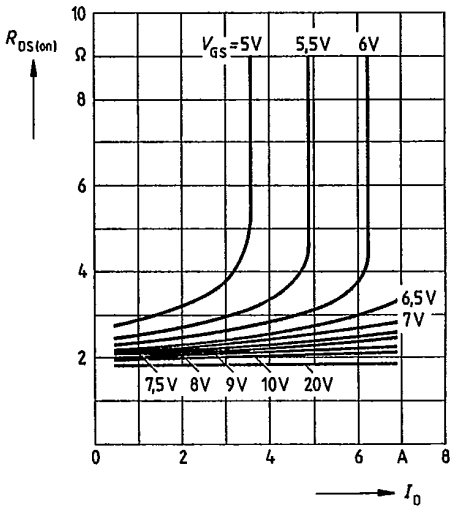

**Safe operating area** $I_D = f(V_{DS})$
parameter: $D = 0.01$, $T_C = 25°C$



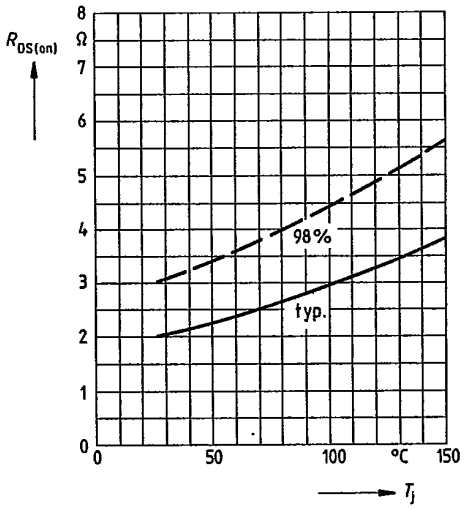

**Typical transfer characteristic** $I_D = f(V_{GS})$
parameter: 80 µs pulse test,
$V_{DS} = 25V$, $T_j = 25°C$



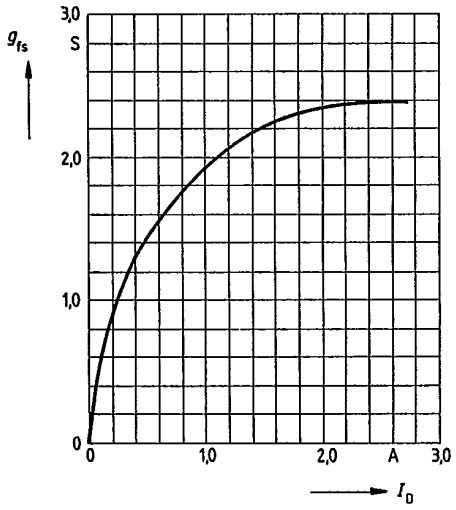
**Typical drain-source on-state resistance**
$R_{DS(on)} = f(I_D)$
parameter: $V_{GS}$; $T_j = 25°C$



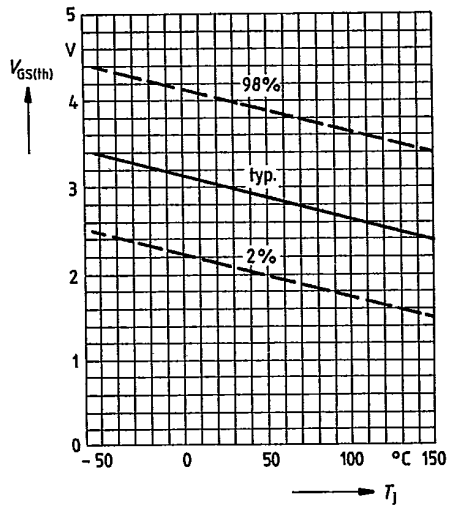

**Drain-source on-state resistance**
$R_{DS(on)} = f(T_j)$
parameter: $I_D$ = 2,3A, $V_{GS}$ = 10V
(spread)




**Typical transconductance** $g_{fs} = f(I_D)$
parameter: 80 µs pulse test,
$V_{DS}$ = 25V, $T_j$ = 25°C




**Gate threshold voltage** $V_{GS(th)} = f(T_j)$
parameter: $V_{DS} = V_{GS}$, $I_D$ = 1mA
(spread)



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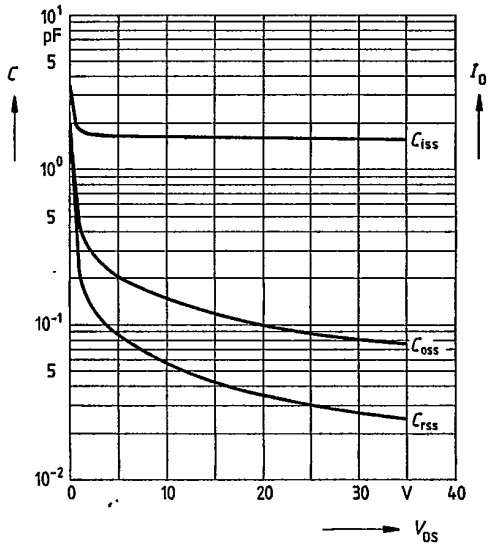
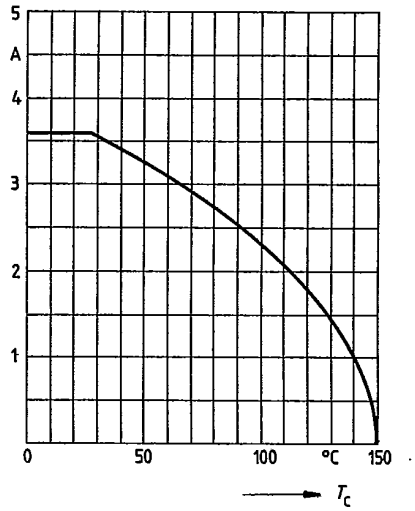
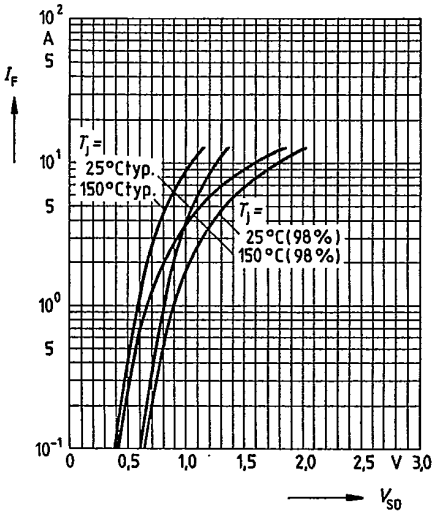
**Typical capacitances $C = f(V_{DS})$**
parameter: $V_{GS} = 0$, $f = 1$MHz



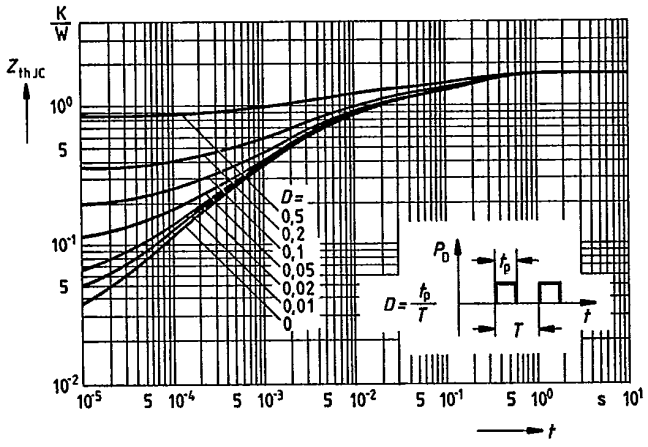

**Continuous drain current $I_D = f(T_C)$**
parameter: $V_{GS} \geq 10$V




**Forward characteristic of reverse diode**
$I_F = f(V_{SD})$
parameter: $T_j$, $t_p = 80$ µs
(spread)



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




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