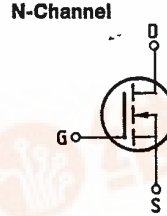


88D D ■ 8235605 0014810 9 ■ SIEG  
 88D 14810 D T-39-11 BUZ 83 A

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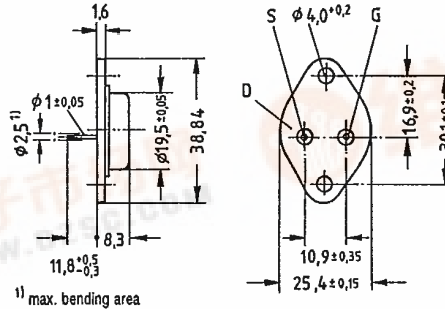
**Main ratings**

Drain-source voltage  $V_{DS} = 800\text{ V}$   
 Continuous drain current  $I_D = 3,4\text{ A}$   
 Drain-source on-resistance  $R_{DS(on)} = 3,0\ \Omega$



**Description** SIPMOS, N-channel, enhancement mode  
**Case** Metal case 3A2 in accordance with DIN 41872, or TO 204 AA (TO 3) in accordance with JEDEC. Approx. weight 12 g

| Type     | Ordering code   |
|----------|-----------------|
| BUZ 83 A | C67078-A1012-A3 |



Dimensions in mm

**Maximum ratings**

| Description                             | Symbols            | Ratings          | Units            | Conditions                       |
|-----------------------------------------|--------------------|------------------|------------------|----------------------------------|
| Drain-source voltage                    | $V_{DS}$           | 800              | V                |                                  |
| Drain-gate voltage                      | $V_{DGR}$          | 800              | V                | $R_{GS} = 20\text{ k}\Omega$     |
| Continuous drain current                | $I_D$              | 3,4              | A                | $T_C = 25\text{ }^\circ\text{C}$ |
| Pulsed drain current                    | $I_{Dpuls}$        | 11               | A                | $T_C = 25\text{ }^\circ\text{C}$ |
| Gate-source voltage                     | $V_{GS}$           | $\pm 20$         | V                |                                  |
| Max. power dissipation                  | $P_D$              | 78               | W                | $T_C = 25\text{ }^\circ\text{C}$ |
| Operating and storage temperature range | $T_j$<br>$T_{stg}$ | $-55 \dots +150$ | $^\circ\text{C}$ |                                  |
| DIN humidity category                   |                    | C                | -                | DIN 40040                        |
| IEC climatic category                   |                    | 55/150/56        | -                | DIN IEC 68-1                     |

**Thermal resistance**

|                |                    |            |     |
|----------------|--------------------|------------|-----|
| Chip - case    | $R_{th\text{ JC}}$ | $\leq 1,6$ | K/W |
| Chip - ambient | $R_{th\text{ JA}}$ | $\leq 35$  | K/W |

520  Preferred Type

1102 B-05



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88D 14811 D T-39-11

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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  | $V_{(BR)DSS}$ | 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 | $I_{DSS}$     | —   | 20  | 250 | $\mu A$  | $T_j = 25^\circ\text{C}$<br>$T_j = 125^\circ\text{C}$<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      | $R_{DS(on)}$  | —   | 2,7 | 3,0 | $\Omega$ | $V_{GS} = 10V$<br>$I_D = 1,7A$                                                            |

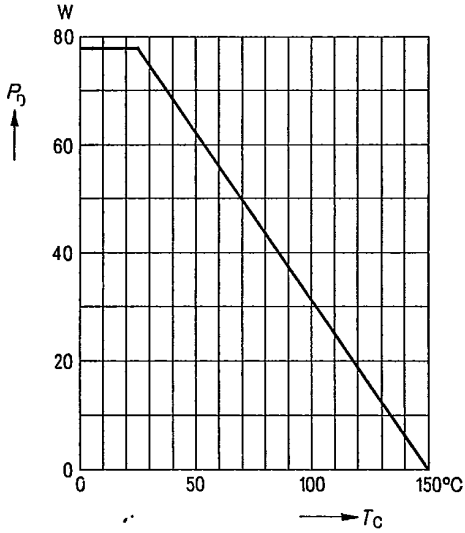
**Dynamic ratings**

|                                                             |              |     |     |     |    |                                       |
|-------------------------------------------------------------|--------------|-----|-----|-----|----|---------------------------------------|
| Forward transconductance                                    | $g_{fs}$     | 1,0 | 1,8 | —   | S  | $V_{DS} = 25V$<br>$I_D = 1,7A$        |
| Input capacitance                                           | $C_{iss}$    | —   | 1,6 | 2,1 | nF | $V_{GS} = 0V$                         |
| Output capacitance                                          | $C_{oss}$    | —   | 90  | 150 | pF | $V_{DS} = 25V$<br>$f = 1MHz$          |
| Reverse transfer capacitance                                | $C_{rss}$    | —   | 30  | 55  |    |                                       |
| Turn-on time $t_{on}$<br>( $t_{on} = t_{d(on)} + t_r$ )     | $t_{d(on)}$  | —   | 30  | 45  | ns | $V_{CC} = 30V$<br>$I_D = 2,3A$        |
|                                                             | $t_r$        | —   | 40  | 60  |    | $V_{GS} = 10V$<br>$R_{GS} = 50\Omega$ |
| Turn-off time $t_{off}$<br>( $t_{off} = t_{d(off)} + t_f$ ) | $t_{d(off)}$ | —   | 110 | 140 |    |                                       |
|                                                             | $t_f$        | —   | 60  | 80  |    |                                       |

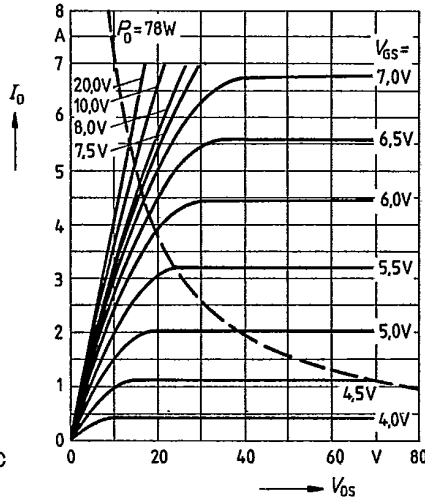
**Reverse diode**

|                                  |           |   |      |      |         |                                                                  |
|----------------------------------|-----------|---|------|------|---------|------------------------------------------------------------------|
| Continuous reverse drain current | $I_{DR}$  | — | —    | 3,4  | A       | $T_C = 25^\circ\text{C}$                                         |
| Pulsed reverse drain current     | $I_{DRM}$ | — | —    | 13   |         |                                                                  |
| Diode forward on-voltage         | $V_{SD}$  | — | 1,1  | 1,35 | V       | $I_F = 2 \times I_{DR}$<br>$V_{GS} = 0V, T_j = 25^\circ\text{C}$ |
| Reverse recovery time            | $t_{rr}$  | — | 1800 | —    | ns      | $T_j = 25^\circ\text{C}$                                         |
| Reverse recovery charge          | $Q_{rr}$  | — | 12   | —    | $\mu C$ | $I_F = I_{DR}$<br>$dI_F/dt = 100A/\mu s$<br>$V_R = 100V$         |

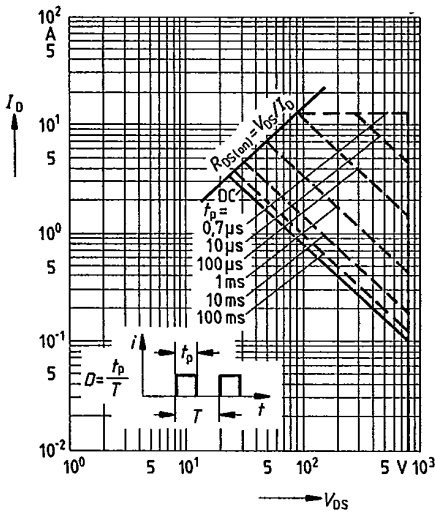
Power dissipation  $P_D = f(T_C)$



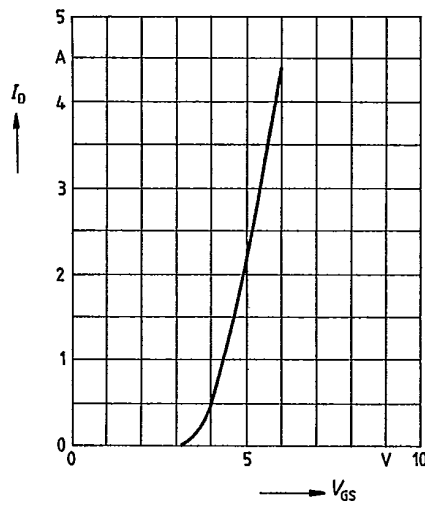
Typical output characteristics  $I_D = f(V_{GS})$   
parameter: 80  $\mu$ s pulse test,  
 $T_j = 25^\circ\text{C}$



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

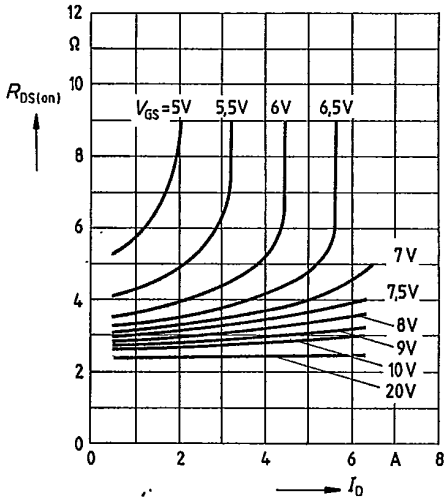


Typical transfer characteristic  $I_D = f(V_{GS})$   
parameter: 80  $\mu$ s pulse test,  
 $V_{DS} = 25\text{V}$ ,  $T_j = 25^\circ\text{C}$



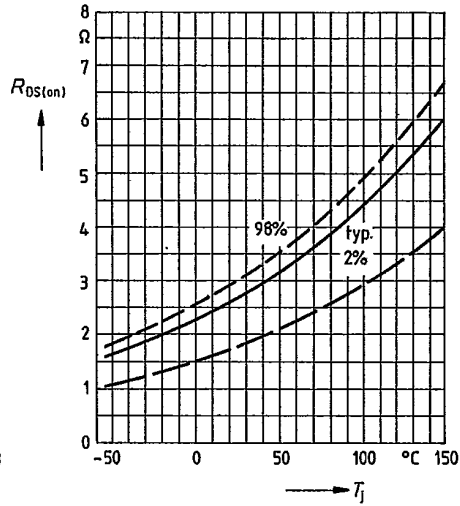
Typical drain-source on-state resistance

$R_{DS(on)} = f(I_D)$   
parameter:  $V_{GS} = 10V$ ,  $T_j = 25^\circ C$



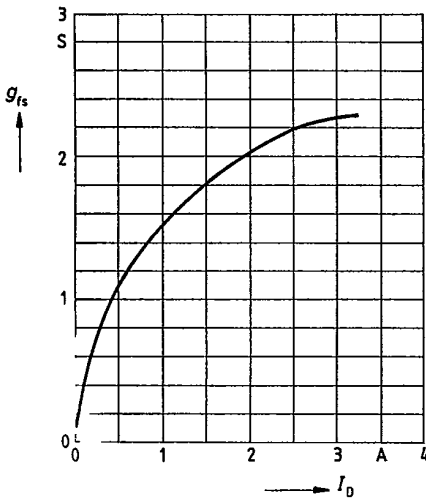
Drain-source on-state resistance

$R_{DS(on)} = f(T_j)$   
parameter:  $I_D = 1.7A$ ,  $V_{GS} = 10V$   
(spread)



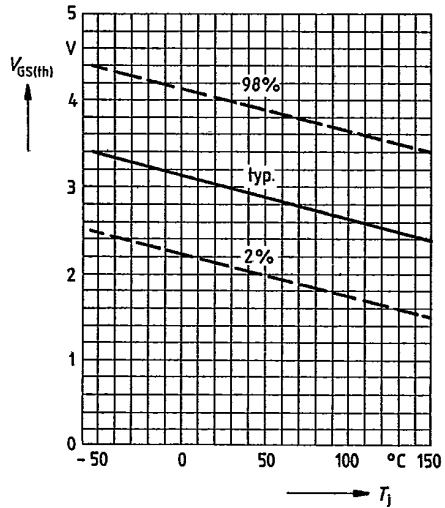
Typical transconductance  $g_{fs} = f(I_D)$

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

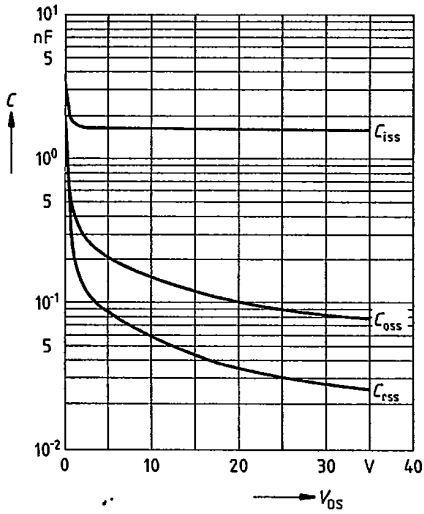


Gate threshold voltage  $V_{GS(th)} = f(T_j)$

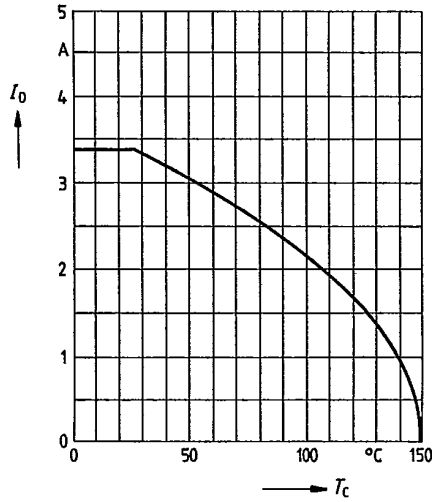
parameter:  $V_{DS} = V_{GS}$ ,  $I_D = 1mA$   
(spread)



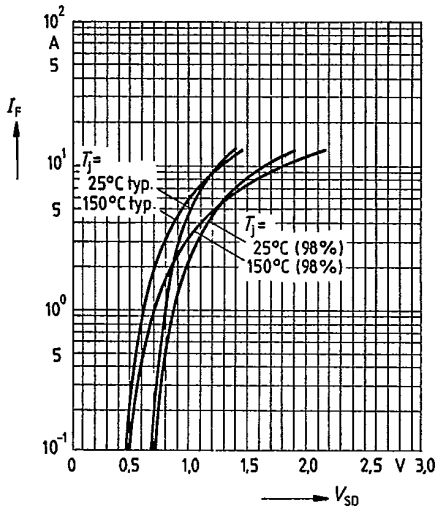
Typical capacitances  $C = f(V_{DS})$   
parameter:  $V_{GS} = 0, f = 1\text{MHz}$



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

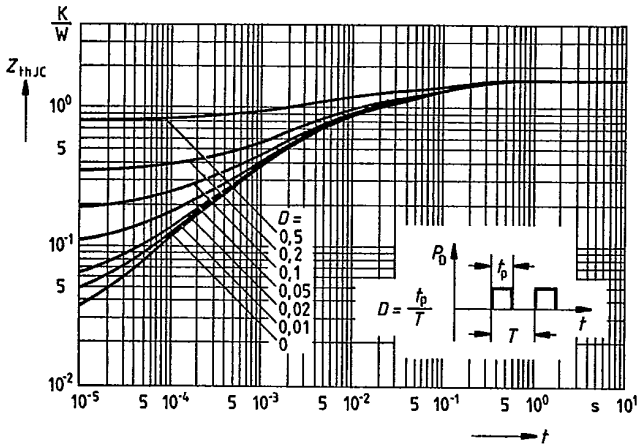


Forward characteristic of reverse diode  
 $I_F = f(V_{SD})$   
parameter:  $T_j, t_p = 80 \mu\text{s}$   
(spread)



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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:  $I_D \text{ puls} = 5A$

