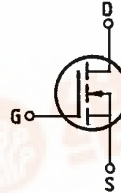


88D D 8235605 0014474 8 SIEG T-39-13  
SIEMENS AKTIENGESELLSCHAFT BUZ 14

**Main ratings**

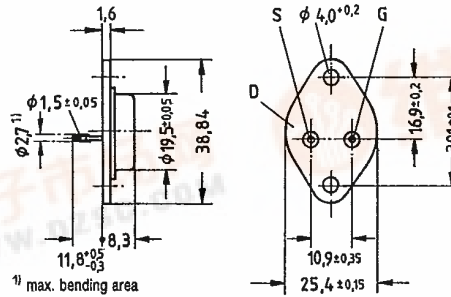
Drain-source voltage  $V_{DS} = 50\text{ V}$   
 Continuous drain current  $I_D = 39\text{ A}$   
 Drain-source on-resistance  $R_{DS(on)} = 0,04\ \Omega$

N-Channel



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

Type	Ordering code
BUZ 14	C67078-A1000-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	$I_D$	39	A	$T_C = 25\text{ }^\circ\text{C}$
Pulsed drain current	$I_{D(puls)}$	155	A	$T_C = 25\text{ }^\circ\text{C}$
Gate-source voltage	$V_{GS}$	$\pm 20$	V	
Max. power dissipation	$P_D$	125	W	$T_C = 25\text{ }^\circ\text{C}$
Operating and storage temperature range	$T_J$ $T_{stg}$	$-55 \dots +150$	$^\circ\text{C}$	
DIN humidity category		C	-	DIN 40040
IEC climatic category		55/150/56	-	DIN IEC 68-1
<b>Thermal resistance</b>				
Chip - case	$R_{thJC}$	$\leq 1,0$	K/W	
Chip - ambient	$R_{thJA}$	$\leq 35$	K/W	

184 Preferred Type

0766 F-05



**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	$V_{(BR)DSS}$	50	65	—	V	$V_{GS} = 0V$ $I_D = 0,25mA$
Gate threshold voltage	$V_{GS(th)}$	2,1	3,0	4,0		
Zero gate voltage drain current	$I_{DSS}$	—	20 100	250 1000	$\mu A$	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $V_{DS} = 50V$ $V_{GS} = 0V$
Gate-source leakage current	$I_{GSS}$	—	10	100	nA	$V_{GS} = 20V$ $V_{DS} = 0V$
Drain-source on-resistance	$R_{DS(on)}$	—	0,035	0,04	$\Omega$	$V_{GS} = 10V$ $I_D = 22A$

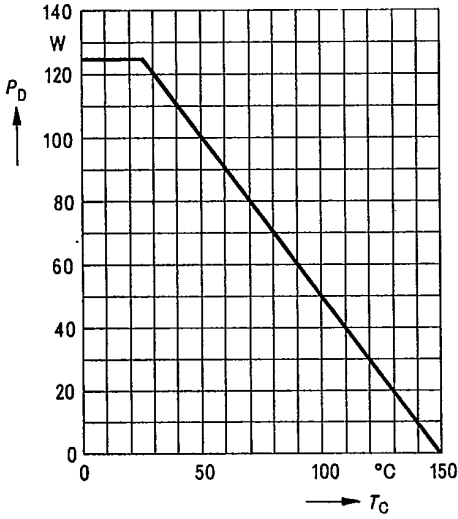
**Dynamic ratings**

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		

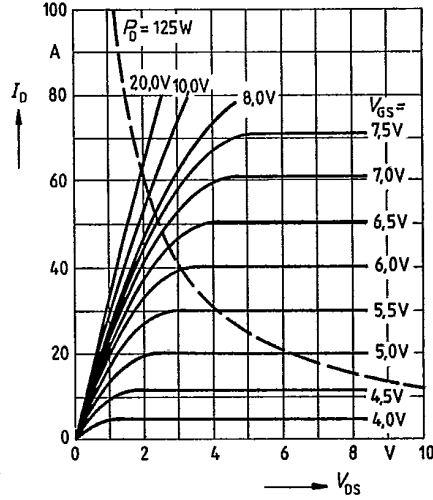
**Reverse diode**

Continuous reverse drain current	$I_{DR}$	—	—	39	A	$T_C = 25^\circ\text{C}$
Pulsed reverse drain current	$I_{DRM}$	—	—	155		
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	—	$\mu C$	$I_F = I_{DR}$ $dI_F/dt = 100A/\mu s$ $V_R = 30V$

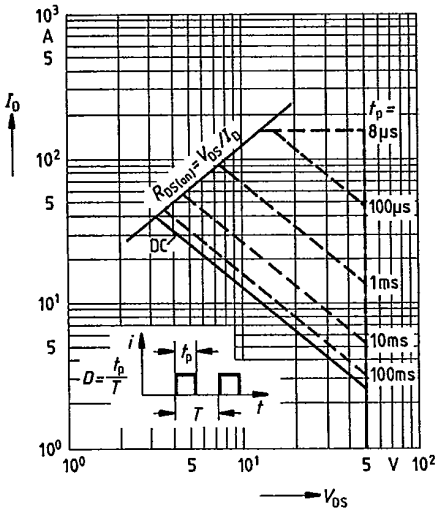
Power dissipation  $P_D = f(T_C)$



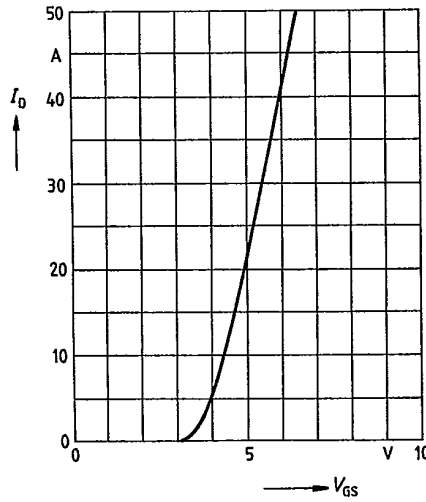
Typical output characteristics  $I_D = f(V_{DS})$   
parameter: 80  $\mu$ s pulse test,  
 $T_J = 25^\circ\text{C}$



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



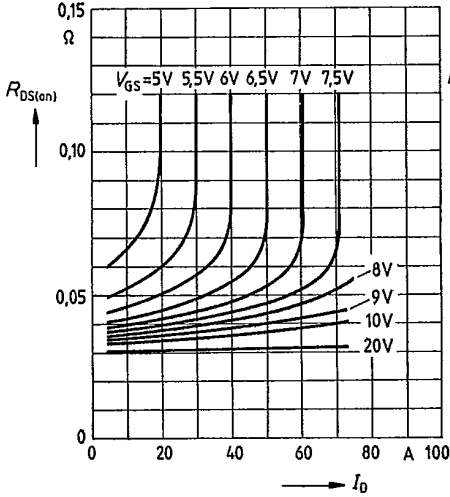
Typical transfer characteristic  $I_D = f(V_{GS})$   
parameter: 80  $\mu$ s pulse test,  
 $V_{DS} = 25\text{V}$ ,  $T_J = 25^\circ\text{C}$



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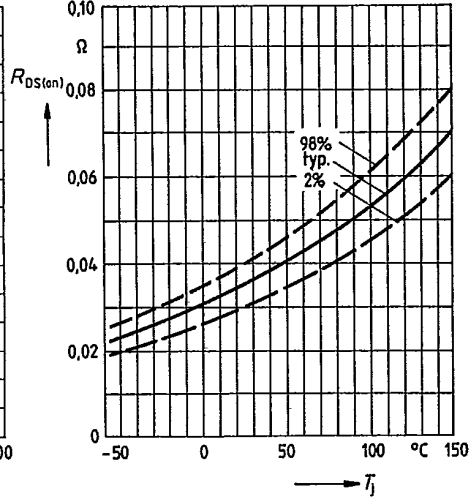
Typical drain-source on-state resistance

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



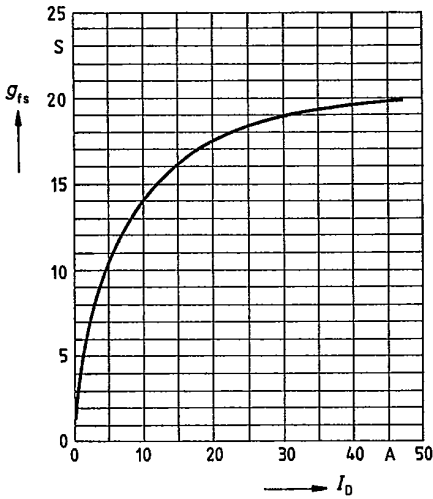
Drain-source on-state resistance

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



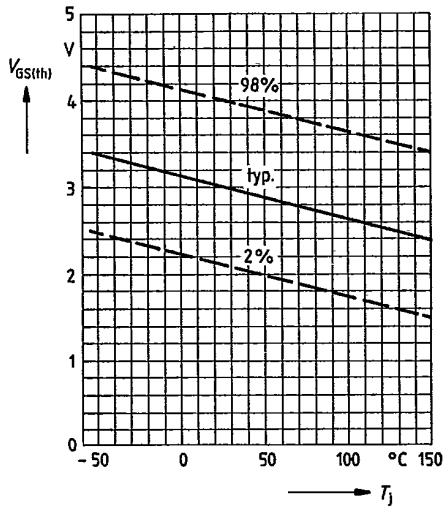
Typical transconductance  $g_{fs} = f(I_D)$

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



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

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



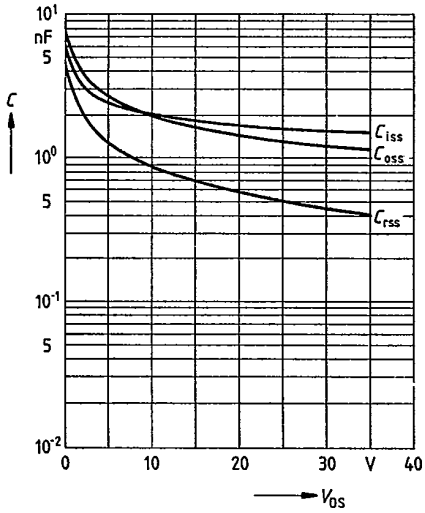
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88D 14478 D T-39-13

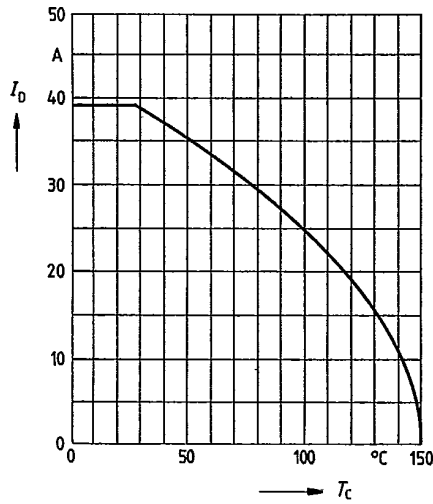
BUZ 14

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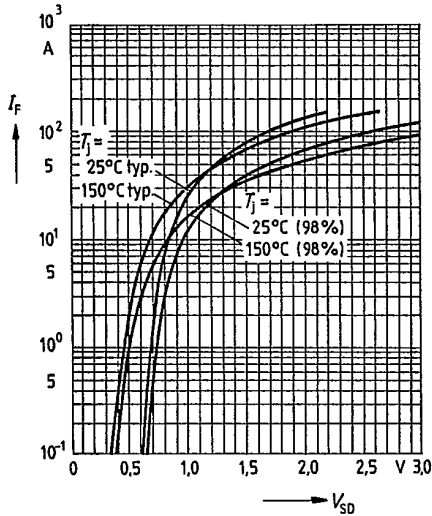
Typical capacitances  $C = f(V_{GS})$   
parameter:  $V_{GS} = 0, f = 1\text{MHz}$



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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F-09

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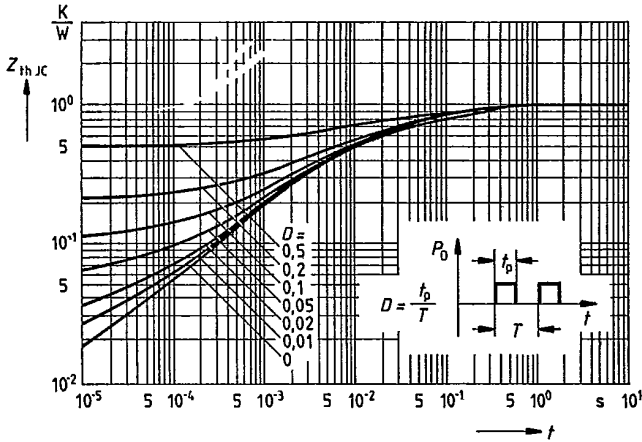
88D 14479

D T-39-13

BUZ 14

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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:  $I_D \text{ puls} = 67,5A$

