

88D D ■ 8235605 0015098 0 ■ SIEG

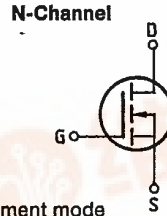
88D 15098 D T-39-13

BUZ 383

SIEMENS AKTIENGESELLSCHAFT

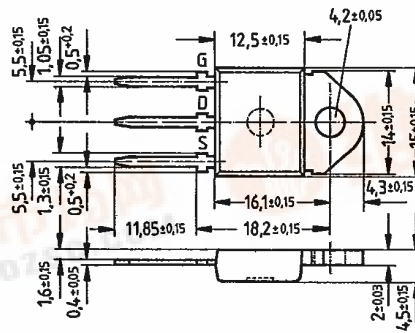
**Main ratings**

Drain-source voltage  $V_{DS} = 400\text{ V}$   
 Continuous drain current  $I_D = 11,5\text{ A}$   
 Drain-source on-resistance  $R_{DS(on)} = 0,5\ \Omega$



**Description** FREDET with fast-recovery reverse diode, N-channel, enhancement mode  
**Case** Plastic package 15 in accordance with DIN 41869 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 383	C67078-A3308-A2



Dimensions in mm

**Maximum ratings**

Description	Symbols	Ratings	Units	Conditions
Drain-source voltage	$V_{DS}$	400	V	
Drain-gate voltage	$V_{DGR}$	400	V	$R_{GS} = 20\text{ k}\Omega$
Continuous drain current	$I_D$	11,5	A	$T_C = 25\text{ }^\circ\text{C}$
Pulsed drain current	$I_{Dpuls}$	46	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... +150	$^\circ\text{C}$	
DIN humidity category	E			DIN 40040
IEC climatic category	55/150/56			DIN IEC 68-1

**Thermal resistance**

Chip - case	$R_{thJC}$	$\leq 1,0$	K/W
Chip - ambient	$R_{thJA}$	$\leq 45$	K/W

808 1390 A-13

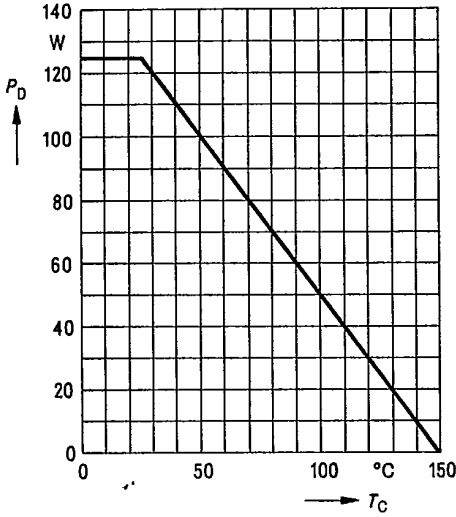


## SIEMENS AKTIENGESELLSCHAFT

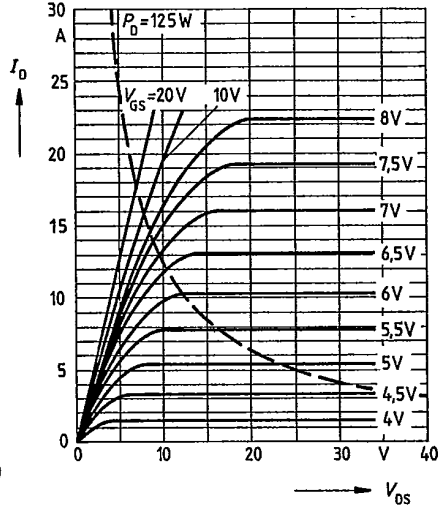
**Electrical characteristics**(at  $T_j = 25^\circ\text{C}$  unless otherwise specified)

Description	Symbol	Characteristics			Unit	Conditions	
		min.	typ.	max.			
<b>Static ratings</b>							
Drain-source breakdown voltage	$V_{(BR)DSS}$	400	—	—	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	$I_{DSS}$	—	20 100	250 1000	$\mu A$	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $V_{DS} = 400V$ $V_{GS} = 0V$	
Gate-source leakage current	$I_{GSS}$	—	10	100	nA	$V_{GS} = 20V$ $V_{DS} = 0V$	
Drain-source on-resistance	$R_{DS(on)}$	—	0,45	0,5	$\Omega$	$V_{GS} = 10V$ $I_D = 7,5A$	
<b>Dynamic ratings</b>							
Forward transconductance	$g_{fs}$	3,3	5,2	—	S	$V_{DS} = 25V$ $I_D = 7,5A$	
Input capacitance	$C_{iss}$	—	3,8	4,9	nF	$V_{GS} = 0V$	
Output capacitance	$C_{oss}$	—	300	500	pF	$V_{DS} = 25V$ $f = 1MHz$	
Reverse transfer capacitance	$C_{rss}$	—	120	200			
Turn-on time $t_{on}$ ( $t_{on} = t_d(on) + t_r$ )	$t_d(on)$	—	50	75	ns	$V_{GS} = 30V$ $I_D = 2,9A$ $V_{DS} = 10V$ $R_{GS} = 50\Omega$	
	$t_r$	—	80	120			
Turn-off time $t_{off}$ ( $t_{off} = t_d(off) + t_f$ )	$t_d(off)$	—	330	430			
	$t_f$	—	110	140			
<b>Fast-recovery reverse diode</b>							
Continuous reverse drain current	$I_{DR}$	—	—	11,5	A	$T_C = 25^\circ\text{C}$	
Pulsed reverse drain current	$I_{DRM}$	—	—	46			
Diode forward on-voltage	$V_{SD}$	—	1,4	1,9	V	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V, T_j = 25^\circ\text{C}$	
Reverse recovery time	$t_{rr}$	—	180	250	ns	$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$	$I_F = I_{DR}$ $di_F/dt = 100A/\mu s$ $V_R = 100V$
		—	220	300			
Reverse recovery charge	$Q_{rr}$	—	0,65	1,2	$\mu C$	$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$	
		—	2,6	5,0			
Repetitive peak reverse current	$I_{RRM}$	—	—	—	A	$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$	
		—	15	—			

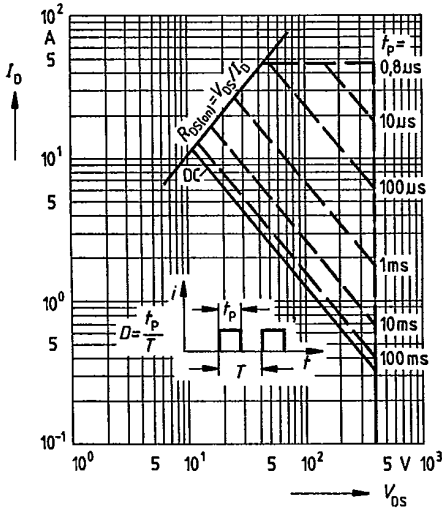
Power dissipation  $P_D = f(T_C)$



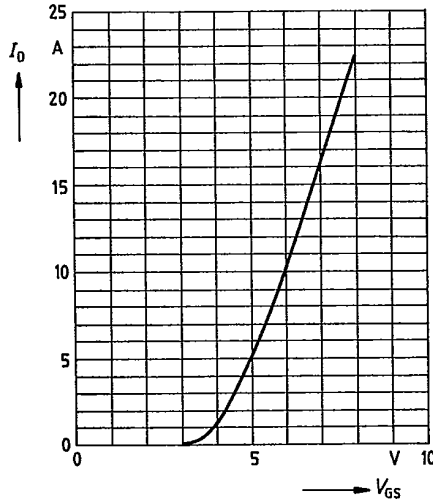
Typical output characteristics  $I_D = f(V_{DS})$   
parameter: 80  $\mu$ s pulse test,  
 $T_j = 25^\circ\text{C}$



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



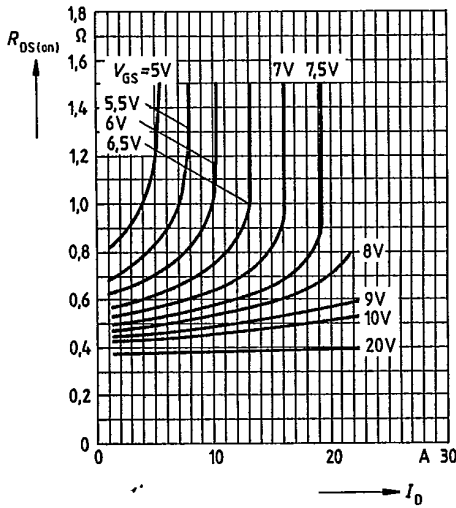
Typical transfer characteristic  $I_D = f(V_{GS})$   
parameter: 80  $\mu$ s pulse test,  
 $V_{DS} = 25\text{V}$ ,  $T_j = 25^\circ\text{C}$



— SIEMENS AKTIENGESELLSCHAFT —

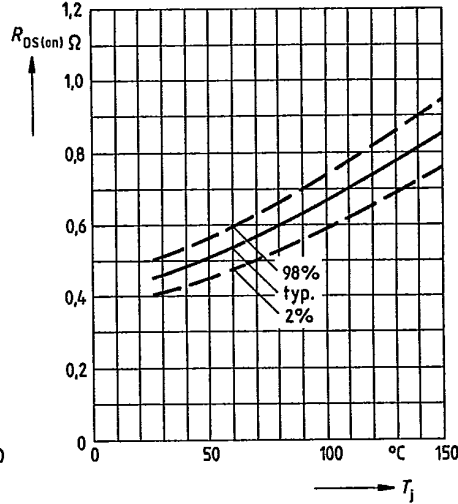
Typical drain-source on-state resistance

$R_{DS(on)} = f(I_D)$   
parameter:  $V_{GS} = 5V$ ,  $T_j = 25^\circ C$



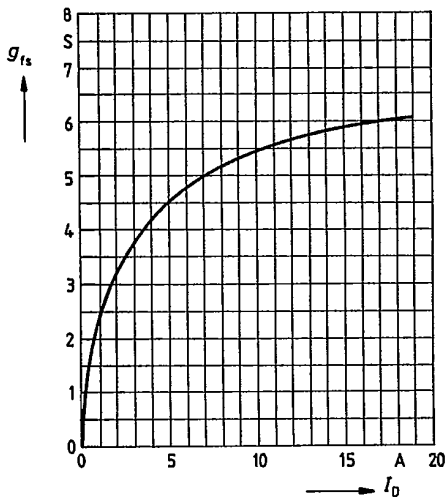
Drain-source on-state resistance

$R_{DS(on)} = f(T_j)$   
parameter:  $I_D = 7.5A$ ,  $V_{GS} = 10V$   
(spread)



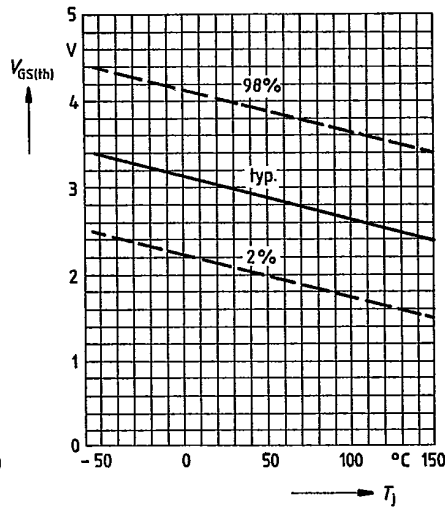
Typical transconductance  $g_{fs} = f(I_D)$

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

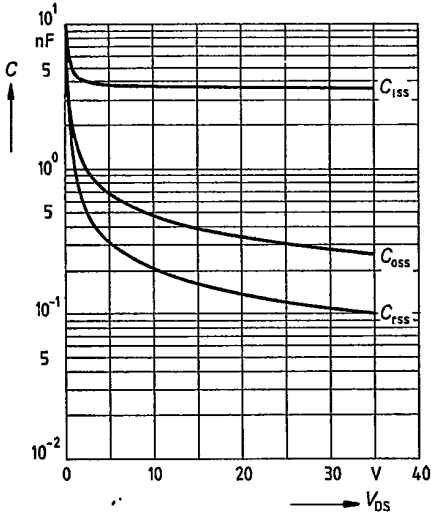


Gate threshold voltage  $V_{GS(th)} = f(T_j)$

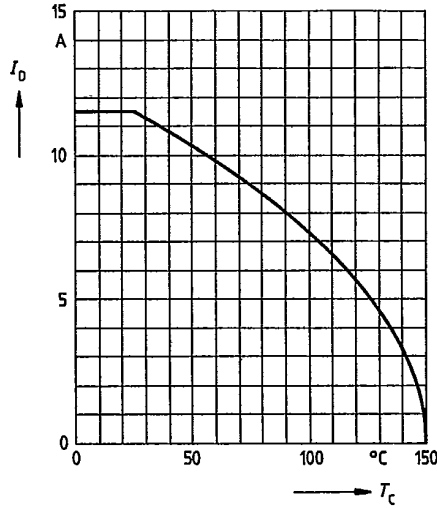
parameter:  $V_{DS} = V_{GS}$ ,  $I_D = 1mA$   
(spread)



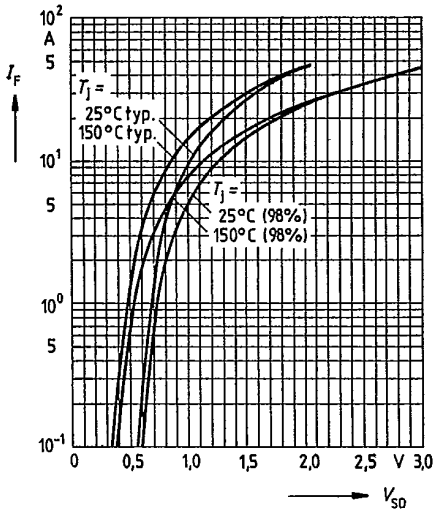
Typical capacitances  $C = f(V_{DS})$   
parameter:  $V_{GS} = 0, f = 1\text{MHz}$



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

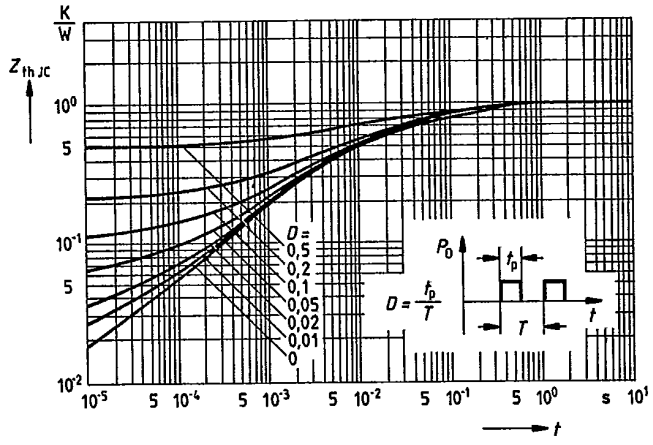


Forward characteristic of reverse diode  
 $I_F = f(V_{SD})$   
parameter:  $T_j, t_p = 80 \mu\text{s}$   
(spread)



SIEMENS AKTIENGESELLSCHAFT

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



Typical gate-charge  $V_{GS} = f(Q_{Gate})$   
 parameter:  $I_D \text{ puls} = 17,3A$

