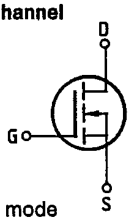
BUZ 220

SIEMENS AKTIENGESELLSCHAF

Main ratings

Drain-source voltage	V_{DS}	**= 800 V**
Continuous drain current	I_D	**= 6,5 A**
Drain-source on-resistance	$R_{DS(on)}$	**= 1,5 Ω**

N-Channel

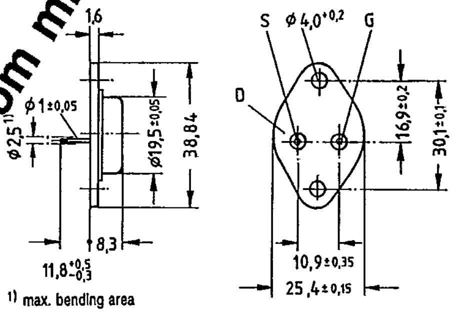


Description FREDET with fast-recovery reverse diode, N-channel, enhancement mode

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 220	C67078-A1103-A2

Available from mid 1987



1) max. bending area

Dimensions in mm

Maximum ratings

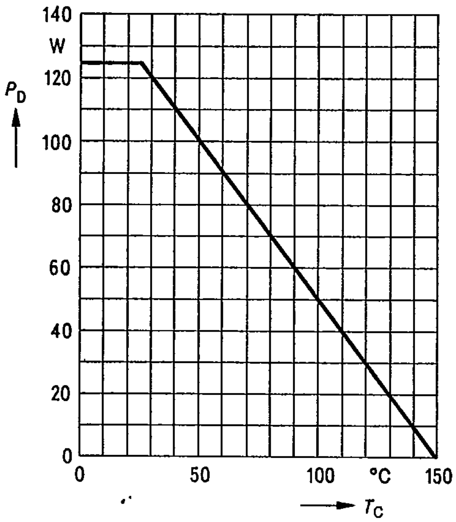
Description	Symbols	Ratings	Units	Conditions
Drain-source voltage	V_{DS}	800	V	
Drain-gate voltage	V_{DGR}	800	V	R_{GS} = 20 kΩ
Continuous drain current	I_D	6,5	A	T_C = 30 °C
Pulsed drain current	I_{Dpuls}	26	A	T_C = 25 °C
Gate-source voltage	V_{GS}	±20	V	
Max. power dissipation	P_D	125	W	T_C = 25 °C
Operating and storage temperature range	T_j T_{stg}	−55 ... +150	°C	
DIN humidity category		C	–	DIN 40040
IEC climatic category		55/150/56		DIN IEC 68-1
Thermal resistance				
Chip – case	$R_{th\,JC}$	≤1,0	K/W	
Chip – ambient	$R_{th\,JA}$	≤35	K/W	

Electrical characteristics

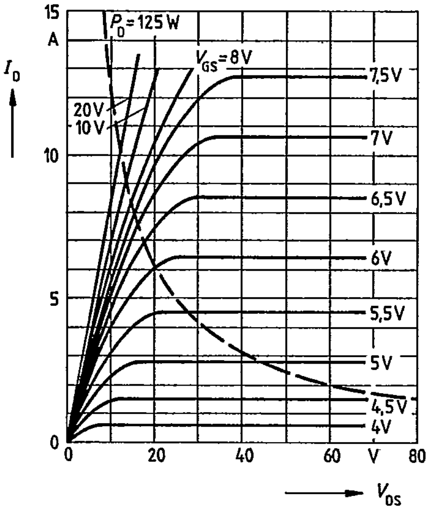
(at T_j = 25 °C unless otherwise specified)

Description	Symbol	Characteristics			Unit	Conditions	
		min.	typ.	max.			
Static ratings							
Drain-source breakdown voltage	$V_{(BR)\,DSS}$	800	–	–	V	V_{GS} = 0V 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	µA	T_j = 25 °C T_j = 125 °C V_{DS} = 800V V_{GS} = 0V	
Gate-source leakage current	I_{GSS}	–	10	100	nA	V_{GS} = 20V V_{DS} = 0V	
Drain-source on-resistance	$R_{DS\,(on)}$	–	1,4	1,5	Ω	V_{GS} = 10V I_D = 4,2A	
Dynamic ratings							
Forward transconductance	g_{fs}	1,8	3,4	–	S	V_{DS} = 25V I_D = 4,2A	
Input capacitance	C_{iss}	–	3,9	5,0	nF	V_{GS} = 0V V_{DS} = 25V f = 1MHz	
Output capacitance	C_{oss}	–	200	350	pF		
Reverse transfer capacitance	C_{rss}	–	80	140			
Turn-on time t_{on} (t_{on} = $t_{d\,(on)}$ + t_r)	$t_{d\,(on)}$	–	60	90	ns	V_{CC} = 30V I_D = 2,6A V_{GS} = 10V R_{GS} = 50Ω	
	t_r	–	90	140			
Turn-off time t_{off} (t_{off} = $t_{d\,(off)}$ + t_f)	$t_{d\,(off)}$	–	330	430			
	t_f	–	110	140			
Fast-recovery reverse diode							
Continuous reverse drain current	I_{DR}	–	–	6,5	A	T_C = 25 °C	
Pulsed reverse drain current	I_{DRM}	–	–	26			
Diode forward on-voltage	V_{SD}	–	1,15	1,6	V	I_F = 2 × I_{DR} V_{GS} = 0V, T_j = 25 °C	
Reverse recovery time	t_{rr}	–	180	250	ns	T_j = 25 °C	I_F = I_{DR} dI_F/dt = 100A/µs V_R = 100V
		–	220	300		= 150 °C	
Reserve recovery charge	Q_{rr}	–	0,65	1,2	µC	T_j = 25 °C	
		–	2,6	5,0		= 150 °C	
Repetitive peak reverse current	I_{RRM}	–	–	–	A	T_j = 25 °C	
		–	15	–		= 150 °C	

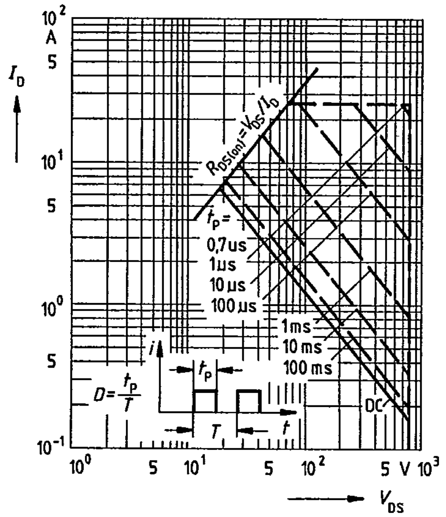
Power dissipation $P_D = f(T_C)$



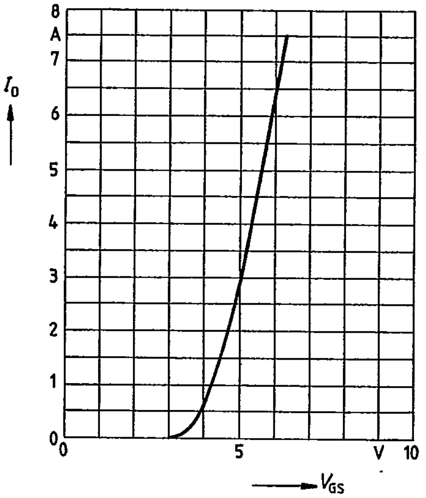
Typical output characteristics $I_D = f(V_{DS})$
parameter: 80 µs pulse test,
$T_j = 25$°C



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,
$V_{DS} = 25$V, $T_j = 25$°C



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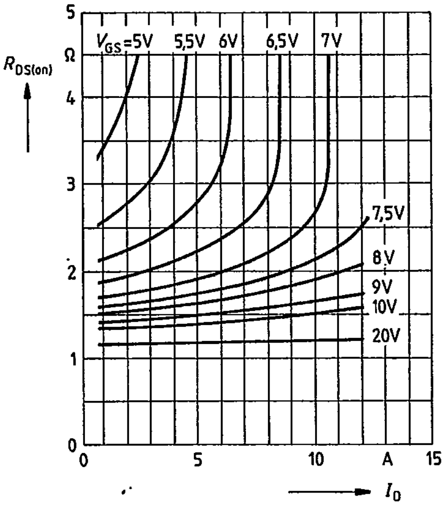
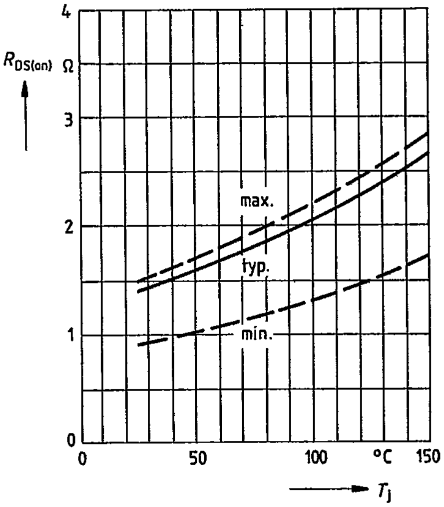
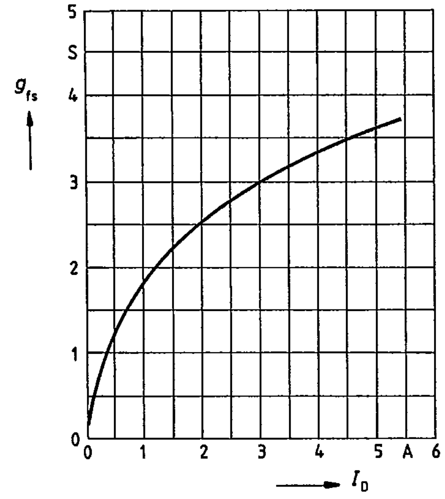
Typical drain-source on-state resistance
$R_{DS(on)} = f(I_D)$
parameter: V_{GS}; $T_j = 25°C$



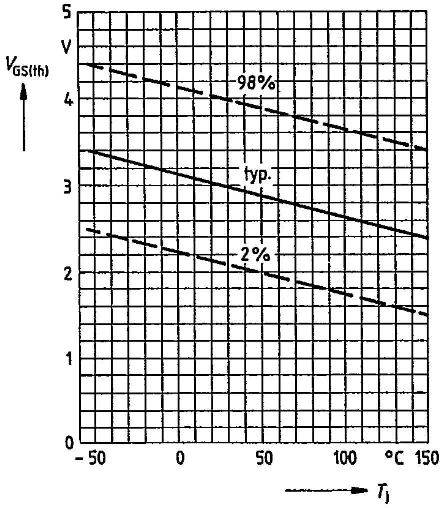
Drain-source on-state resistance
$R_{DS(on)} = f(T_j)$
parameter: I_D = 4,2A, V_{GS} = 10V
(spread)



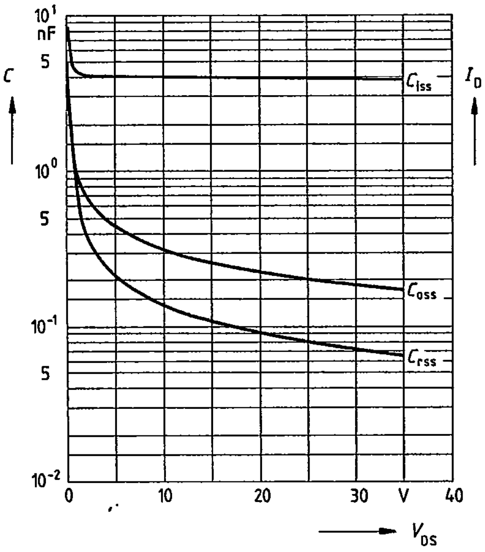
Typical transconductance $g_{fs} = f(I_D)$
parameter: 80 µs pulse test,
V_{DS} = 25V, T_j = 25°C



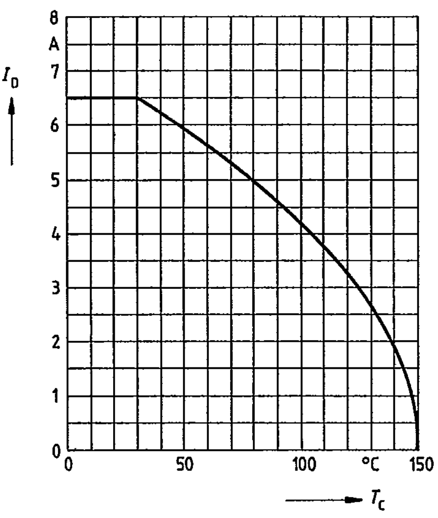
Gate threshold voltage $V_{GS(th)} = f(T_j)$
parameter: $V_{DS} = V_{GS}$, I_D = 1mA
(spread)



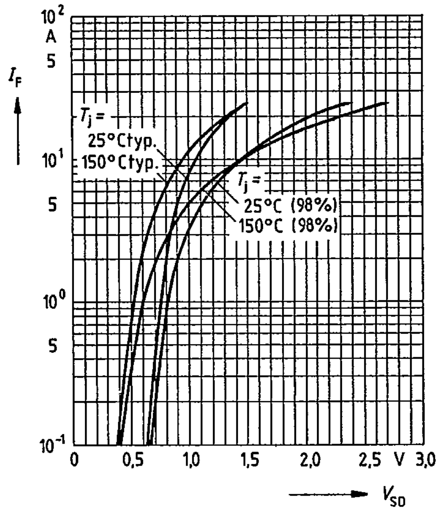
Typical capacitances $C = f(V_{DS})$
parameter: $V_{GS} = 0$, $f = 1\text{MHz}$



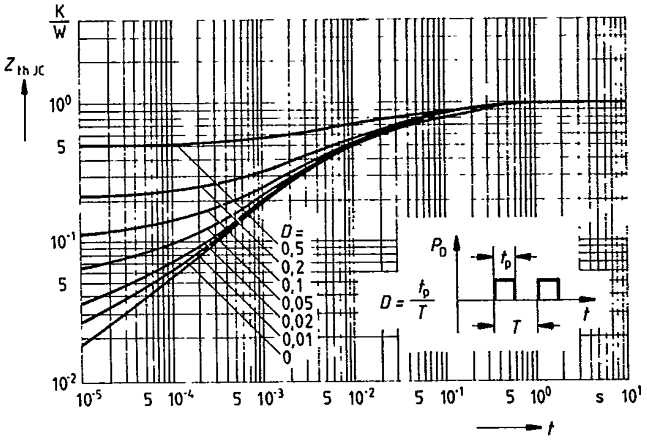
Continuous drain current $I_D = f(T_C)$
parameter: $V_{GS} \geq 10\text{V}$



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



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



Typical gate-charge $V_{GS} = f(Q_{Gate})$
parameter: $I_{D\,puls} = 9A$