——— SIEMENS AKTIENGESELLSCHAF ———

Main ratings

N-Channel

Drain-source voltage	V_{DS}	= 800 V
Continuous drain current	I_D	= 3,4 A
Drain-source on-resistance	$R_{DS(on)}$	= 3,0 Ω
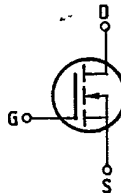
Description SIPMOS, N-channel, enhancement mode
Case Metal case 3 A 2 in accordance with DIN 41 872,
or TO 204 AA (TO 3) in accordance with JEDEC.
Approx. weight 12 g

Type	Ordering code
S BUZ 83 A	C67078-A1012-A3
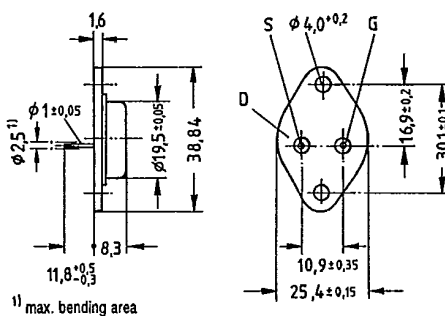
Dimensions in mm

Maximum ratings

Description	Symbols	Ratings	Units	Conditions
Drain-source voltage	V_{DS}	800	V	
Drain-gate voltage	V_{DGR}	800	V	$R_{GS} = 20$ kΩ
Continuous drain current	I_D	3,4	A	$T_C = 25$ °C
Pulsed drain current	I_{Dpuls}	11	A	$T_C = 25$ °C
Gate-source voltage	V_{GS}	±20	V	
Max. power dissipation	P_D	78	W	$T_C = 25$ °C
Operating and storage	T_j			
temperature range	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	$R_{th\,JC}$	≤1,6	K/W	
Chip – ambient	$R_{th\,JA}$	≤35	K/W	

520   S Preferred Type

BUZ 83 A

SIEMENS AKTIENGESELLSCHAF

Electrical characteristics
(at T_j = 25°C unless otherwise specified)

Description	Symbol	Characteristics			Unit	Conditions
		min.	typ.	max.		

Static ratings

Description	Symbol	min.	typ.	max.	Unit	Conditions
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	$R_{DS(on)}$	–	2,7	3,0	Ω	V_{GS} = 10V I_D = 1,7A

Dynamic ratings

Description	Symbol	min.	typ.	max.	Unit	Conditions
Forward transconductance	g_{fs}	1,0	1,8	–	S	V_{DS} = 25V 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 f = 1MHz
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 I_D = 2,3A V_{GS} = 10V R_{GS} = 50Ω
	t_r	–	40	60		
Turn-off time t_{off} (t_{off} = $t_{d(off)}$ + t_f)	$t_{d(off)}$	–	110	140		
	t_f	–	60	80		

Reverse diode

| Description	Symbol	min.	typ.	max.	Unit	Conditions
Continuous reverse drain current	I_{DR}	–	–	3,4	A	T_C = 25°C
Pulsed reverse drain current	I_{DRM}	–	–	13		
Diode forward on-voltage	V_{SD}	–	1,1	1,35	V	I_F = 2× I_{DR} V_{GS} = 0V, T_j = 25°C
Reverse recovery time	t_{rr}	–	1800	–	ns	T_j = 25°C
Reverse recovery charge	Q_{rr}	–	12	–	µC	I_F = I_{DR} $d_{iF/dt}$ = 100A/µs V_R = 100V

Power dissipation $P_D = f(T_C)$
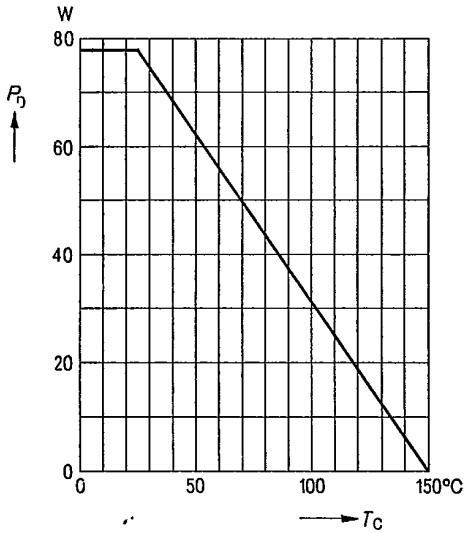
Typical output characteristics $I_D = f(V_{DS})$
parameter: 80 µs pulse test,
$T_j = 25°C$
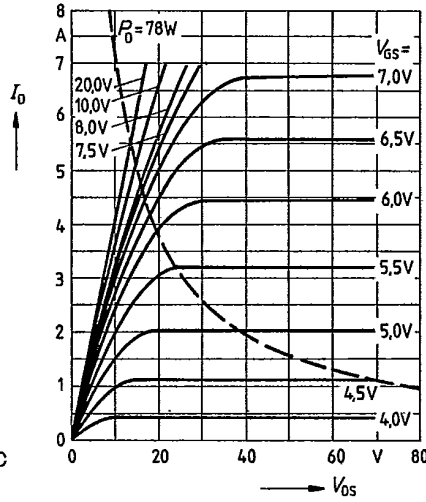
Safe operating area $I_D = f(V_{DS})$
parameter: $D = 0.01, T_C = 25°C$
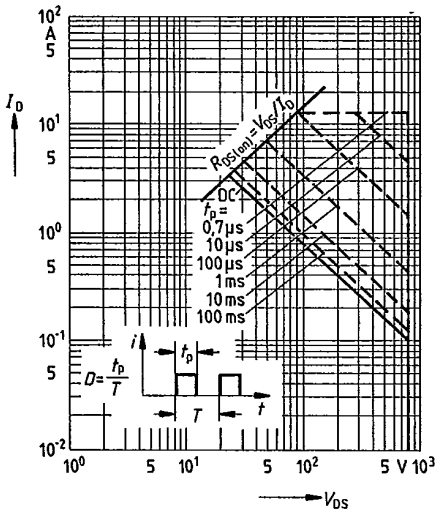
Typical transfer characteristic $I_D = f(V_{GS})$
parameter: 80 µs pulse test,
$V_{DS} = 25V, T_j = 25°C$

522   1104   B-07

BUZ 83 A

SIEMENS AKTIENGESELLSCHAF
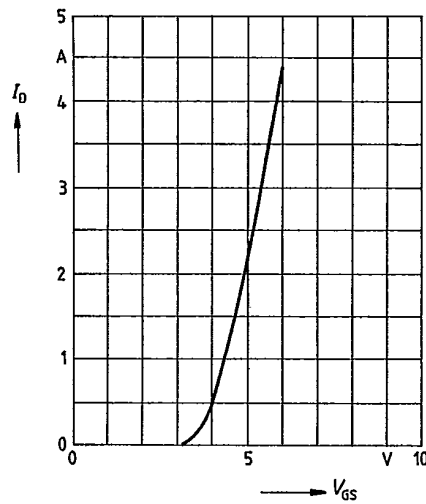
Typical drain-source on-state resistance
$R_{DS(on)} = f(I_D)$
parameter: V_{GS}; $T_j = 25°C$
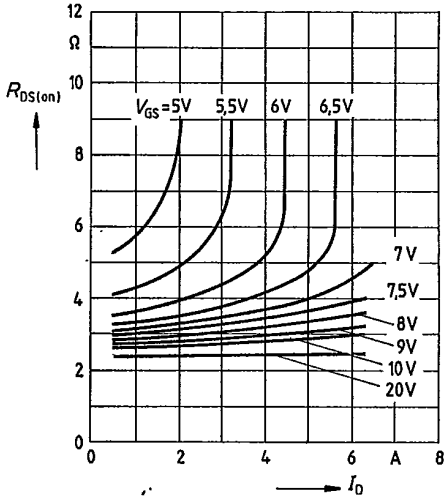
Drain-source on-state resistance
$R_{DS(on)} = f(T_j)$
parameter: $I_D = 1.7A$, $V_{GS} = 10V$
(spread)
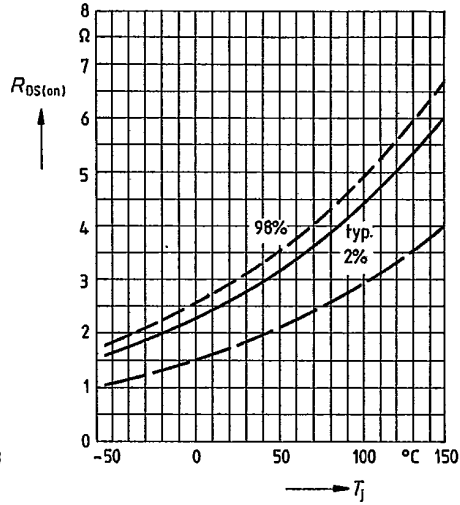
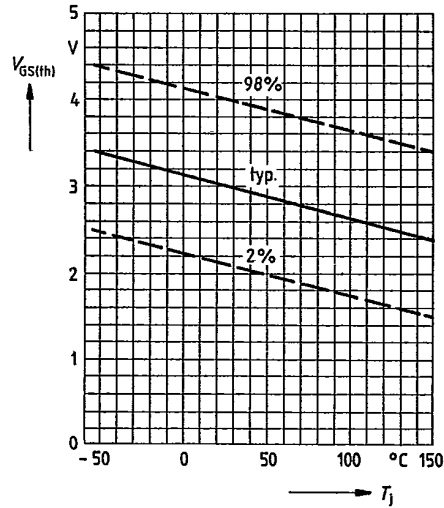**Typical transconductance** $g_{fs} = f(I_D)$
parameter: 80 µs pulse test,
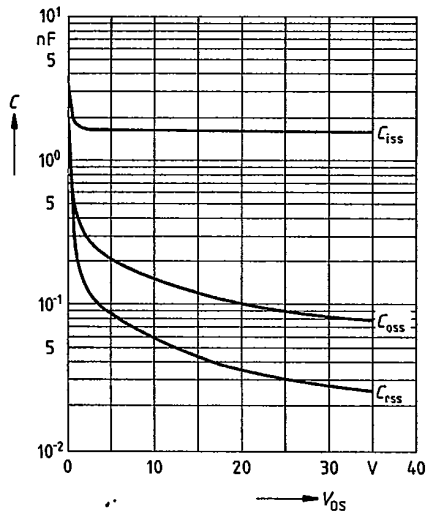$V_{DS} = 25V$, $T_j = 25°C$
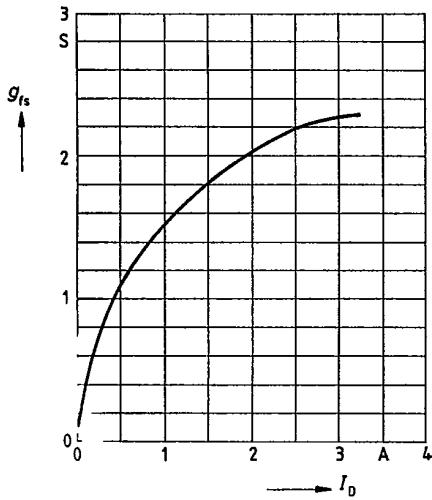
Gate threshold voltage $V_{GS(th)} = f(T_j)$
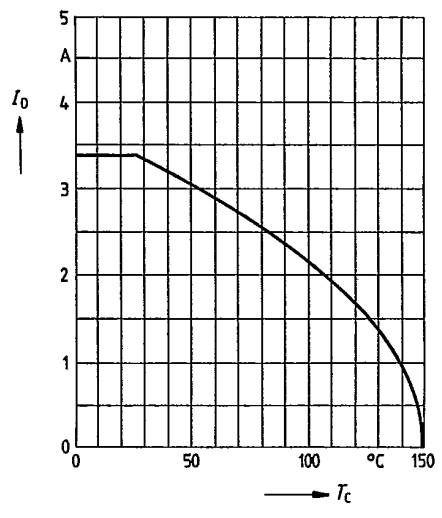parameter: $V_{DS} = V_{GS}$, $I_D = 1mA$
(spread)

523

1105   B-08

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

C_{iss}
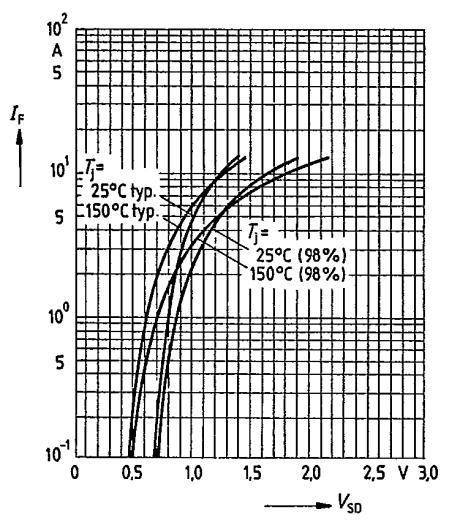
C_{oss}

C_{rss}

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

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

$T_j =$
25°C typ.
150°C typ.

$T_j =$
25°C (98%)
150°C (98%)

524

1106   B-09

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Transient thermal Impedance $Z_{thJC} = f(t)$
parameter: $D = t_p/T$
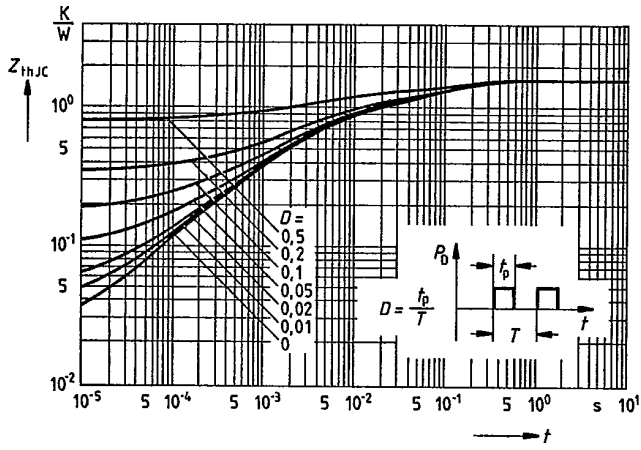
Typical gate-charge $V_{GS} = f(Q_{Gate})$
parameter: $I_{D\,puls} = 5A$