

88D D ■ 8235605 0014510 8 ■ SIEG

88D 14510 D T-39-11

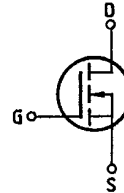
BUZ 23

SIEMENS AKTIENGESSELLSCHAFT

Main ratings

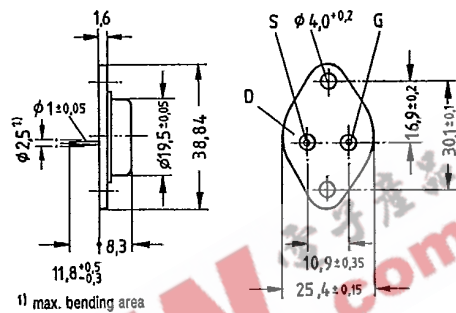
Drain-source voltage $V_{DS} = 100 \text{ V}$
 Continuous drain current $I_D = 10 \text{ A}$
 Drain-source on-resistance $R_{DS(on)} = 0,2 \Omega$

N-Channel



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 23	C67078-A1002-A2



Dimensions in mm

Maximum ratings

Description	Symbols	Ratings	Units	Conditions
Drain-source voltage	V_{DS}	100	V	
Drain-gate voltage	V_{DGR}	100	V	$R_{GS} = 20 \text{ k}\Omega$
Continuous drain current	I_D	10	A	$T_C = 85^\circ \text{C}$
Pulsed drain current	$I_{D\text{puls}}$	40	A	$T_C = 25^\circ \text{C}$
Gate-source voltage	V_{GS}	± 20	V	
Max. power dissipation	P_D	78	W	$T_C = 25^\circ \text{C}$
Operating and storage temperature range	T_I 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	$R_{th JC}$	$\leq 1,6$	K/W
Chip - ambient	$R_{th JA}$	≤ 35	K/W

220 Preferred Type

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A-13

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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	$V_{(BR) DSS}$	100	—	—	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	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $V_{DS} = 100V$ $V_{GS} = 0V$
Gate-source leakage current	I_{GSS}	—	10	100	nA	$V_{GS} = 20V$ $V_{DS} = 0V$
Drain-source on-resistance	$R_{DS(on)}$	—	0,15	0,2	Ω	$V_{GS} = 10V$ $I_D = 6A$

Dynamic ratings

Forward transconductance	g_{fs}	2,7	4,0	—	S	$V_{DS} = 25V$ $I_D = 6A$
Input capacitance	C_{iss}	—	1500	2000	pF	$V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1MHz$
Output capacitance	C_{oss}	—	300	500		
Reverse transfer capacitance	C_{rss}	—	80	140		
Turn-on time t_{on} ($t_{on} = t_{d(on)} + t_r$)	$t_{d(on)}$ t_r	— —	30 50	45 75	ns	$V_{CC} = 30V$ $I_D = 2,9A$ $V_{GS} = 10V$ $R_{GS} = 50\Omega$
Turn-off time t_{off} ($t_{off} = t_{d(off)} + t_f$)	$t_{d(off)}$ t_f	— —	110 60	140 80		

Reverse diode

Continuous reverse drain current	I_{DR}	—	—	10	A	$T_G = 25^\circ\text{C}$
Pulsed reverse drain current	I_{DRM}	—	—	40		
Diode forward on-voltage	V_{SD}	—	1,3	1,6	V	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V, T_j = 25^\circ\text{C}$
Reverse recovery time	t_{rr}	—	200	—	ns	$T_j = 25^\circ\text{C}$
Reverse recovery charge	Q_{rr}	—	1,6	—	μC	$I_F = I_{DR}$ $dI_F/dt = 100A/\mu s$ $V_R = 30V$

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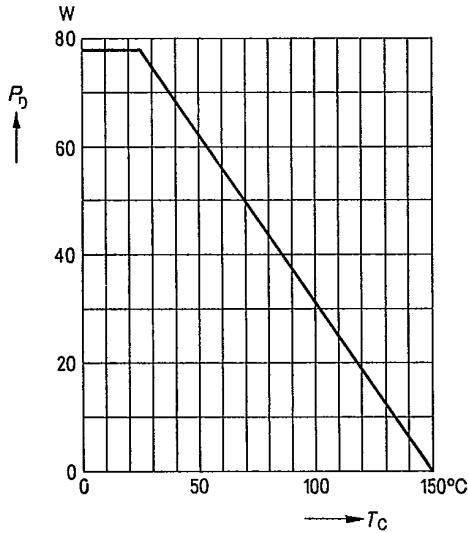
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88D D 8235605 0014512 1 SIEG
88D 14512 D T-39-11

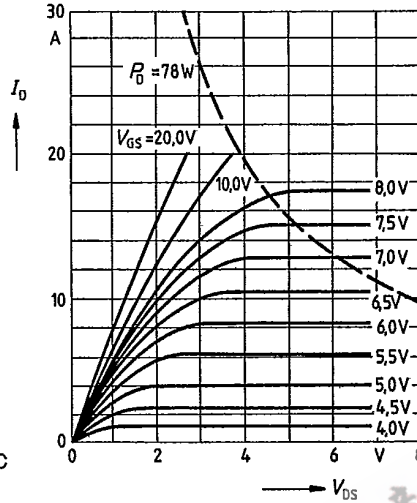
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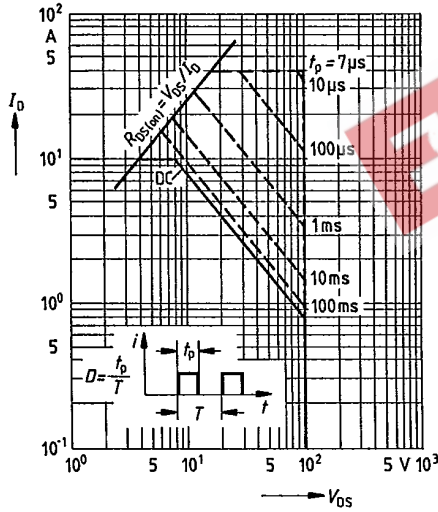
Power dissipation $P_D = f(T_C)$



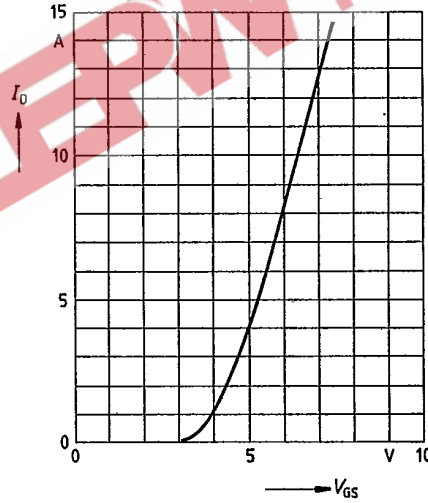
Typical output characteristics $I_D = f(V_{DS})$
parameter: 80 μ s pulse test,
 $T_j = 25^\circ\text{C}$



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 μ s pulse test,
 $V_{DS} = 25\text{V}$, $T_j = 25^\circ\text{C}$



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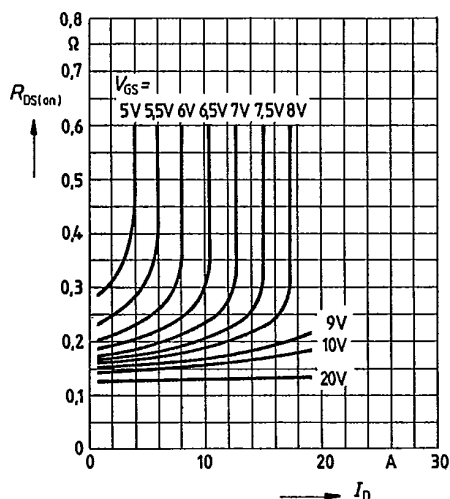
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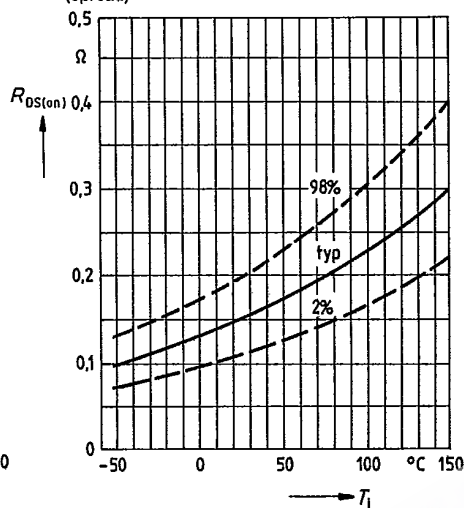
Typical drain-source on-state resistance

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



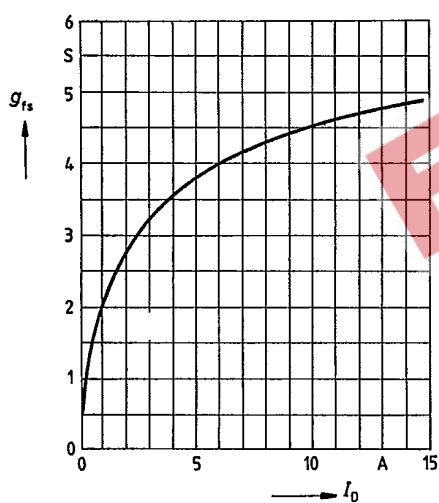
Drain-source on-state resistance

$R_{DS(on)} = f(T_J)$
parameter: $I_D = 6A$, $V_{GS} = 10V$
(spread)



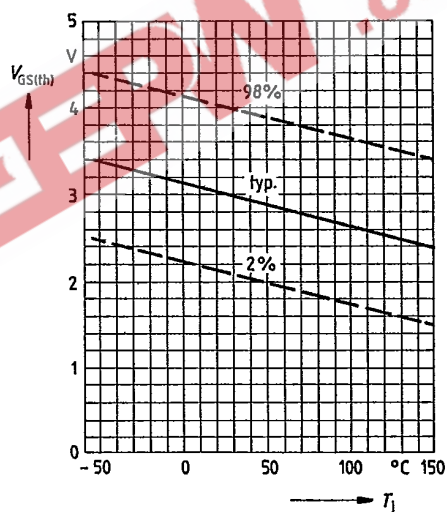
Typical transconductance $g_{fs} = f(I_D)$

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)



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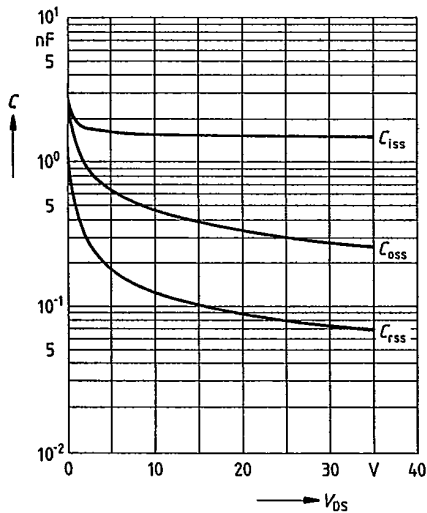
223

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88D 14514 D T-39-11

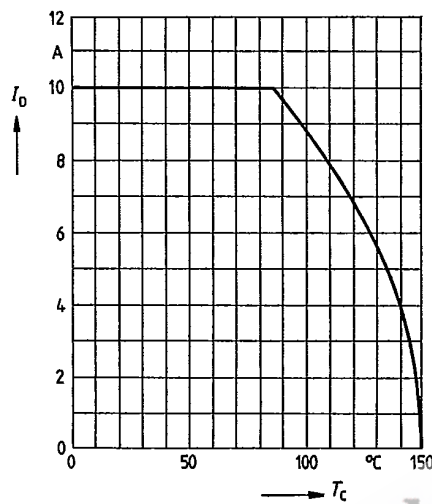
BUZ 23

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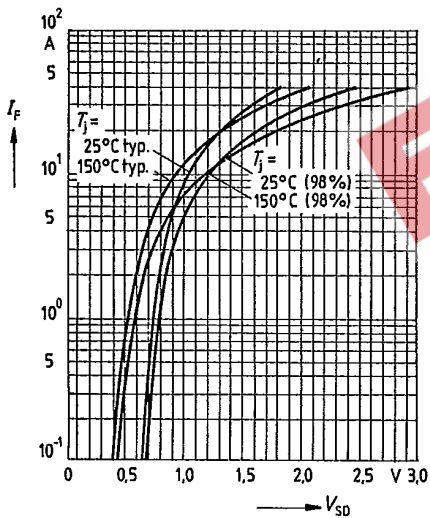
Typical capacitances $C = f(V_{DS})$
parameter: $V_{GS} = 0$, $f = 1\text{ MHz}$



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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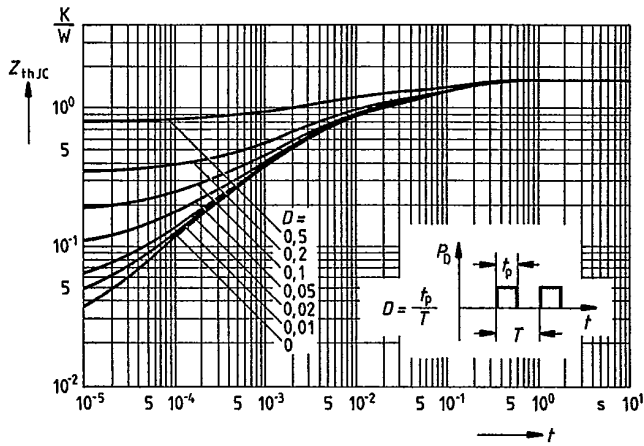
88D 14515 D T-39-11

BUZ 23

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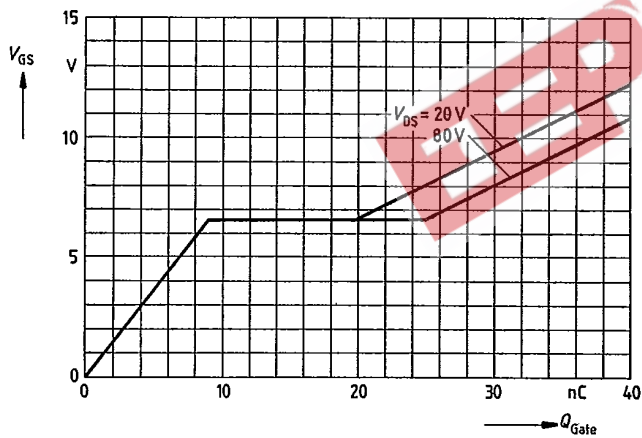
Transient thermal impedance $Z_{thJC} = f(t)$

parameter: $D = t_p/T$



Typical gate-charge $V_{GS} = f(Q_{Gate})$

parameter: $I_{D puls} = 18A$



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