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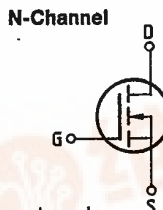
88D 14954 D T-39-13

BUZ 231

SIEMENS AKTIENGESSELLSCHAFT

Main ratings

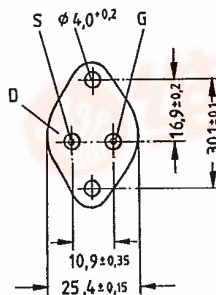
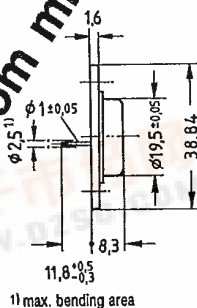
Drain-source voltage $V_{DS} = 1000 \text{ V}$
 Continuous drain current $I_D = 4,9 \text{ A}$
 Drain-source on-resistance $R_{DS(on)} = 2,6 \Omega$



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

Case Metal case 3A2 in accordance with DIN 41 872,
or TO 204 AA (TO 3) in accordance with JEDEC.
Approx. weight 12 g

Type	Ordering code
BUZ 231	C67078-A1106-A2



Dimensions in mm

Maximum ratings

Description	Symbols	Ratings	Units	Conditions
Drain-source voltage	V_{DS}	1000	V	
Drain-gate voltage	V_{DGR}	1000	V	$R_{GS} = 20 \text{ k}\Omega$
Continuous drain current	I_D	4,9	A	$T_C = 25^\circ \text{C}$
Pulsed drain current	I_{Dpul}	19	A	$T_C = 25^\circ \text{C}$
Gate-source voltage	V_{GS}	± 20	V	
Max. power dissipation	P_D	125	W	$T_C = 25^\circ \text{C}$
Operating and storage temperature range	T_T T_{stg}	$-55 \dots +150$ C	$^\circ \text{C}$ -	DIN 40040
DIN humidity category		55/150/56		DIN IEC 68-1
IEC climatic category				

Thermal resistance

Chip – case	R_{thJC}	$\leq 1,0$	K/W
Chip – ambient	R_{thJA}	≤ 35	K/W

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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	$V_{(BR) DSS}$	1000	—	—	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	$T_j = 25^\circ\text{C}$ $T_j = 125^\circ\text{C}$ $V_{DS} = 1000V$ $V_{GS} = 0V$
Gate-source leakage current	I_{GSS}	—	10	100	nA	$V_{GS} = 20V$ $V_{DS} = 0V$
Drain-source on-resistance	$R_{DS(on)}$	—	2,3	2,6	Ω	$V_{GS} = 10V$ $I_D = 3,5A$

Dynamic ratings

Forward transconductance	g_{fs}	1,4	4,0	—	S	$V_{DS} = 25V$ $I_D = 3,5A$
Input capacitance	C_{iss}	—	3,9	5,0	nF	$V_{GS} = 0V$
Output capacitance	C_{oss}	—	180	300	pF	$V_{DS} = 25V$ $f = 1MHz$
Reverse transfer capacitance	C_{rss}	—	70	120		
Turn-on time t_{on} ($t_{on} = t_d(on) + t_r$)	$t_{d(on)}$	—	60	90	ns	$V_{CC} = 30V$ $I_D = 2,4A$ $V_{GS} = 10V$ $R_{GS} = 50\Omega$
	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}	—	—	4,9	A	$T_C = 25^\circ\text{C}$
Pulsed reverse drain current	I_{DRM}	—	—	19		
Diode forward on-voltage	V_{SD}	—	1,25	1,6	V	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V, T_j = 25^\circ\text{C}$
Reverse recovery time	t_{rr}	—	180 220	250 300	ns	$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$ $I_F = I_{DR}$ $di_F/dt = 100A/\mu s$ $V_R = 100V$
Reverse recovery charge	Q_{rr}	—	0,65 2,6	1,2 5,0	μC	$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$
Repetitive peak reverse current	I_{RRM}	—	—	—	A	$T_j = 25^\circ\text{C}$ $T_j = 150^\circ\text{C}$

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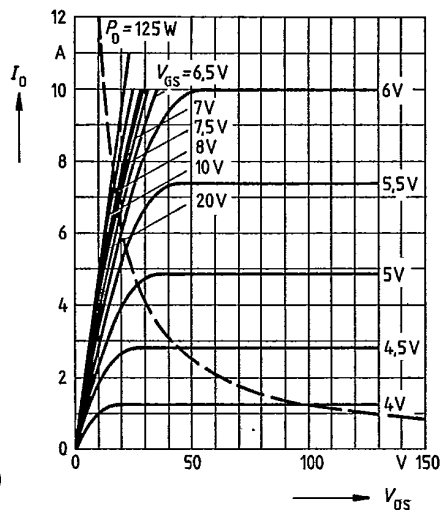
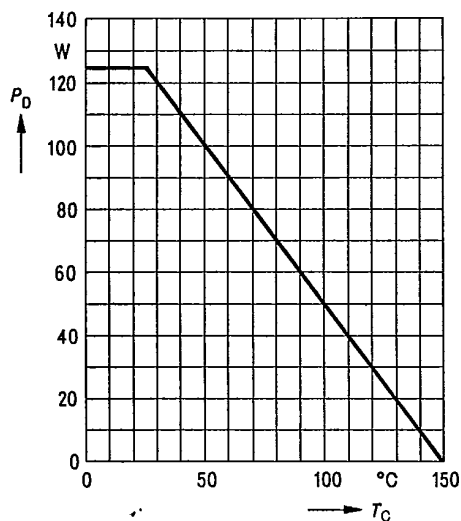
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Power dissipation $P_D = f(T_C)$

Typical output characteristics $I_D = f(V_{DS})$

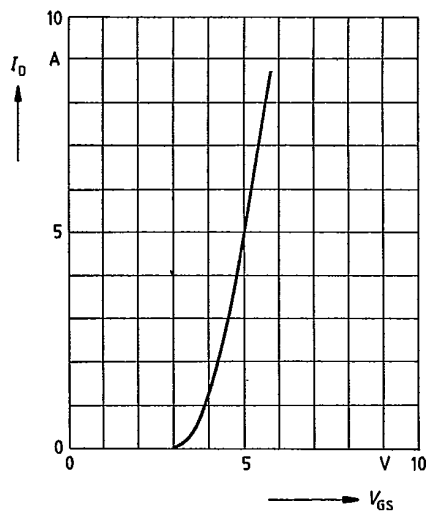
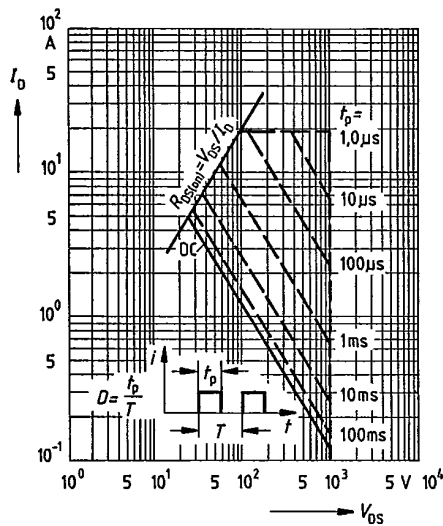
parameter: 80 μ s pulse test,
 $T_J = 25^\circ\text{C}$



Safe operating area $I_D = f(V_{GS})$
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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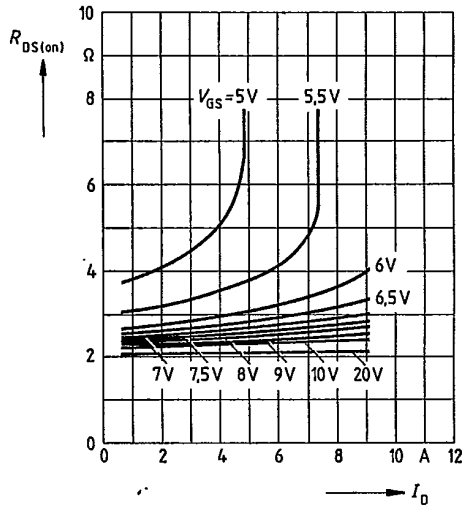
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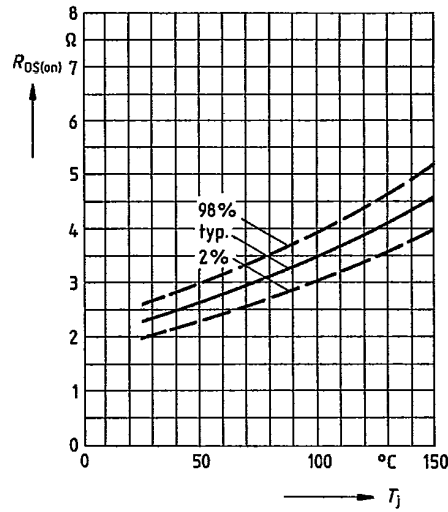
Typical drain-source on-state resistance

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



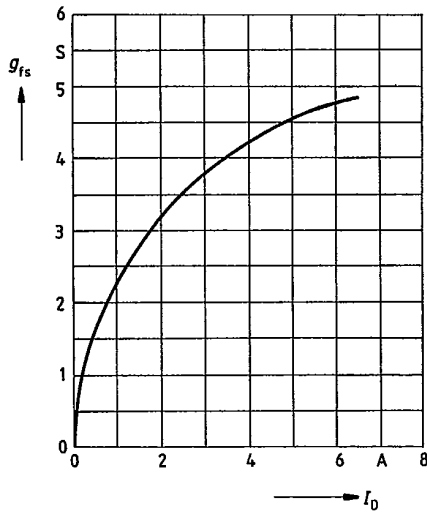
Drain-source on-state resistance

$R_{DS(on)} = f(T_j)$
parameter: $I_D = 3.5A$, $V_{GS} = 10V$
(spread)



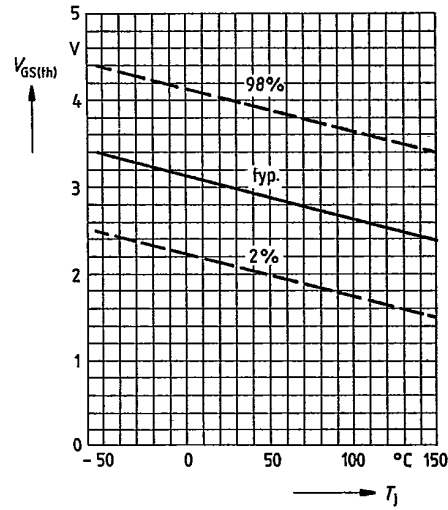
Typical transconductance $g_{fs} = f(I_D)$

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)



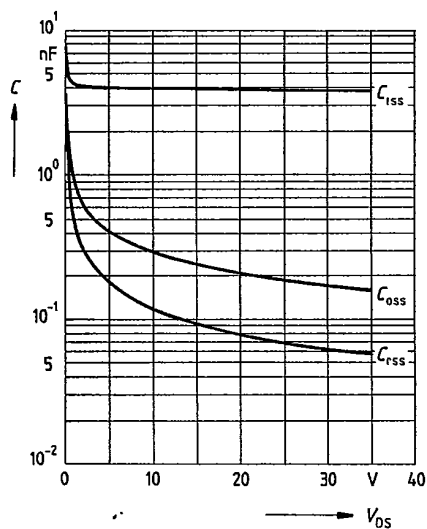
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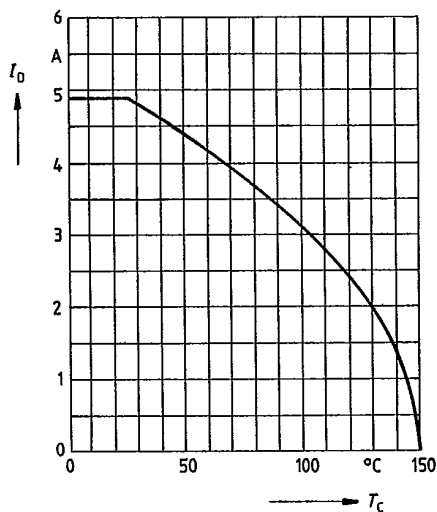
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Typical capacitances $C = f(V_{DS})$
parameter: $V_{GS} = 0$, $f = 1\text{MHz}$

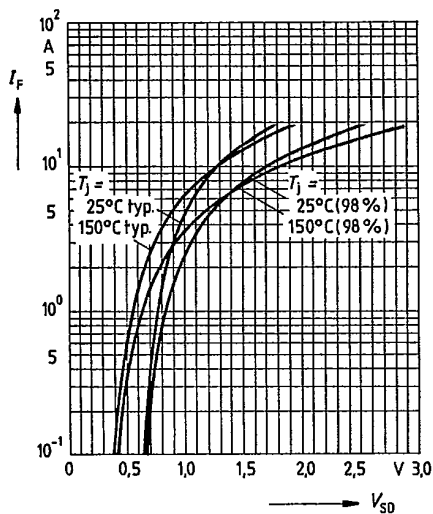


Continuous drain current $I_D = f(T_C)$
parameter: $V_{GS} \geq 10\text{V}$



Forward characteristic of reverse diode

$I_F = f(V_{SD})$
parameter: T_J , $t_p = 80 \mu\text{s}$
(spread)



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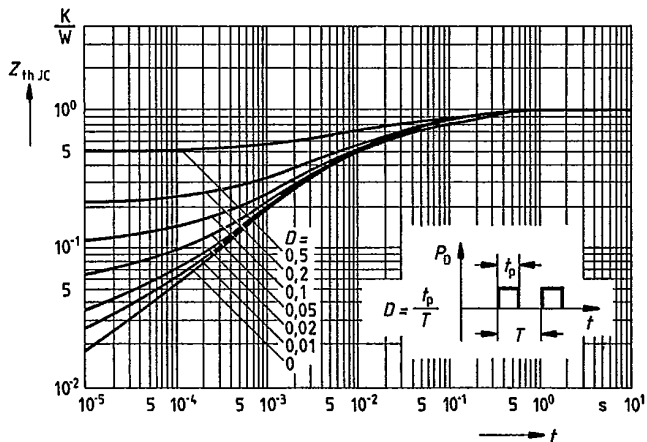
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Transient thermal impedance $Z_{thJC} = f(t)$
parameter: $D = t_p / T$



Typical gate-charge $V_{GS} = f(Q_{Gate})$
parameter: $I_{D puls} = 8A$

