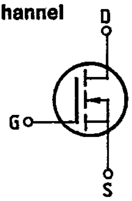
Main ratings

Drain-source voltage V_{DS} = **500 V**
Continuous drain current I_D = **3,9 A**
Drain-source on-resistance $R_{DS(on)}$ = **2,0 Ω**

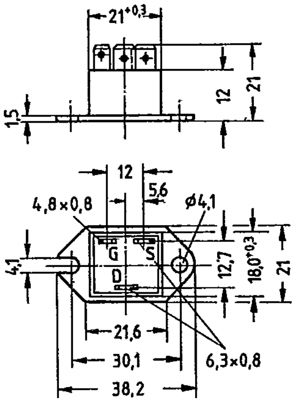
N-Channel



Description SIPMOS, N-channel, enhancement mode
Case Plastic package TO 238 AA with insulated metal base plate in accordance with JEDEC, compatible with TO 3; AMP plug-in connections.
Approx. weight 21 g

Type	Ordering code
BUZ 47 A	C67078-A1604-A2

Not for new design



Dimensions in mm

Maximum ratings

Description	Symbols	Ratings	Units	Conditions
Drain-source voltage	V_{DS}	500	V	
Drain-gate voltage	V_{DGR}	500	V	R_{GS} = 20 kΩ
Continuous drain current	I_D	3,9	A	T_C = 30 °C
Pulsed drain current	I_{Dpuls}	15	A	T_C = 25 °C
Gate-source voltage	V_{GS}	±20	V	
Max. power dissipation	P_D	70	W	T_C = 25 °C
Operating and storage	T_j			
temperature range	T_{stg}	−40 … +150	°C	
Isolation test voltage	V_{is}	3500	Vdc[1]	t = 1 min
DIN humidity category		F	–	DIN 40040
IEC climatic category		40/150/56		DIN IEC 68-1
Thermal resistance				
Chip – case	$R_{th\,JC}$	≤1,78	K/W	

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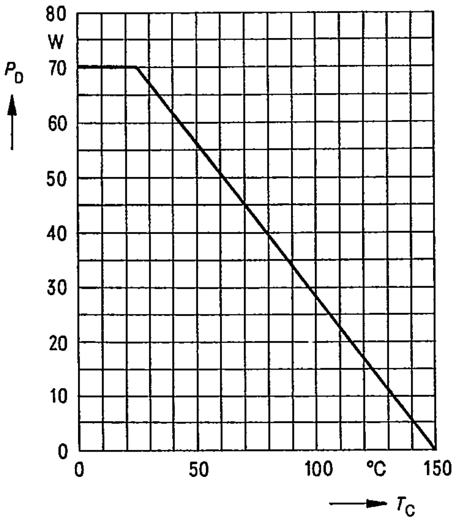
[1] Isolation test voltage between drain and base plate referred to standard climate 23/50 in accordance with DIN 50014.

Electrical characteristics

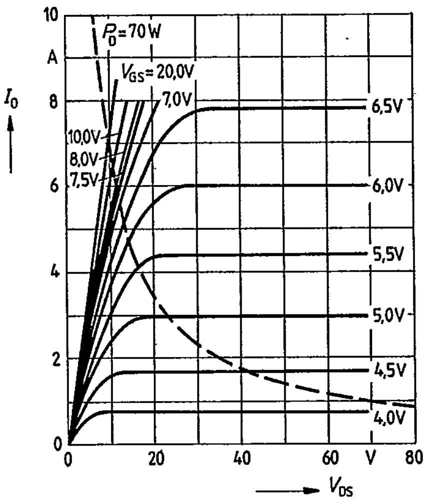
(at T_j = 25 °C unless otherwise specified)

Description	Symbol	Characteristics			Unit	Conditions
		min.	typ.	max.		
Static ratings						
Drain-source breakdown voltage	$V_{(BR)DSS}$	500	–	–	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} = 500V V_{GS} = 0V
Gate-source leakage current	I_{GSS}	–	10	100	nA	V_{GS} = 20V V_{DS} = 0V
Drain-source on-resistance	$R_{DS(on)}$	–	1,6	2,0	Ω	V_{GS} = 10V I_D = 2,5A
Dynamic ratings						
Forward transconductance	g_{fs}	1,5	2,5	–	S	V_{DS} = 25V I_D = 2,5A
Input capacitance	C_{iss}	–	1,5	2,0	nF	V_{GS} = 0V V_{DS} = 25V f = 1MHz
Output capacitance	C_{oss}	–	110	170	pF	
Reverse transfer capacitance	C_{rss}	–	40	70		
Turn-on time t_{on} ($t_{on} = t_{d(on)} + t_r$)	$t_{d(on)}$	–	30	45	ns	V_{CC} = 30V I_D = 2,5A 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	–	50	65		
Reverse diode						
Continuous reverse drain current	I_{DR}	–	–	3,9	A	T_C = 25 °C
Pulsed reverse drain current	I_{DRM}	–	–	15		
Diode forward on-voltage	V_{SD}	–	1,1	1,4	V	I_F = 2 × I_{DR} V_{GS} = 0V, T_j = 25 °C
Reverse recovery time	t_{rr}	–	1,2	–	ns	T_j = 25 °C I_F = I_{DR} $d_{iF/dt}$ = 100A/µs V_R = 100V
Reverse recovery charge	Q_{rr}	–	6	–	µC	

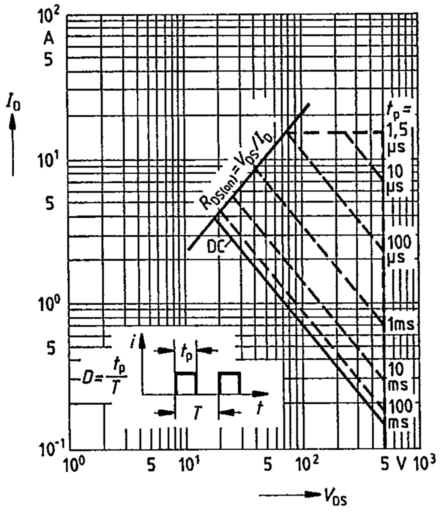
Power dissipation $P_D = f(T_C)$



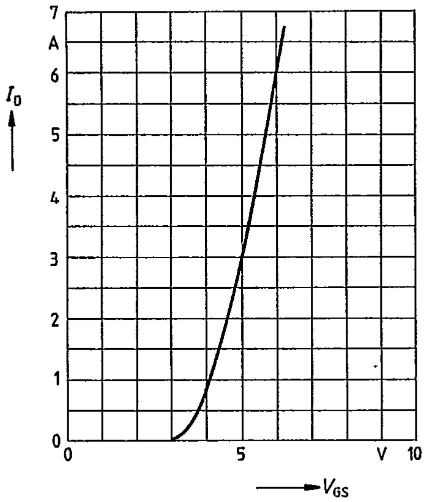
Typical output characteristics $I_D = f(V_{DS})$
parameter: 80 µs pulse test,
$T_j = 25°C$



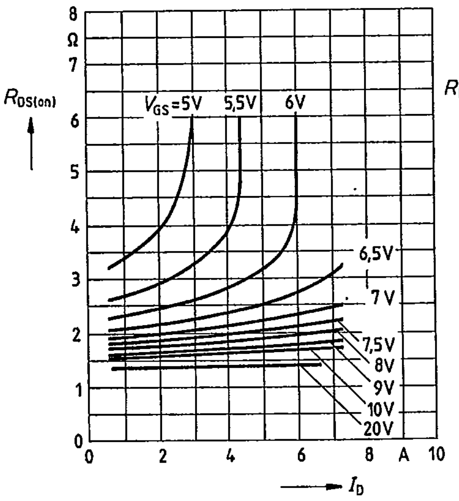
Safe operating area $I_D = f(V_{DS})$
parameter: $D = 0.01$, $T_C = 25°C$



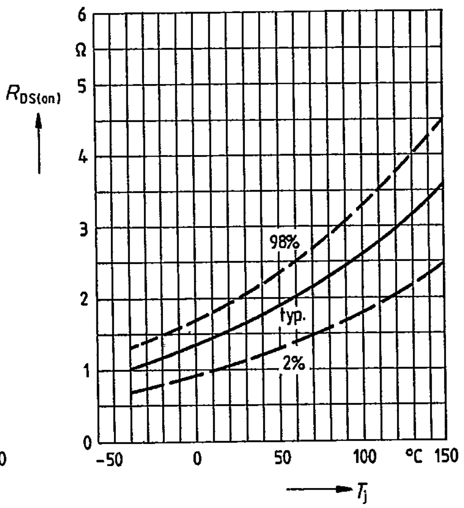
Typical transfer characteristic $I_D = f(V_{GS})$
parameter: 80 µs pulse test,
$V_{DS} = 25V$, $T_j = 25°C$



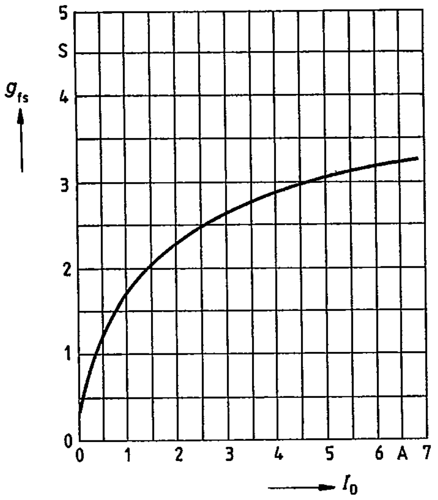
Typical drain-source on-state resistance
$R_{DS\,(on)} = f(I_D)$
parameter: V_{GS}; $T_j = 25\,°C$



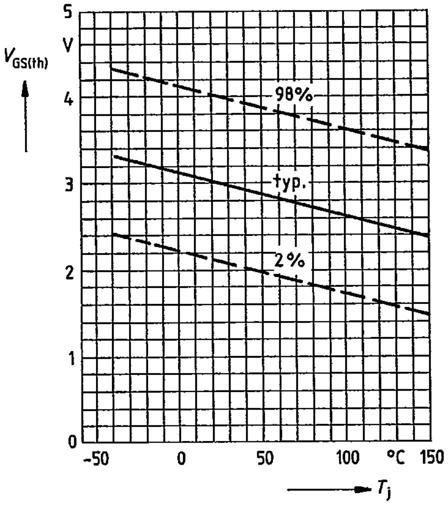
Drain-source on-state resistance
$R_{DS\,(on)} = f(T_j)$
parameter: $I_D = 2{,}5\,A$, $V_{GS} = 10\,V$
(spread)



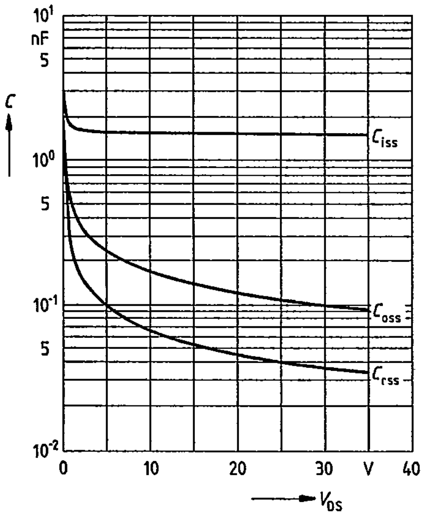
Typical transconductance $g_{fs} = f(I_D)$
parameter: 80 µs pulse test,
$V_{DS} = 25\,V$, $T_j = 25\,°C$



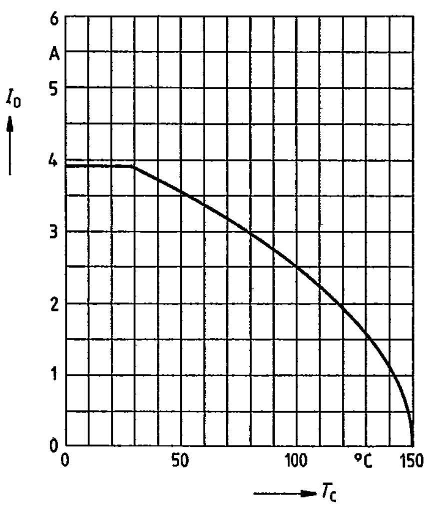
Gate threshold voltage $V_{GS(th)} = f(T_j)$
parameter: $V_{DS} = V_{GS}$, $I_D = 1\,mA$
(spread)



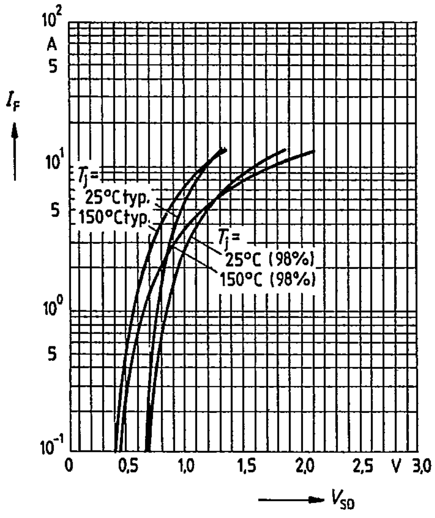
Typical capacitances $C = f(V_{DS})$
parameter: $V_{GS} = 0$, $f = 1\text{MHz}$



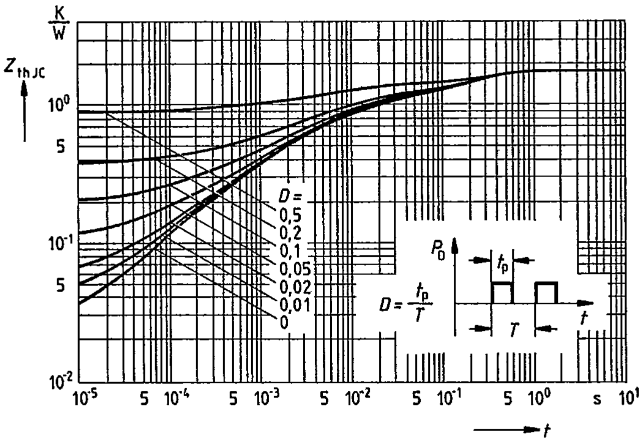
Continuous drain current $I_D = f(T_C)$
parameter: $V_{GS} \geq 10\text{V}$



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



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



Typical gate-charge $V_{GS} = f(Q_{Gate})$
parameter: $I_{D\,puls} = 6{,}8A$