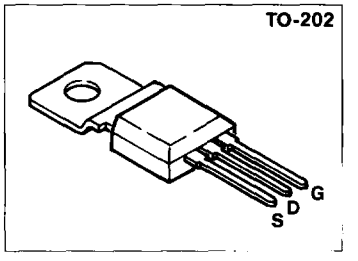
SIEMENS

SIPMOS® Small-Signal Transistor — BSS 95

V_{DS} = 240 V
I_D = 0.8 A
$R_{DS(on)}$ = 6.0 Ω

- N channel
- Enhancement mode
- Package: TO-202 [1])



Type	Ordering code for version in bulk
BSS 95	Q62702-S461

Maximum Ratings

Parameter	Symbol	Values	Unit
Drain-source voltage	V_{DS}	240	V
Drain-gate voltage, R_{GS} = 20 kΩ	V_{DGR}	240	
Gate-source voltage	V_{GS}	± 10	
Gate-source peak voltage, aperiodic	V_{gs}	± 20	
Continuous drain current, T_C = 35 °C	I_D	0.8	A
Pulsed drain current, T_C = 25 °C	$I_{D\,puls}$	3.2	
Operating and storage temperature range	T_j T_{stg}	 – 55 ... + 150	°C
Thermal resistance chip - ambient (without heat sink) chip - case	 R_{thJA} R_{thJC}	 ≤ 65 ≤ 15	K/W
Max. power dissipation, T_C = 25 °C	P_{tot}	8.3	W
DIN humidity category, DIN 40040	–	E	–
IEC climatic category, DIN IEC 68-1	–	55/150/56	

[1]) See chapter Package Outlines.

Electrical Characteristics
at $T_j = 25$ °C, unless otherwise specified.

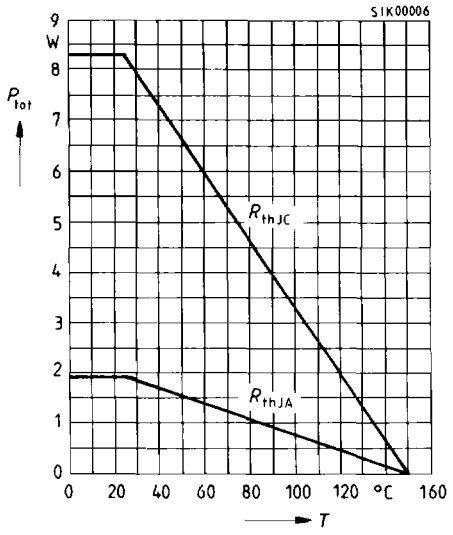
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Static characteristics					
Drain-source breakdown voltage $V_{GS} = 0$, $I_D = 0.25$ mA	$V_{(BR)DSS}$	240	–	–	V
Gate threshold voltage $V_{GS} = V_{DS}$, $I_D = 1$ mA	$V_{GS(th)}$	0.8	1.5	2.0	
Zero gate voltage drain current $V_{DS} = 240$ V, $V_{GS} = 0$ $T_j = 25$ °C $T_j = 125$ °C	I_{DSS}	– –	4 8	60 200	µA
$V_{DS} = 60$ V, $V_{GS} = 0$ $T_j = 25$ °C		–	–	200	nA
Gate-source leakage current $V_{GS} = 20$ V, $V_{DS} = 0$	I_{GSS}	–	10	100	nA
Drain-source on-resistance $V_{GS} = 10$ V, $I_D = 0.5$ A $V_{GS} = 4.5$ V, $I_D = 0.5$ A	$R_{DS(on)}$	– –	4.0 6.4	6.0 10.0	Ω
Dynamic characteristics					
Forward transconductance $V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$, $I_D = 0.5$ A	g_{fs}	0.14	0.38	–	S
Input capacitance $V_{GS} = 0$, $V_{DS} = 25$ V, $f = 1$ MHz	C_{iss}	–	90	140	pF
Output capacitance $V_{GS} = 0$, $V_{DS} = 25$ V, $f = 1$ MHz	C_{oss}	–	20	30	
Reverse transfer capacitance $V_{GS} = 0$, $V_{DS} = 25$ V, $f = 1$ MHz	C_{rss}	–	6	9	
Turn-on time t_{on}, ($t_{on} = t_{d(on)} + t_r$) $V_{CC} = 30$ V, $V_{GS} = 10$ V, $R_{GS} = 50$ Ω, $I_D = 0.28$ A	$t_{d(on)}$	–	5	8	ns
	t_r	–	8	12	
Turn-off time t_{off}, ($t_{off} = t_{d(off)} + t_f$) $V_{CC} = 30$ V, $V_{GS} = 10$ V, $R_{GS} = 50$ Ω, $I_D = 0.28$ A	$t_{d(off)}$	–	25	30	
	t_f	–	22	28	

Electrical Characteristics (continued)
at T_j = 25 °C, unless otherwise specified.

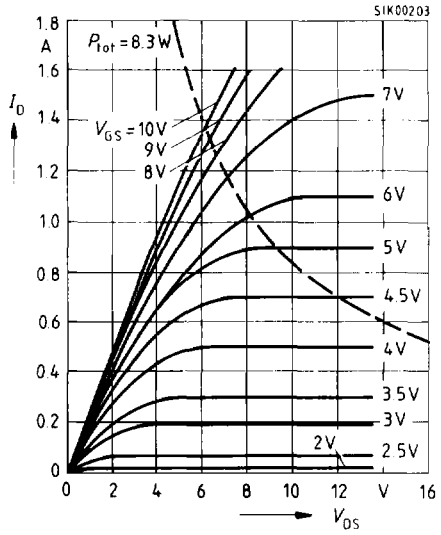
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Reverse Diode					
Continuous reverse drain current T_C = 25 °C	I_S	–	–	0.8	A
Pulsed reverse drain current T_C = 25 °C	I_{SM}	–	–	3.2	
Diode forward on-voltage I_F = 1.6 A, V_{GS} = 0	V_{SD}	–	1.05	1.4	V

Characteristics at $T_j = 25$ °C, unless otherwise specified.

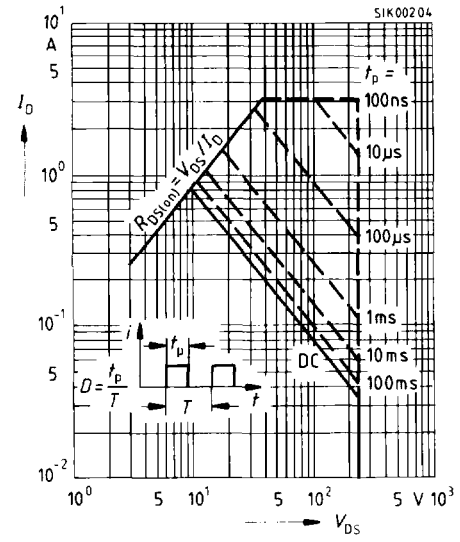
Total power dissipation $P_{tot} = f(T)$



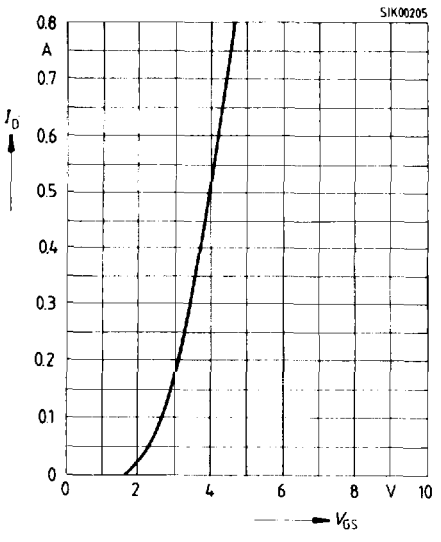
Typ. output characteristics $I_D = f(V_{DS})$
parameter: $t_p = 80$ µs



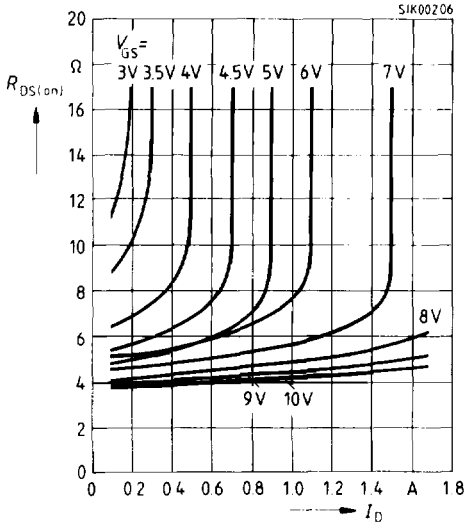
Safe operating area $I_D = f(V_{DS})$
parameter: $D = 0.01$, $T_C = 25$ °C



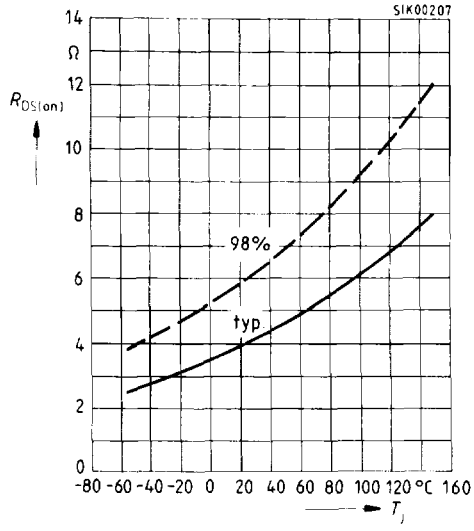
Typ. transfer characteristics $I_D = f(V_{GS})$
parameter: $t_p = 80$ µs, $V_{DS} = 25$ V



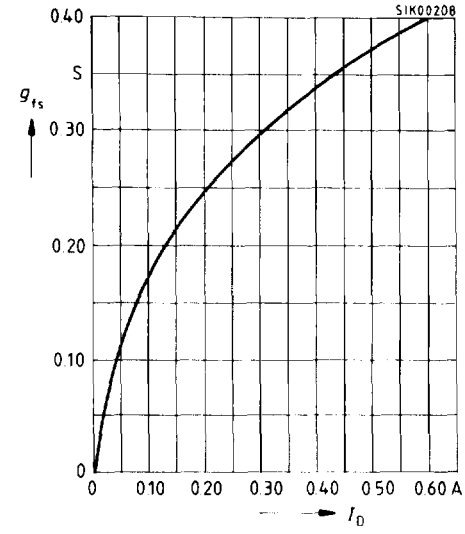
Typ. drain-source on-resistance
$R_{DS(on)} = f(I_D)$
parameter: V_{GS}



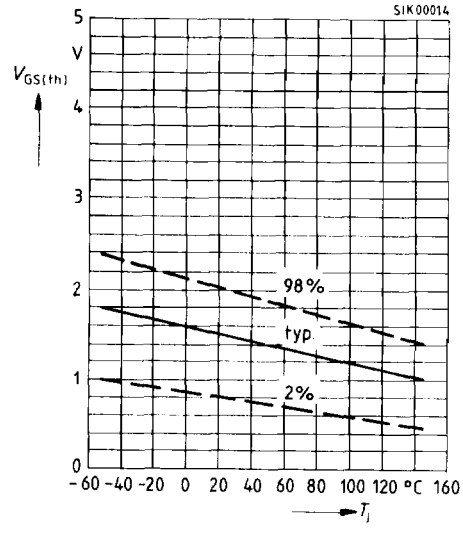
Drain-source on-resistance
$R_{DS(on)} = f(T_j)$
parameter: I_D = 0.5 A, V_{GS} = 10 V, (spread)



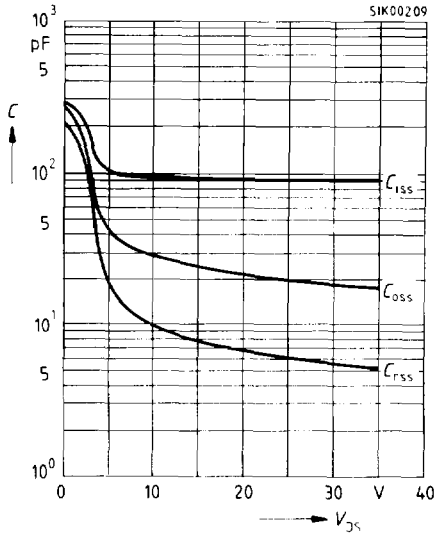
Typ. forward transconductance $g_{fs} = f(I_D)$
parameter: $V_{DS} \geq 2 \times I_D \times R_{DS(on)max.}$, t_p = 80 µs



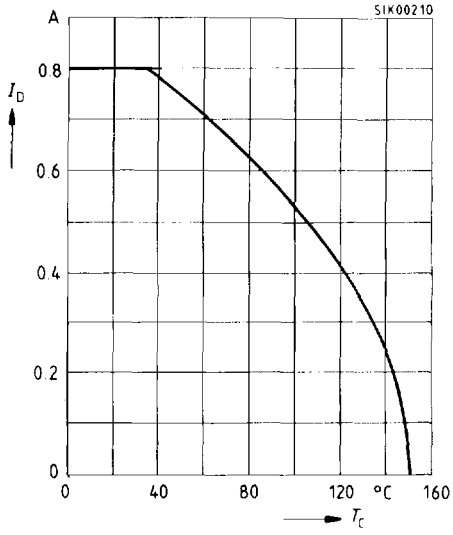
Gate threshold voltage $V_{GS(th)} = f(T_j)$
parameter: $V_{DS} = V_{GS}$, I_D = 1 mA, (spread)



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



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



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