

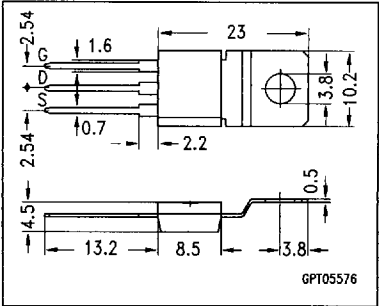
$V_{DS} = 200 \text{ V}$

$I_D = 1.5 \text{ A}$

$R_{DS(on)} = 2.0 \text{ } \Omega$

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

Not for new design!



Type	Ordering code for version in bulk
■ BSS 97	Q 62702-S463

Maximum Ratings

Parameter	Symbol	Values	Unit
Drain-source voltage	V_{DS}	200	V
Drain-gate voltage, $R_{GS} = 20 \text{ k}\Omega$	V_{DGR}	200	
Gate-source voltage	V_{GS}	± 14	
Gate-source peak voltage	V_{gs}	± 20	
Continuous drain current, $T_A = 28 \text{ }^\circ\text{C}$	I_D	1.5	A
Pulsed drain current, $T_A = 25 \text{ }^\circ\text{C}$	$I_{D \text{ puls}}$	6.0	
Max. power dissipation, $T_A = 25 \text{ }^\circ\text{C}$	P_{tot}	10	W
Operating and storage temperature range	T_j, T_{stg}	$-55 \dots +150$	$^\circ\text{C}$
Thermal resistance, chip-ambient (without heat sink), chip-case	R_{thJA} R_{thJC}	≤ 65 ≤ 12.5	K/W
DIN humidity category, DIN 40 040	—	E	
IEC climatic category, DIN IEC 68-1	—	55/150/56	—

¹⁾ See chapter Package Outlines.

Electrical Characteristics

at $T_j = 25\text{ }^{\circ}\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

Static Characteristics

Drain-source breakdown voltage $V_{GS} = 0, I_D = 0.25\text{ mA}$	$V_{(BR)DSS}$	200	–	–	V
Gate threshold voltage $V_{GS} = V_{DS}, I_D = 1\text{ mA}$	$V_{GS(th)}$	0.8	1.2	2.8	
Zero gate voltage drain current $V_{DS} = 200\text{ V}, V_{GS} = 0$ $T_j = 25\text{ }^{\circ}\text{C}$ $T_j = 125\text{ }^{\circ}\text{C}$	I_{DSS}	–	0.1	1.0	μA
		–	8	50	
$V_{DS} = 60\text{ V}, V_{GS} = 0$ $T_j = 25\text{ }^{\circ}\text{C}$		–	–	100	nA
Gate-source leakage current $V_{GS} = 20\text{ V}, V_{DS} = 0$	I_{GSS}	–	10	100	nA
Drain-source on-resistance $V_{GS} = 10\text{ V}, I_D = 1.0\text{ A}$	$R_{DS(on)}$	–	1.6	2.0	Ω

Dynamic Characteristics

Forward transconductance $V_{DS} \geq 2 \times I_D \times R_{DS(on)max}, I_D = 1.0\text{ A}$	g_{fs}	0.5	1.25	–	S
Input capacitance $V_{GS} = 0, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$	C_{iss}	–	300	400	pF
Output capacitance $V_{GS} = 0, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$	C_{oss}	–	40	60	
Reverse transfer capacitance $V_{GS} = 0, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$	C_{rss}	–	20	30	
Turn-on time t_{on} , ($t_{on} = t_{d(on)} + t_r$) $V_{DD} = 30\text{ V}, V_{GS} = 10\text{ V}, R_{GS} = 50\text{ }\Omega, I_D = 0.29\text{ A}$	$t_{d(on)}$	–	8	12	ns
	t_r	–	10	15	
Turn-off time t_{off} , ($t_{off} = t_{d(off)} + t_f$) $V_{DD} = 30\text{ V}, V_{GS} = 10\text{ V}, R_{GS} = 50\text{ }\Omega, I_D = 0.29\text{ A}$	$t_{d(off)}$	–	120	160	
	t_f	–	50	70	

Electrical Characteristics (cont'd)

at $T_j = 25\text{ }^{\circ}\text{C}$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

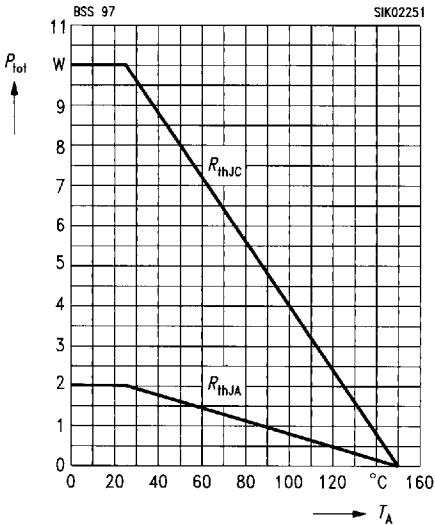
Reverse Diode

Continuous reverse drain current $T_A = 25\text{ }^{\circ}\text{C}$	I_S	—	—	1.5	A
Pulsed reverse drain current $T_A = 25\text{ }^{\circ}\text{C}$	I_{SM}	—	—	6.0	
Diode forward on-voltage $I_F = 3.0\text{ A}$, $V_{GS} = 0$	V_{SD}	—	1.05	1.8	V

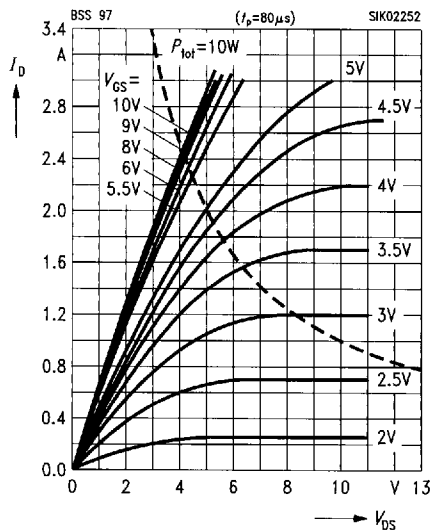
Characteristics

at $T_j = 25\text{ }^{\circ}\text{C}$, unless otherwise specified.

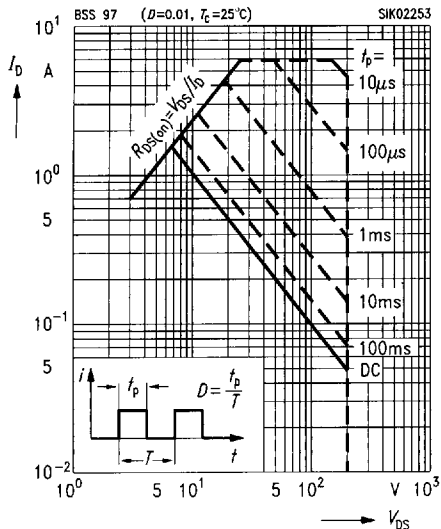
Total power dissipation $P_{tot} = f(T_A)$



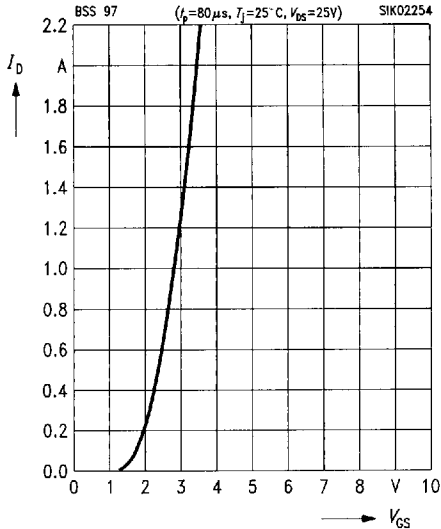
Typ. output characteristics $I_D = f(V_{DS})$
parameter: $t_p = 80\text{ }\mu\text{s}$



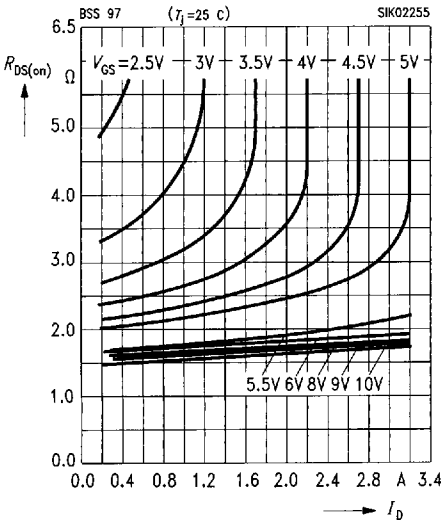
Safe operating area $I_D = f(V_{DS})$
parameter: $D = 0.01$, $T_C = 25\text{ }^\circ\text{C}$



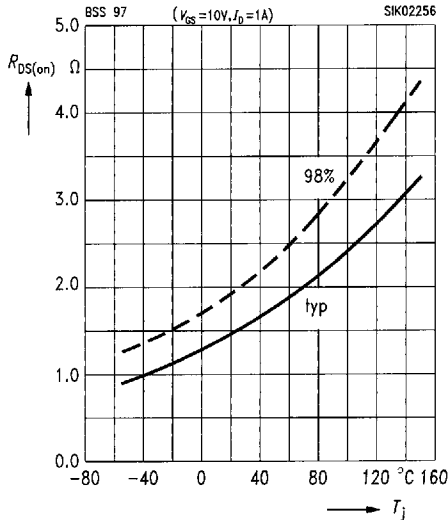
Typ. transfer characteristics $I_D = f(V_{GS})$
parameter: $t_p = 80\text{ }\mu\text{s}$, $V_{DS} = 25\text{ V}$



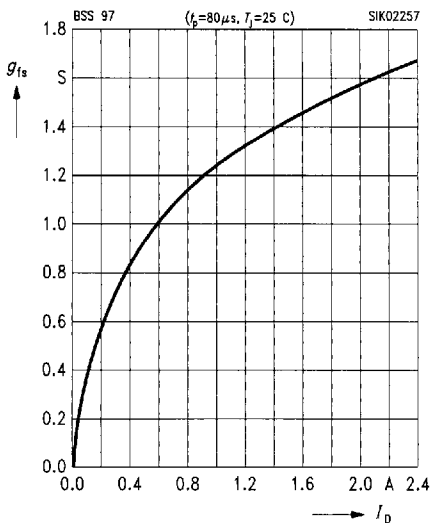
Typ. drain-source on-resistance
 $R_{DS(on)} = f(I_D)$
parameter: V_{GS}



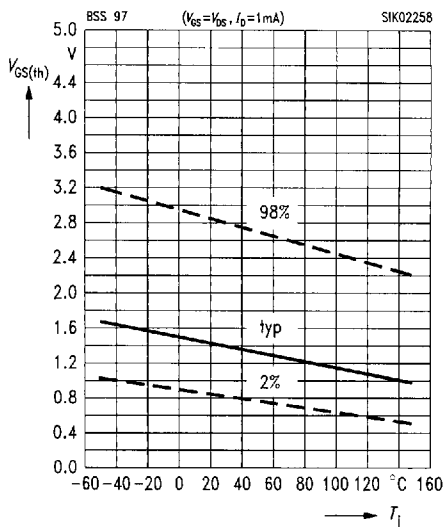
Drain-source on-resistance
 $R_{DS(on)} = f(T_j)$
parameter: $I_D = 1.0\text{ A}$, $V_{GS} = 10\text{ V}$, (spread)



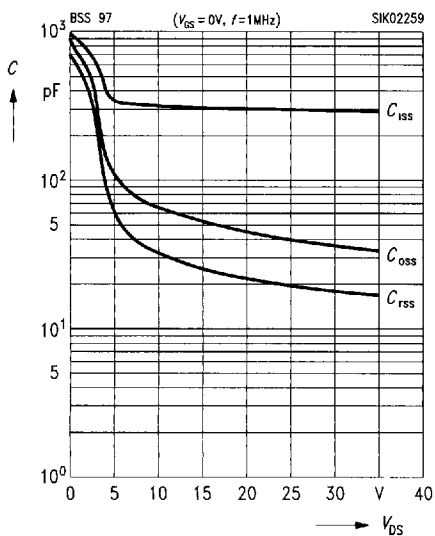
Typ. forward transconductance $g_{fs} = f(I_D)$
parameter: $V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$, $t_p = 80 \mu s$



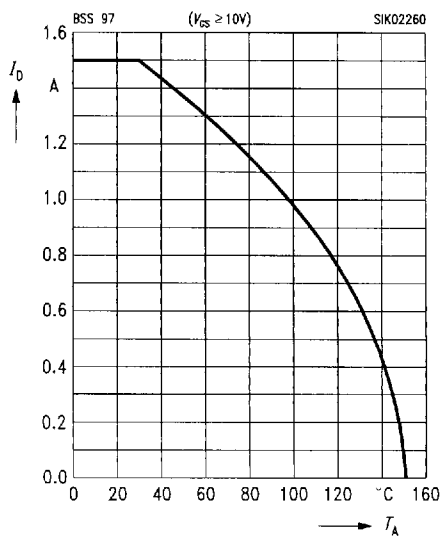
Gate threshold voltage $V_{GS(th)} = f(T_j)$
parameter: $V_{DS} = V_{GS}$, $I_D = 1 \text{ mA}$, (spread)



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



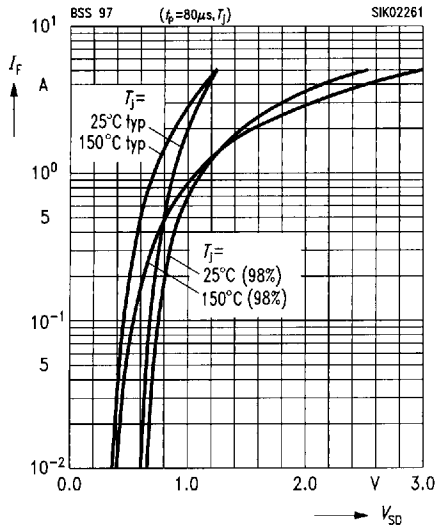
Drain current $I_D = f(T_A)$
parameter: $V_{GS} \geq 10 \text{ V}$



Forward characteristics of reverse diode

$I_F = f(V_{SD})$

parameter: $t_p = 80 \mu s, T_j$, (spread)



Drain-source breakdown voltage

$V_{(BR)DSS} = b \times V_{(BR)DSS}(25^\circ C)$

