SIEMENS

SIPMOS® Small-Signal Transistor $\qquad$ 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]

Not for new design!

GPT05576
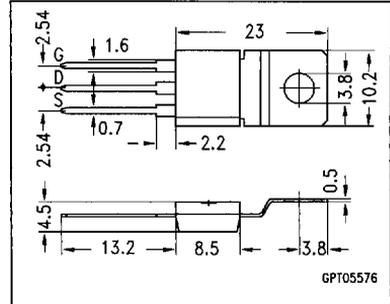
Type	Ordering code for version in bulk
■ BSS 95	Q 62702-S461

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}	± 14	
Gate-source peak voltage, aperiodic	V_{gs}	± 20	
Continuous drain current, T_C = 35 ℃	I_D	0.8	A
Pulsed drain current, T_C = 25 ℃	$I_{D\,puls}$	3.2	
Max. power dissipation, T_A = 25 ℃	P_{tot}	8.3	W
Operating and storage temperature range	T_j, T_{stg}	– 55 ... + 150	℃
Thermal resistance, chip-ambient (without heat sink),	R_{thJA}	≤ 65	K/W
chip-case	R_{thJC}	≤ 15	
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 $T_j = 25\ °C$, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	**typ.**	**max.**	

Static Characteristics

Parameter	Symbol	min.	typ.	max.	Unit
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, $V_{GS} = 0$	I_{DSS}				µA
$T_j\ = 25\ °C$		–	0.1	1.0	
$T_j\ = 125\ °C$		–	10	100	
$V_{DS} = 60$ 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	$R_{DS(on)}$	–	4.0	6.0	Ω
$V_{GS} = 4.5$ V, $I_D = 0.5$ A		–	6.4	10.0	

Dynamic Characteristics

Parameter	Symbol	min.	typ.	max.	Unit
Forward transconductance $V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$, $I_D = 0.5$ A	g_{fs}	0.14	0.43	–	S
Input capacitance $V_{GS} = 0$, $V_{DS} = 25$ V, $f = 1$ MHz	C_{iss}	–	115	155	pF
Output capacitance $V_{GS} = 0$, $V_{DS} = 25$ V, $f = 1$ MHz	C_{oss}	–	15	25	
Reverse transfer capacitance $V_{GS} = 0$, $V_{DS} = 25$ V, $f = 1$ MHz	C_{rss}	–	8	12	
Turn-on time t_{on}, $(t_{on} = t_{d(on)} + t_r)$ $V_{DD} = 30$ V, $V_{GS} = 10$ V, $R_{GS} = 50\ \Omega$, $I_D = 0.28$ A	$t_{d(on)}$	–	6	9	ns
	t_r	–	10	15	
Turn-off time t_{off}, $(t_{off} = t_{d(off)} + t_f)$ $V_{DD} = 30$ V, $V_{GS} = 10$ V, $R_{GS} = 50\ \Omega$, $I_D = 0.28$ A	$t_{d(off)}$	–	33	45	
	t_f	–	22	30	

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BSS 95

Electrical Characteristics (cont'd)

at T_j = 25 °C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

Reverse Diode

Parameter	Symbol	min.	typ.	max.	Unit
Continuous reverse drain current T_A = 25 °C	I_S	–	–	0.8	A
Pulsed reverse drain current T_A = 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 $P_{tot} = f(T_A)$
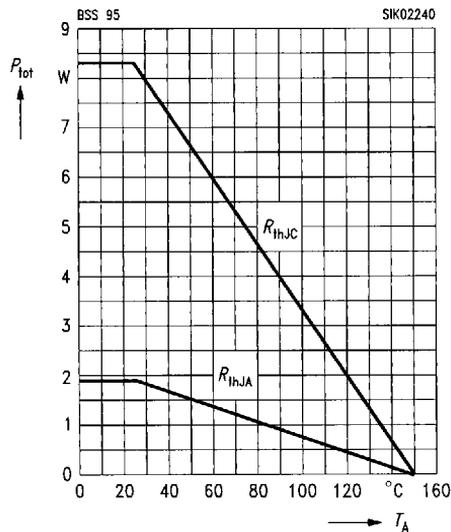
**Typ. output characteristics** $I_D = f(V_{DS})$
parameter: t_p = 80 µs
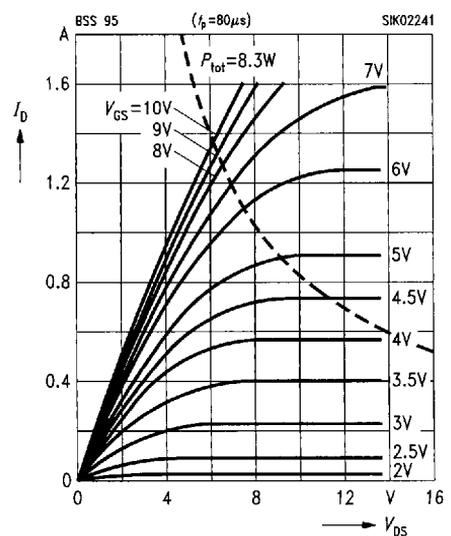
**Safe operating area** $I_D = f(V_{DS})$
parameter: $D = 0.01$, $T_C = 25$ °C
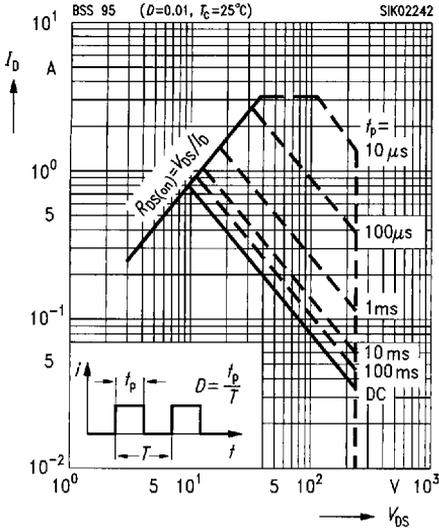
Typ. transfer characteristics $I_D = f(V_{GS})$
parameter: $t_p = 80$ μs, $V_{DS} = 25$ V
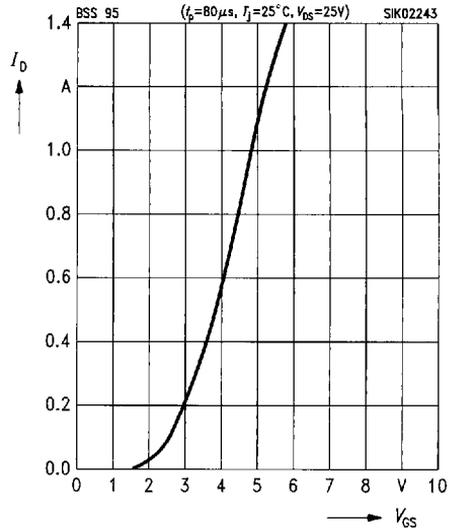
Typ. drain-source on-resistance
$R_{DS(on)} = f(I_D)$
parameter: V_{GS}
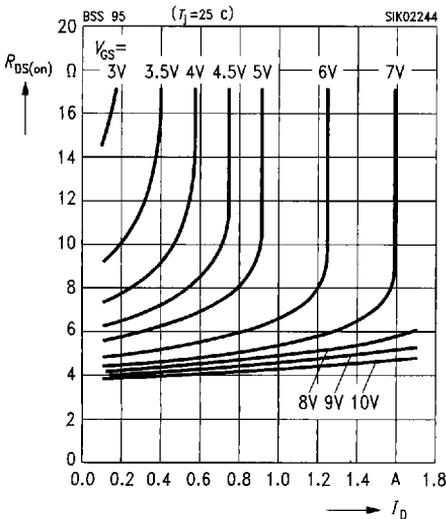
**Drain-source on-resistance**
$R_{DS(on)} = f(T_J)$
parameter: $I_D = 0.5$ A, $V_{GS} = 10$ V, (spread)

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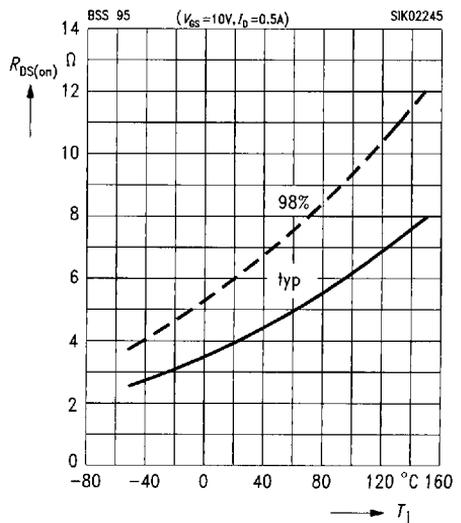
Typ. forward transconductance $g_{fs} = f(I_D)$
parameter: $V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$, $t_p = 80 \ \mu s$
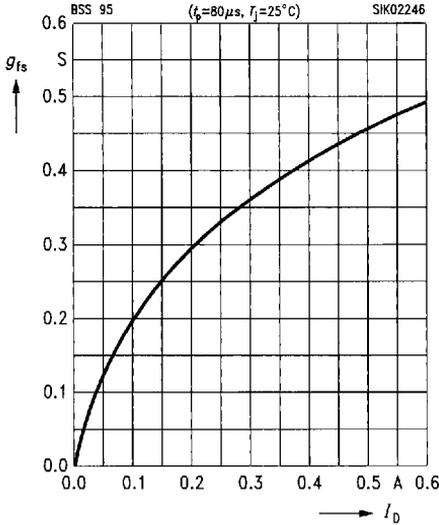
**Gate threshold voltage** $V_{GS(th)} = f(T_j)$
parameter: $V_{DS} = V_{GS}$, $I_D = 1$ mA, (spread)

BSS 95   ($t_p = 80\mu s$, $T_j = 25°C$)   SIK02246

BSS 95   ($V_{GS} = V_{DS}$, $I_D = 1$mA)   SIK02247
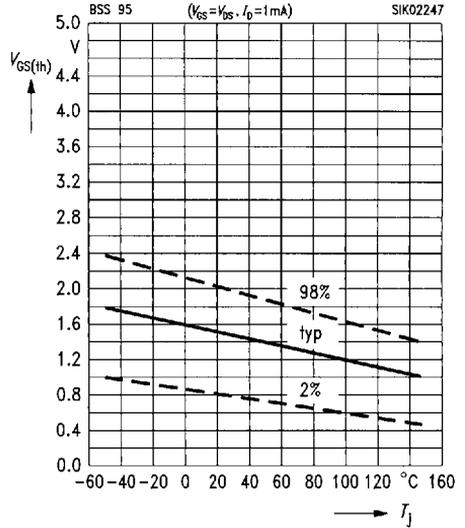
Typ. capacitances $C = f(V_{DS})$
parameter: $V_{GS} = 0$, $f = 1$ MHz
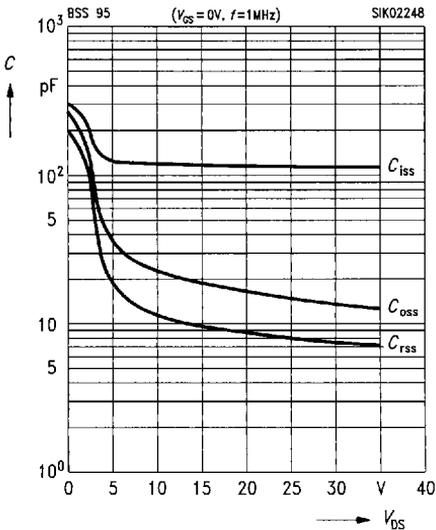
Drain current $I_D = f(T_A)$
parameter: $V_{GS} \geq 10$ V

BSS 95   ($V_{GS} = 0$V, $f = 1$MHz)   SIK02248

BSS 95   ($V_{GS} \geq 10$V)   SIK02249

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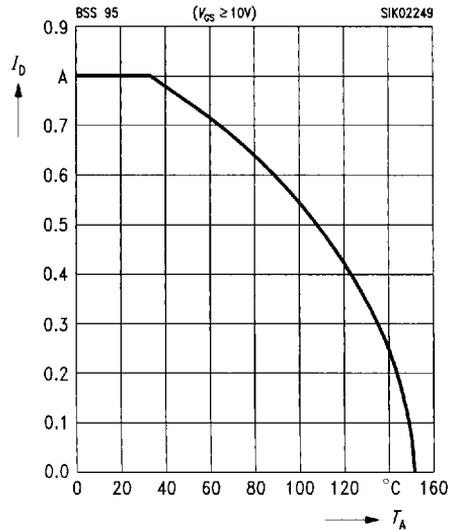
Forward characteristics of reverse diode

$I_F = f(V_{SD})$

parameter: $t_p = 80\ \mu s$, T_j, (spread)
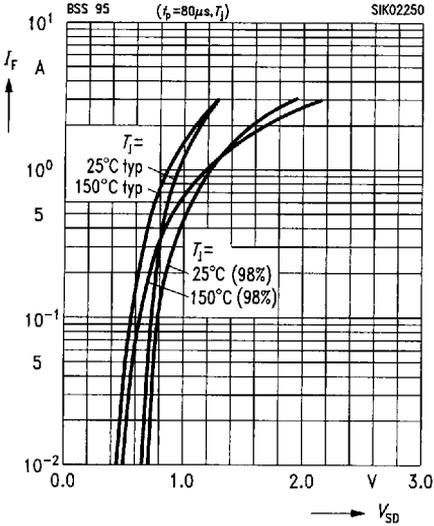
Drain-source breakdown voltage

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

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