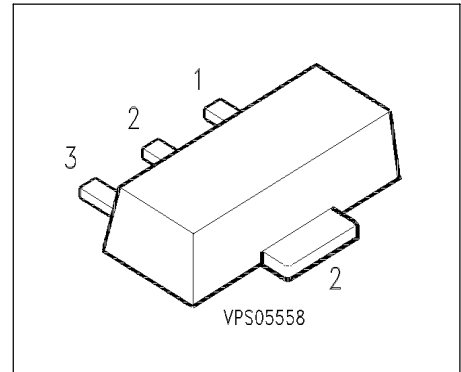


## BSS 192

### SIPMOS® Small-Signal Transistor

- P channel
- Enhancement mode
- Logic Level
- $V_{GS(th)} = -0.8...-2.0$  V



Pin 1	Pin 2	Pin 3	Pin 4
G	D	S	D

Type	$V_{DS}$	$I_D$	$R_{DS(on)}$	Package	Marking
BSS 192	-240 V	-0.15 A	20 $\Omega$	SOT-89	KB

Type	Ordering Code	Tape and Reel Information
BSS 192	Q62702-S634	E6327

### Maximum Ratings

Parameter	Symbol	Values	Unit
Drain source voltage	$V_{DS}$	-240	V
Drain-gate voltage	$V_{DGR}$	-240	
$R_{GS} = 20$ k $\Omega$			
Gate source voltage	$V_{GS}$	$\pm 20$	
Continuous drain current	$I_D$	-0.15	A
$T_A = 34$ °C			
DC drain current, pulsed	$I_{Dpuls}$	-0.6	
$T_A = 25$ °C			
Power dissipation	$P_{tot}$	1	W
$T_A = 25$ °C			

**Maximum Ratings**

Parameter	Symbol	Values	Unit
Chip or operating temperature	$T_j$	-55 ... + 150	°C
Storage temperature	$T_{stg}$	-55 ... + 150	
Thermal resistance, chip to ambient air <sup>1)</sup>	$R_{thJA}$	≤ 125	K/W
DIN humidity category, DIN 40 040		E	
IEC climatic category, DIN IEC 68-1		55 / 150 / 56	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**Static Characteristics**

Drain- source breakdown voltage $V_{GS} = 0\text{ V}, I_D = -0.25\text{ mA}, T_j = 25^\circ\text{C}$	$V_{(BR)DSS}$	-240	-	-	V
Gate threshold voltage $V_{GS}=V_{DS}, I_D = -1\text{ mA}$	$V_{GS(th)}$	-0.8	-1.5	-2	
Zero gate voltage drain current $V_{DS} = -240\text{ V}, V_{GS} = 0\text{ V}, T_j = 25^\circ\text{C}$ $V_{DS} = -240\text{ V}, V_{GS} = 0\text{ V}, T_j = 125^\circ\text{C}$ $V_{DS} = -60\text{ V}, V_{GS} = 0\text{ V}, T_j = 25^\circ\text{C}$	$I_{DSS}$	-	-0.1 -10 -	-1 -100 -0.2	μA
Gate-source leakage current $V_{GS} = -20\text{ V}, V_{DS} = 0\text{ V}$	$I_{GSS}$	-	-10	-100	
Drain-Source on-state resistance $V_{GS} = -10\text{ V}, I_D = -0.15\text{ A}$	$R_{DS(on)}$	-	10	20	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

**Dynamic Characteristics**

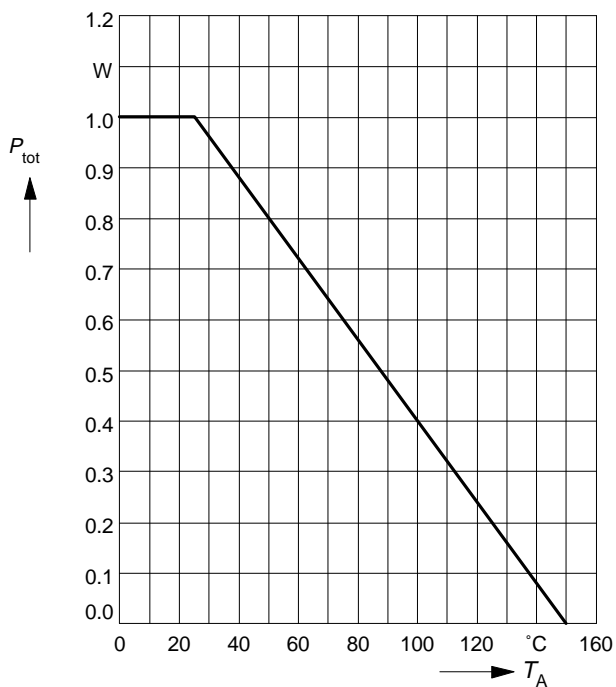
Transconductance $V_{DS} \geq 2 * I_D * R_{DS(on)max}$ , $I_D = -0.15\text{ A}$	$g_{fs}$	0.06	0.12	-	S
Input capacitance $V_{GS} = 0\text{ V}$ , $V_{DS} = -25\text{ V}$ , $f = 1\text{ MHz}$	$C_{iss}$	-	95	130	pF
Output capacitance $V_{GS} = 0\text{ V}$ , $V_{DS} = -25\text{ V}$ , $f = 1\text{ MHz}$	$C_{oss}$	-	20	30	
Reverse transfer capacitance $V_{GS} = 0\text{ V}$ , $V_{DS} = -25\text{ V}$ , $f = 1\text{ MHz}$	$C_{rss}$	-	10	15	
Turn-on delay time $V_{DD} = -30\text{ V}$ , $V_{GS} = -10\text{ V}$ , $I_D = -0.25\text{ A}$ $R_{GS} = 50\ \Omega$	$t_{d(on)}$	-	8	12	ns
Rise time $V_{DD} = -30\text{ V}$ , $V_{GS} = -10\text{ V}$ , $I_D = -0.25\text{ A}$ $R_{GS} = 50\ \Omega$	$t_r$	-	25	40	
Turn-off delay time $V_{DD} = -30\text{ V}$ , $V_{GS} = -10\text{ V}$ , $I_D = -0.25\text{ A}$ $R_{GS} = 50\ \Omega$	$t_{d(off)}$	-	25	33	
Fall time $V_{DD} = -30\text{ V}$ , $V_{GS} = -10\text{ V}$ , $I_D = -0.25\text{ A}$ $R_{GS} = 50\ \Omega$	$t_f$	-	42	55	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Reverse Diode</b>					
Inverse diode continuous forward current $T_A = 25^\circ\text{C}$	$I_S$	-	-	-0.15	A
Inverse diode direct current, pulsed $T_A = 25^\circ\text{C}$	$I_{SM}$	-	-	-0.6	
Inverse diode forward voltage $V_{GS} = 0\text{ V}, I_F = -0.3\text{ A}, T_j = 25^\circ\text{C}$	$V_{SD}$	-	-0.85	-1.2	V

**Power dissipation**

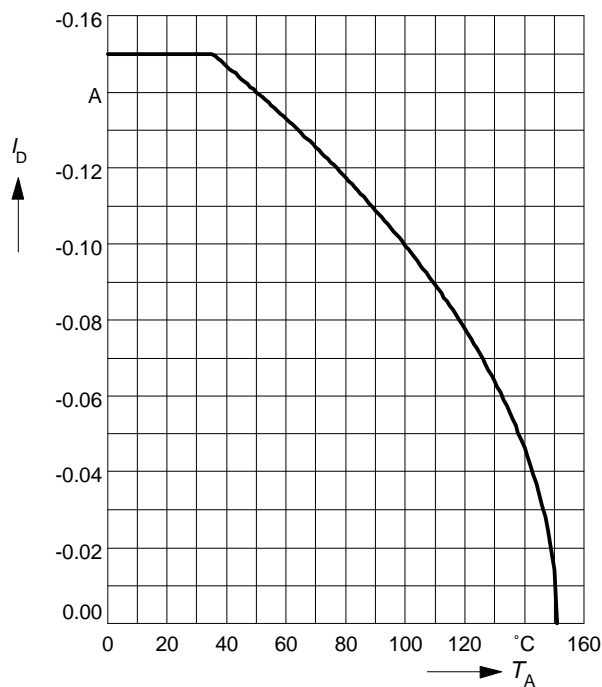
$P_{tot} = f(T_A)$



**Drain current**

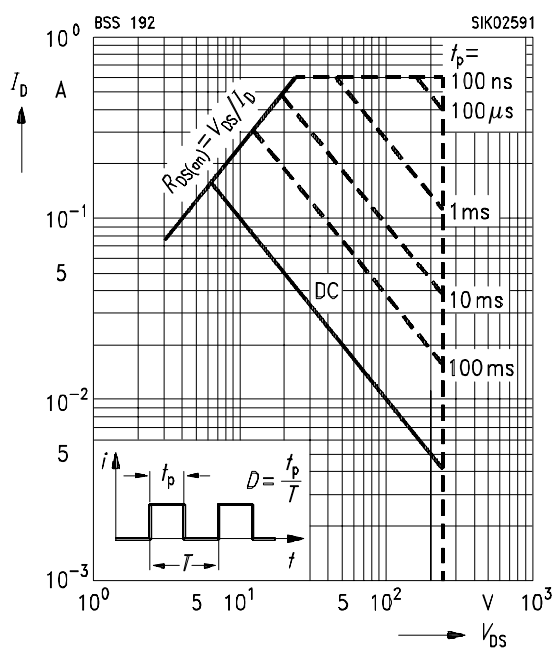
$I_D = f(T_A)$

parameter:  $V_{GS} \geq -10$  V



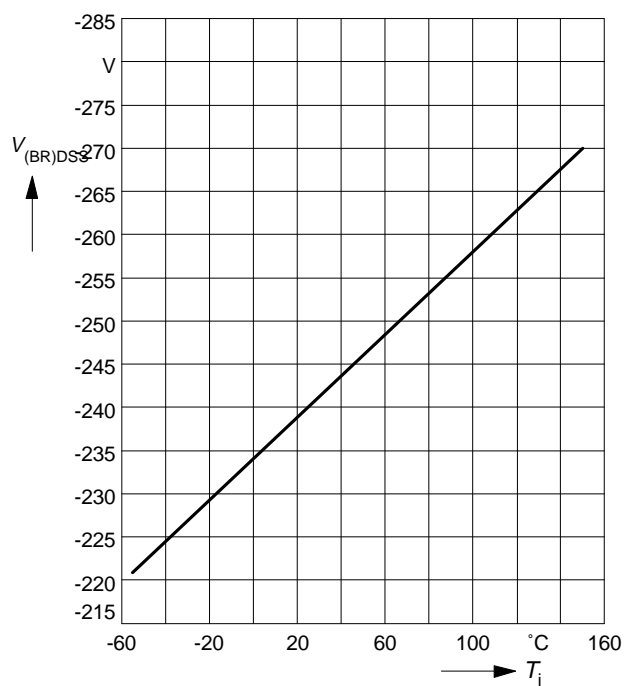
**Safe operating area  $I_D = f(V_{DS})$**

parameter :  $D = 0.01$ ,  $T_C = 25^\circ\text{C}$



**Drain-source breakdown voltage**

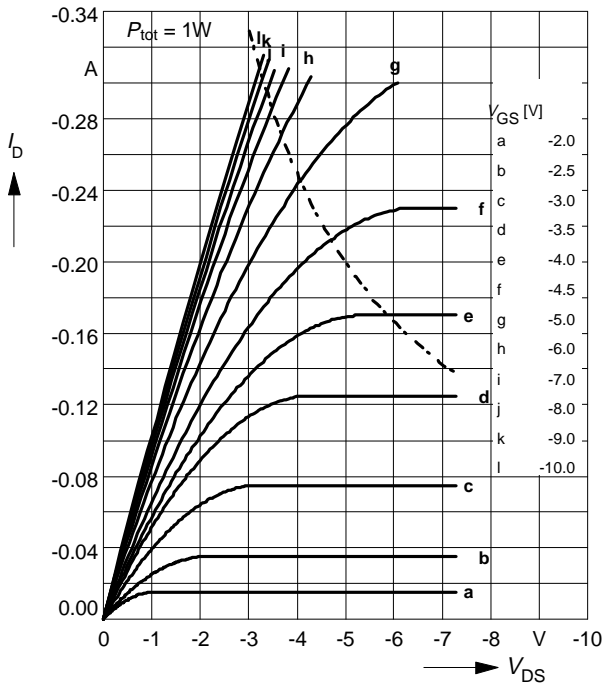
$V_{(BR)DSS} = f(T_j)$



**Typ. output characteristics**

$$I_D = f(V_{DS})$$

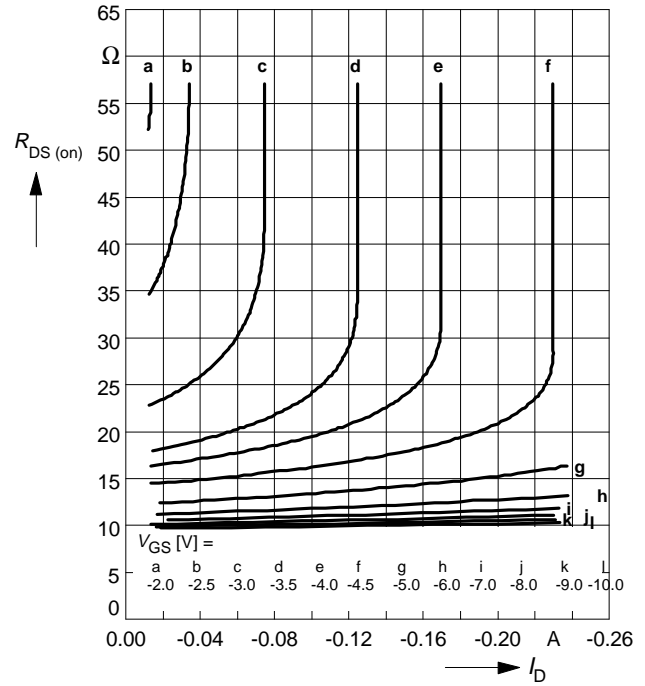
parameter:  $t_p = 80 \mu s$ ,  $T_j = 25 \text{ }^\circ\text{C}$



**Typ. drain-source on-resistance**

$$R_{DS(on)} = f(I_D)$$

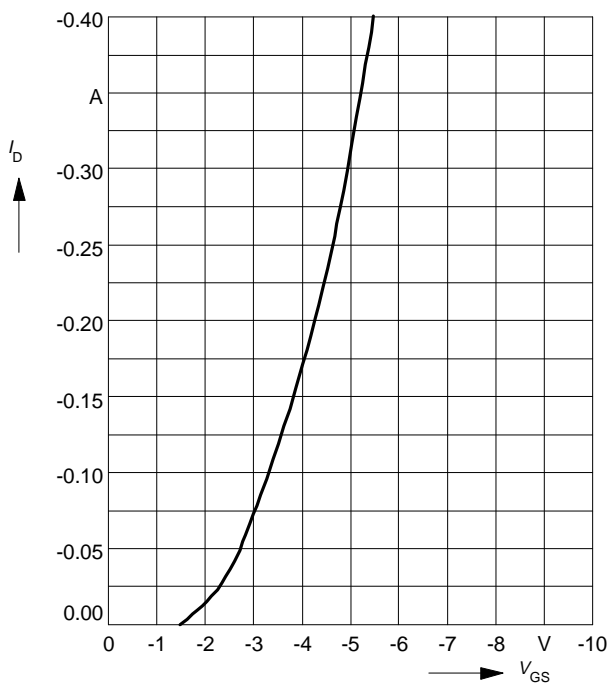
parameter:  $t_p = 80 \mu s$ ,  $T_j = 25 \text{ }^\circ\text{C}$



**Typ. transfer characteristics  $I_D = f(V_{GS})$**

parameter:  $t_p = 80 \mu s$

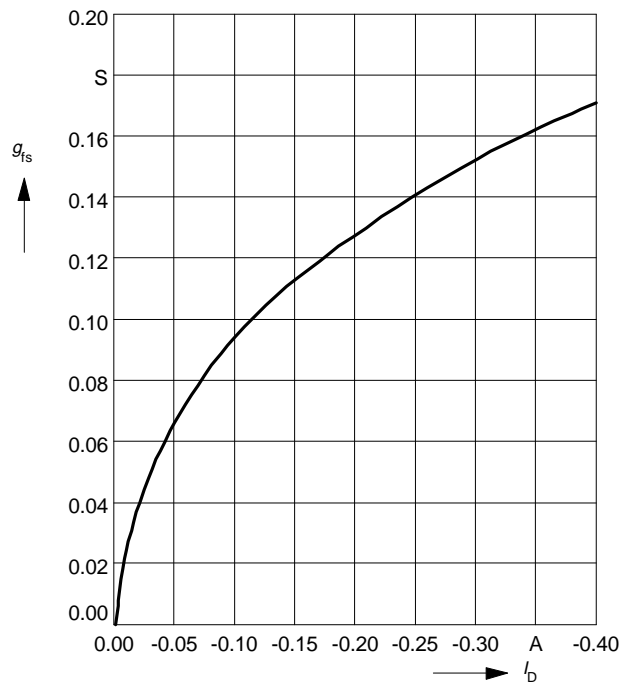
$$V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$$



**Typ. forward transconductance  $g_{fs} = f(I_D)$**

parameter:  $t_p = 80 \mu s$ ,

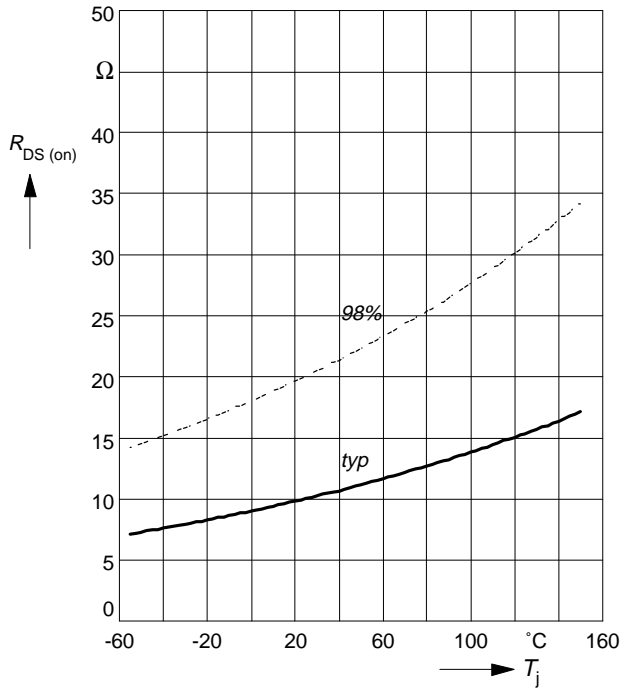
$$V_{DS} \geq 2 \times I_D \times R_{DS(on)max}$$



**Drain-source on-resistance**

$$R_{DS(on)} = f(T_j)$$

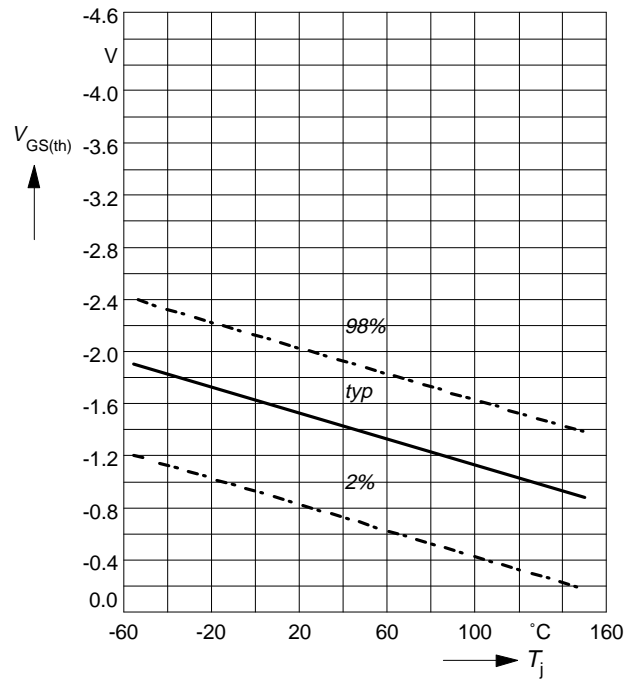
parameter:  $I_D = -0.15\text{ A}$ ,  $V_{GS} = -10\text{ V}$



**Gate threshold voltage**

$$V_{GS(th)} = f(T_j)$$

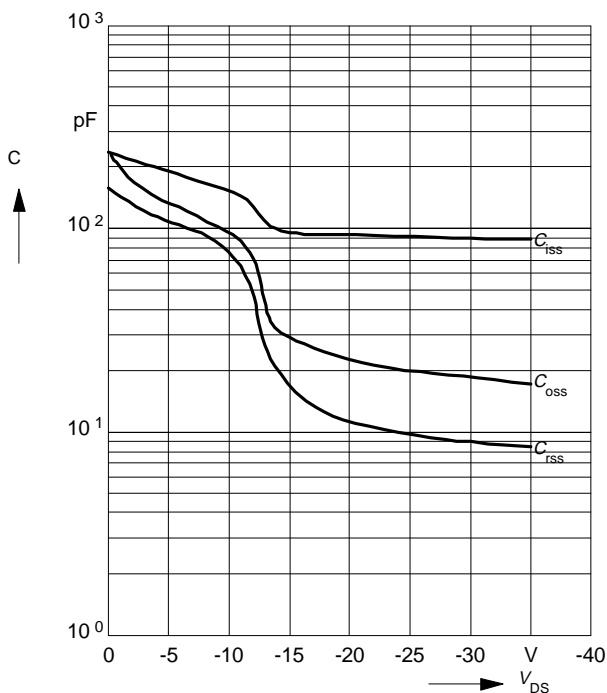
parameter:  $V_{GS} = V_{DS}$ ,  $I_D = -1\text{ mA}$



**Typ. capacitances**

$$C = f(V_{DS})$$

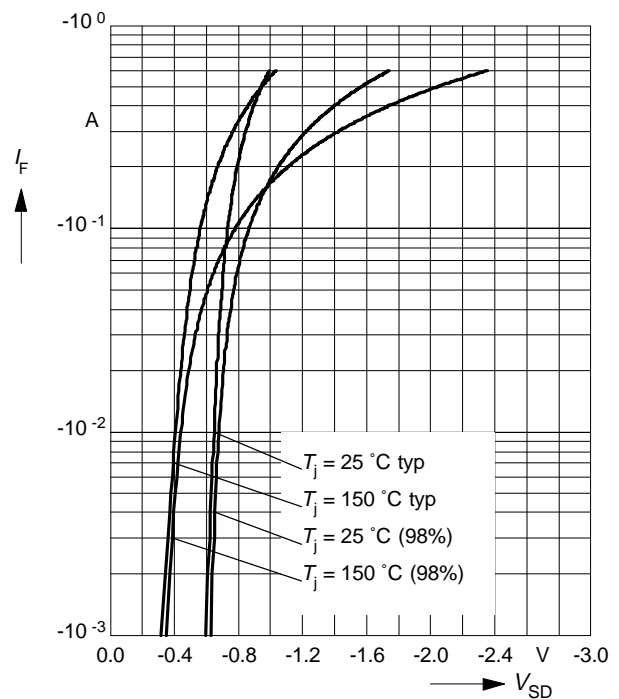
parameter:  $V_{GS} = 0\text{ V}$ ,  $f = 1\text{ MHz}$



**Forward characteristics of reverse diode**

$$I_F = f(V_{SD})$$

parameter:  $T_j, t_p = 80\text{ }\mu\text{s}$





LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

**[LittleDiode.com](http://LittleDiode.com)**

Looking forward to providing you with the best possible service.