

# N-Channel MOSFET

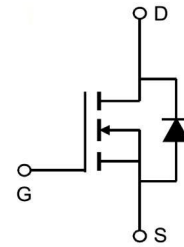
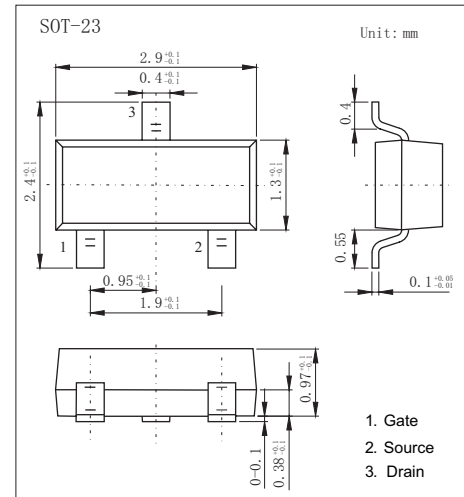
## BSS123

### ■ Features

- V<sub>DS</sub> (V)= 100V
- I<sub>D</sub>= 0.17 A (V<sub>GS</sub>= 10V)
- R<sub>DS(ON)</sub>< 6 Ω (V<sub>GS</sub>= 10V)
- R<sub>DS(ON)</sub>< 10 Ω (V<sub>GS</sub>= 4.5V)
- Rugged and Reliable
- High density cell design for extremely low R<sub>DS(on)</sub>
- Surface Mount Package
- Voltage Controlled Small Signal Switch

### APPLICATION:

- Small Servo Motor Controls
- Power MOSFET Gate Drivers
- Switching Application



### Mosfet Maximum ratings ( Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	
Continuous Drain Current	I <sub>D</sub>	0.17	A
Pulsed Drain Current (tp=10us)	I <sub>DM</sub>	0.68	A
Continuous Source-Drain Current(Diode Conduction)	I <sub>S</sub>	0.17	A
Power Dissipation	PD	0.35	W
Thermal Resistance from Junction to Ambient	R <sub>θJA</sub>	357	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55~+150	°C
Lead Temperature for Soldering Purposes(1/8 from case for	TL	260	°C

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### MOSFET ELECTRICAL CHARACTERISTICS

unless otherwise specified Ta = 25 °C

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID =250μA	100			V
Gate-threshold voltage	VGS(th)	VDS =VGS, ID =250μA	1		2.8	V
Gate-body leakage	IGSS	VDS =0V, VGS =±20V			±10	nA
Zero gate voltage drain current	IDSS	VDS =100V, VGS =0V			1	μA
Drain-source on-resistancea	RDS(on)	VGS =10V, ID = 0.17A		3.8	6	Ω
		VGS =4.5V, ID =0.17A		3.5	10	Ω
Forward transconductancea	gfs	VDS =10V, ID =170mA	80			mS
Diode forward voltage	VSD	IS=0.17A, VGS=0V		0.8	1.3	V
<b>Dynamic Characteristics</b>						
Input capacitance	Ciss	VDS =25V, VGS =0V, f=1MHz		29		pF
Output capacitance	Coss			10		pF
Reverse transfer capacitanceb	Crss			2		pF
<b>Switchingb Characteristics</b>						
Turn-on delay time	td(on)	VGS=10V, VDD=30V ID =0.17A, RGEN=50Ω			8	ns
Rise time	tr				8	ns
Turn-off delay time	td(off)				13	ns
Fall time	tf				16	ns
Total Gate Charge	Qg	VDS=10V, ID=0.17A, VGS=10V			2	nC
Gate-Source Charge	Qgs				0.25	nC
Gate-Drain Charge	Qgd				0.4	nC

**Note :**

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test ; Pulse Width =300μs, Duty Cycle ≤2%.
3. Switching characteristics are independent of operating junction temperature.
4. Granted by design, not subject to producing.

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### Typical Characteristics

