

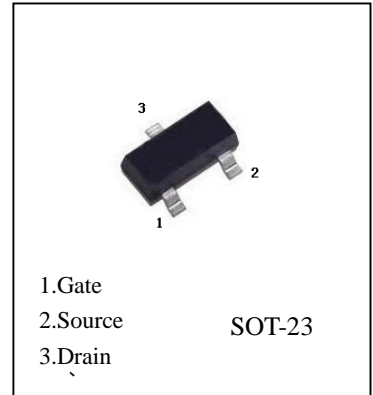
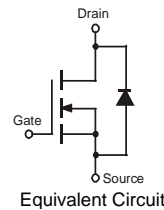
## Features

- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- High Drain-Source Voltage Rating
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 2 and 4)**

## Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

## BSS123 N-Channel MOSFET



## Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V <sub>DSS</sub>	100	V
Drain-Gate Voltage R <sub>GS</sub> ≤ 20KΩ	V <sub>DGR</sub>	100	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Drain Current (Note 1)	I <sub>D</sub>	170	mA
	I <sub>DM</sub>	680	

## Thermal Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P <sub>d</sub>	300	mW
Thermal Resistance, Junction to Ambient (Note 1)	R <sub>θJA</sub>	417	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-55 to +150	°C

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 3)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	100	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	1.0 10	μA nA	V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0V V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V
Gate-Body Leakage, Forward	I <sub>GSSF</sub>	—	—	50	nA	V <sub>GS</sub> = 20V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 3)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	0.8	1.4	2.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 1mA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	—	6.0 10	Ω	V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.17A V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.17A
Forward Transconductance	g <sub>FS</sub>	80	370	—	mS	V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.17A, f = 1.0KHz
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	—	0.84	1.3	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 0.34A
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>iSS</sub>	—	29	60	pF	V <sub>DS</sub> = 25V, V <sub>GS</sub> = 0V, f = 1.0MHz
Output Capacitance	C <sub>oSS</sub>	—	10	15	pF	
Reverse Transfer Capacitance	C <sub>rSS</sub>	—	2	6	pF	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Rise Time	t <sub>r</sub>	—	—	8	ns	V <sub>DD</sub> = 30V, I <sub>D</sub> = 0.28A, R <sub>GEN</sub> = 50Ω, V <sub>GS</sub> = 10V
Turn-Off Fall Time	t <sub>f</sub>	—	—	16	ns	
Turn-On Delay Time	t <sub>D(ON)</sub>	—	—	8	ns	
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	—	13	ns	

**BSS123**

