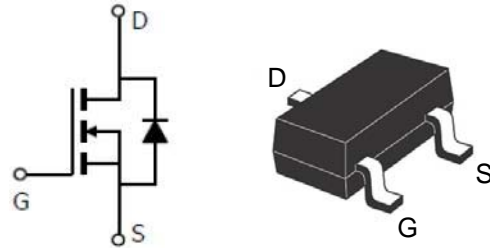


## N-Channel MOSFET

### ● Features

- $V_{DS}=100V, I_D=0.17A$
- $R_{DS(ON)} < 6\Omega @ V_{GS} = 10V$   
 $R_{DS(ON)} < 9\Omega @ V_{GS} = 4.5V$
- N-Channel Switch with Low  $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- Surface Mount Package

### ● Pin Configurations

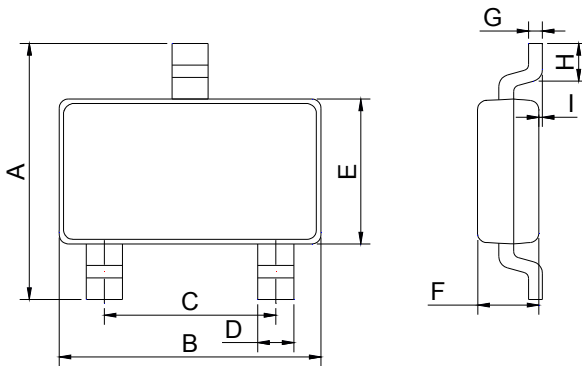


### MARKING



Marking: BSS123 or B123

### Package Mechanical Data



SOT23

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.30	2.40	2.50	0.091	0.095	0.098
B	2.80	2.90	3.00	0.110	0.114	0.118
C	1.90 REF			0.075 REF		
D	0.35	0.40	0.45	0.014	0.016	0.018
E	1.20	1.30	1.40	0.047	0.051	0.055
F	0.90	1.00	1.10	0.035	0.039	0.043
G		0.10	0.15		0.004	0.006
H	0.20			0.008		
I	0		0.10	0		0.004

### Absolute Maximum Ratings ( $T_C=25^\circ C$ unless otherwise specified)

Symbol	Parameter	Max.	Units
$V_{DSS}$	Drain-Source Voltage	100	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current	$T_C = 25^\circ C$	0.17
		$T_C = 100^\circ C$	0.11
$I_{DM}$	Pulsed Drain Current <sup>note1</sup>	0.68	A
$P_D$	Power Dissipation	$T_A = 25^\circ C$	0.35
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	$^\circ C/W$
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ C$

**Electrical Characteristics** ( $T_C=25^\circ\text{C}$  unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V,$	-	-	1	$\mu A$
$I_{GSS}$	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	$\pm 10$	$\mu A$
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.5	-	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS}=10V, I_D=0.25A$	-	-	6	$\Omega$
		$V_{GS}=4.5V, I_D=0.2A$	-	-	9	
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0V,$ $f=1.0MHz$	-	-	60	pF
$C_{oss}$	Output Capacitance		-	-	15	pF
$C_{rss}$	Reverse Transfer Capacitance		-	-	6	pF
$Q_g$	Total Gate Charge	$V_{DS}=10V, I_D=0.22A,$ $V_{GS}=10V$	-	-	2	nC
$Q_{gs}$	Gate-Source Charge		-	-	0.25	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	-	0.4	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=30V, I_D=0.28A,$ $R_{GEN}=50\Omega, V_{GS}=10V,$	-	-	8	ns
$t_r$	Turn-on Rise Time		-	-	8	ns
$t_{d(off)}$	Turn-off Delay Time		-	-	13	ns
$t_f$	Turn-off Fall Time		-	-	6	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$I_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	0.17	A
$I_{SM}$	Maximum Pulsed Drain to Source Diode Forward Current		-	-	0.68	A
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=0.4A$	-	-	1.3	V

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 2\%$

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