

BSS123

N-Channel ENHANCEMENT MODE MOSFET

Description

These N-Channel enhancement mode field effect transistors uses advanced trench technology. These products have been designed to minimize on-state resistance while provide rugged, reliable, and fast switching performance. These products are particularly suited for low voltage, low current applications such as:

- Small Servo Motor Control
- Power MOSFET Gate Drivers
- Switching Applications

Features

- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- High Drain-Source Voltage Rating
- RoHS compliant package

Mechanical Data

- Case Material: Molded Plastic. UL Flammability

Classification Rating 94V-0

- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42

Leadframe(Lead Free Plating). Solderable per MIL-STD-202, Method 208

- Terminal Connections: See Diagram
- Weight: 0.008 grams (Approximate)

Package type : SOT-23

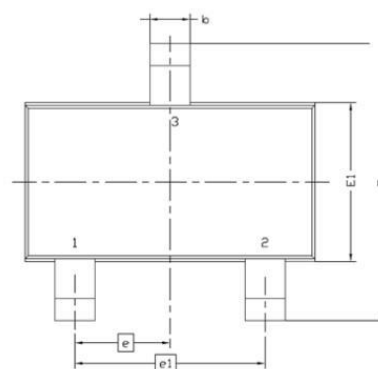
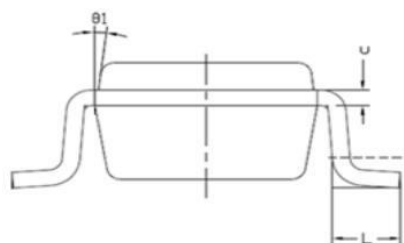
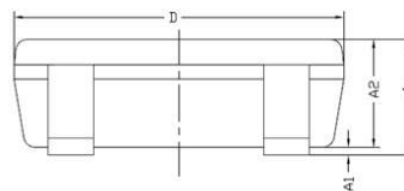
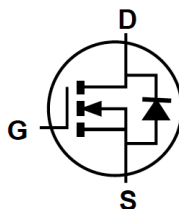
Packing & Order Information

3,000/Reel



**RoHS
COMPLIANT**

Graphic symbol



Symbol	MILLIMETERS	
	MIN	MAX
A	0.8	1.2
A1	0	0.1
A2	0.7	1.1
b	0.3	0.5
c	0.1	0.2
D	2.7	3.1
E	2.6	3
E1	1.4	1.8
e	0.95 BSC	
e1	1.9 BSC	
L	0.3	0.6
theta1	7° NOM	

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MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Maximum Ratings ($T_A=+25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Characteristic	Value	Unit
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	Continuous	± 20 V
I_D	Continuous Drain Current (Note 5) $V_{GS} = 10\text{V}$	Continuous	170 mA
I_{DM}		Pulsed	680 mA

Thermal Characteristics ($T_A=+25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Characteristic	Value	Unit
P_D	Power Dissipation (Note 5)	300	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient @ $T_A = +25^{\circ}\text{C}$ (Note 5)	417	$^{\circ}\text{C}/\text{W}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics (@ $T_A = +25^{\circ}\text{C}$, unless otherwise specified.)

Off Characteristics (Note 6)

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	100			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100\text{V}, V_{GS}=0\text{V}$ $V_{DS}=100\text{V}, T_C=125^{\circ}\text{C}$ @ $T_A=150^{\circ}\text{C}$ (Note 7)			0.1 30	μA μA
		$V_{DS}=20\text{V}, V_{GS}=0\text{V}$			10	nA
		$V_{GS}=20\text{V}, V_{DS}=0\text{V}$			50	nA
I_{GSSF}	Gate-Body Leakage Current, Forward	$V_{GS}=20\text{V}, V_{DS}=0\text{V}$			50	nA

On Characteristics

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
$V_{GS(TH)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=1\text{mA}$	0.8	1.4	2.0	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10\text{V}, I_D=0.17\text{A}$ $V_{GS}=4.5\text{V}, I_D=0.17\text{A}$			6.0 10	Ω
G_{FS}	Forward Transfer Admittance	$V_{DS}=10\text{V}, I_D=0.17\text{A}$, $f=1.0\text{KHz}$	80	370		mS
V_{SD}	Diode Forward Voltage	$V_{GS}=0\text{V}, I_S=0.34\text{A}$		0.84	1.3	V

Dynamic Characteristics (Note 7)

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
C_{ISS}	Input Capacitance	$V_{DS}=25\text{V}, V_{GS}=0\text{V}$, $f=1.0\text{MHz}$	--	22	60	pF
C_{OSS}	Output Capacitance		--	3.5	15	pF
C_{RSS}	Reverse Transfer Capacitance		--	2.0	6	pF

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Switching Characteristics (Note 7)

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
$t_{d(on)}$	Turn-On Time	$V_{DS}=250\text{ V}$, $I_D=0.28\text{ A}$, $R_G=50\Omega$, $V_{DD}=30\text{ V}$	--	--	8	ns
t_r	Turn-On Time		--	--	8	ns
$t_{d(off)}$	Turn-Off Delay Time		--	--	13	ns
t_f	Turn-Off Fall Time		--	--	16	ns

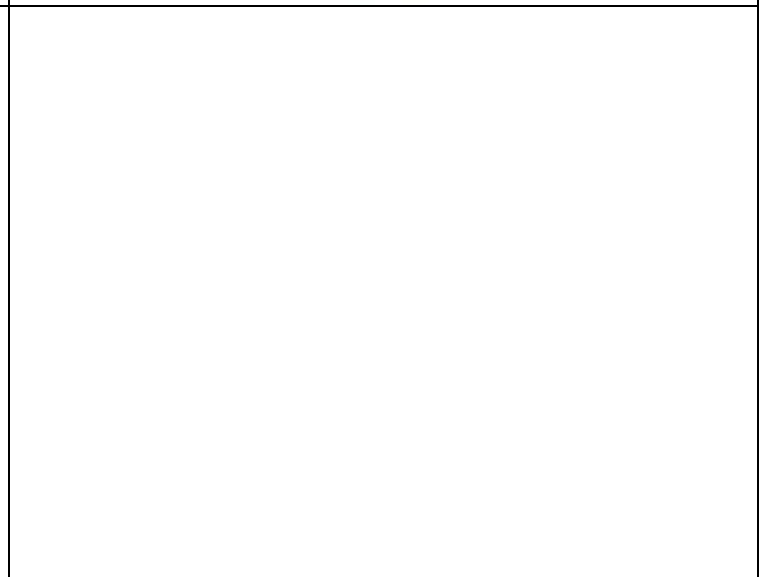
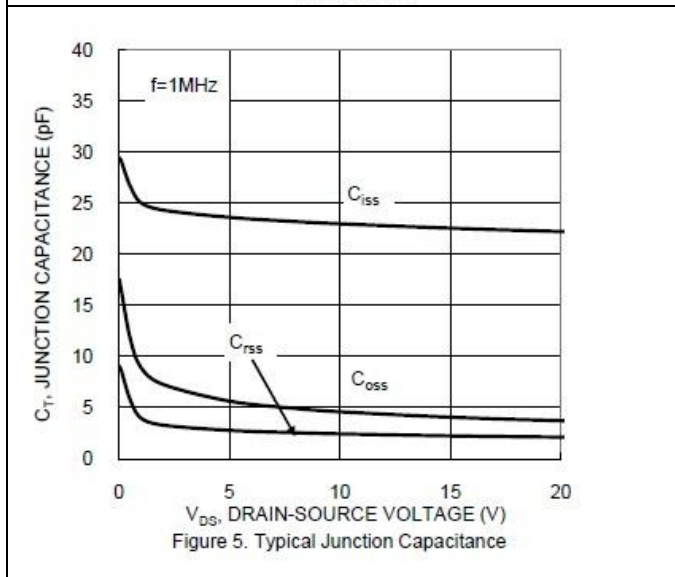
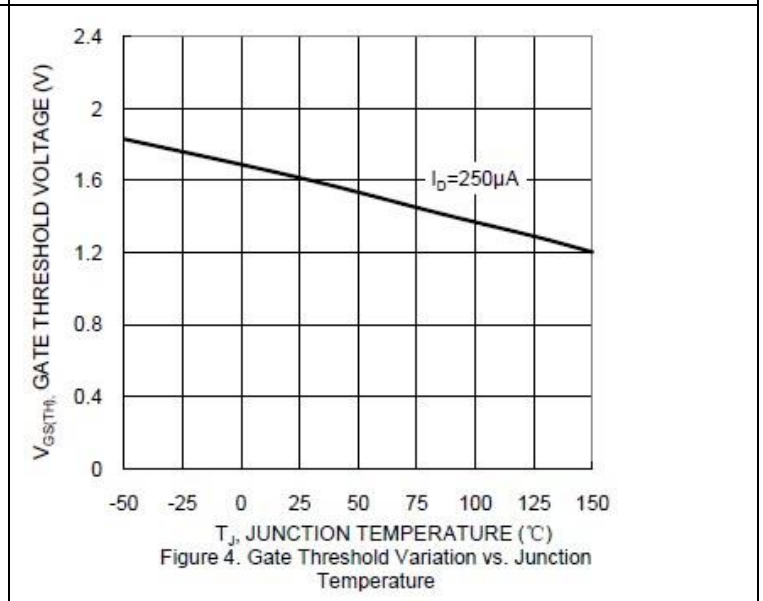
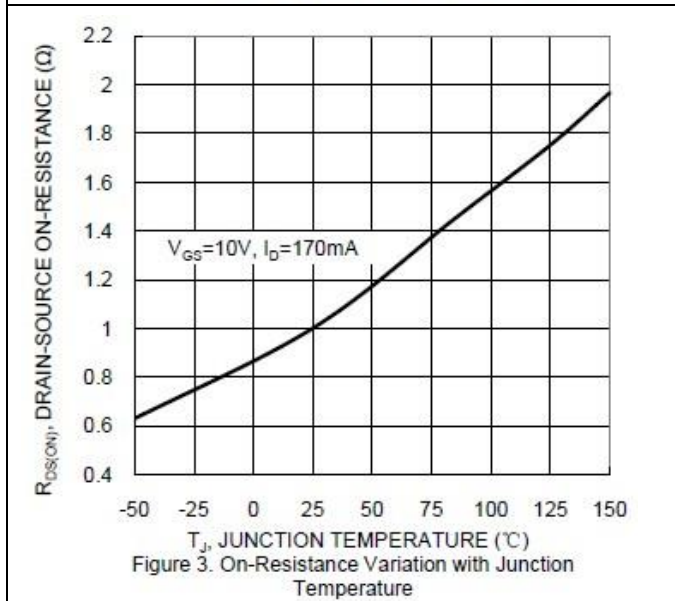
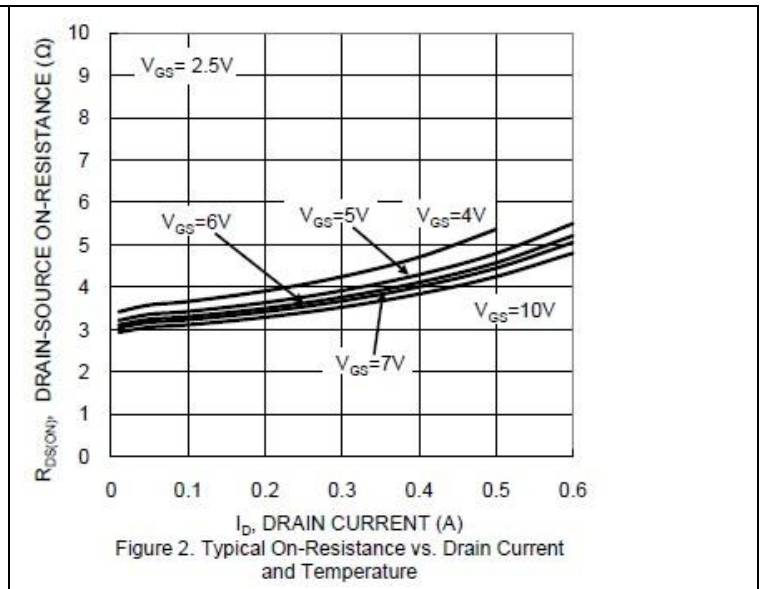
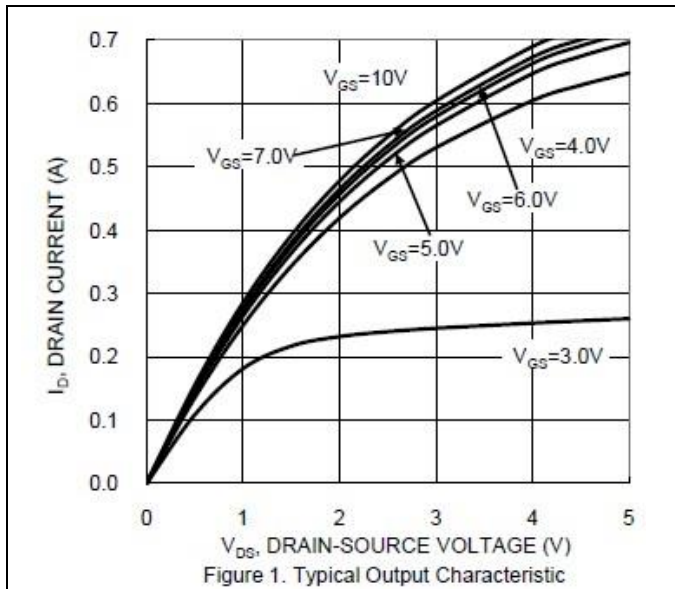
Notes :

5. Part mounted on FR-4 board with recommended pad layout,
6. Short duration pulse test used to minimize self-heating effect.
7. Guaranteed by design. Not subject to production testing.

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Characteristics Curve



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Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE

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