BSS123

SMD Power MOSFET Transistor (N-Channel)

RoHS COMPLIANT

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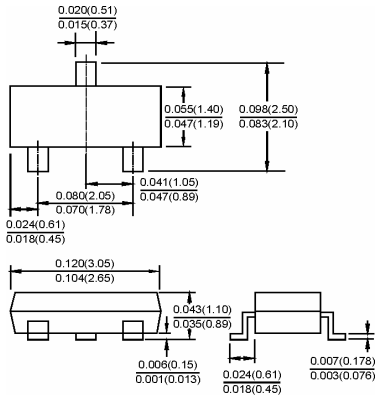
Features

- Low On-Resistance:6Ω
- Low input capacitance:20pF
- Low output capacitance:9pF
- Low threshole:2.8V
- Fast switching speed:20nS
- RoHS Compliance and Halogen Free

Application

- DC to DC converter
- Cellular & PCMCIA card
- Cordless telephone
- Power management in portable and battery etc.

SOT-23



Dimensions in inches and (millimeters)

Mechanical Data

Case:	SOT-23, Plastic Package
Terminals:	Solderable per MIL-STD-202G, Method 208
Weight:	0.008 gram

Maximum Ratings *(T Ambient=25ºC unless noted otherwise)*

Symbol	Description	BSS123	Unit	Conditions
	Marking Code	SA		
V_{DSS}	Drain-Source Voltage	100	V	
V_{GSS}	Gate-Source Voltage	± 20	V	
I_D	Drain Current Continuous	170	mA	T_A=25° C
I_{DM}	Drain Current Pulsed (Note 1)	680	mA	
P_D	Drain Power Dissipation (Note 2)	225	mW	T_A=25° C
R_{thJA}	Thermal Resistance, Junction to Ambient	556	° C/W	
T_J, T_{STG}	Storage Temperature Range	-55 to +150	° C	

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Electrical Characteristics *($T_{Ambient}$=25ºC unless noted otherwise)*

Symbol	Description	Min.	Typ.	Max.	Unit	Conditions
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100	-	-	V	V_{GS}=0V, I_D=250μA
$V_{GS(th)}$	Gate Threshold Voltage	0.8	-	2.8	V	V_{DS}=V_{GS}, I_D=1mA
I_{GSS}	Gate-Body Leakage Current	-	-	50	nA	V_{DS}=0V, V_{GS}=20V
I_{DSS}	Zero Gate Voltage Drain Current	-	-	15	μA	V_{DS}=0V, V_{GS}=100V, T_J=25° C
		-	-	60	μA	V_{DS}=0V, V_{GS}=100V, T_J=125° C
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	-	5.0	6.0	Ω	V_{GS}=10V, I_D=0.1A
g_{FS}	Forward Transconductance	8.0	-	-	mS	V_{DS}=25V, I_D=100mA

Dynamic Characteristics *($T_{Ambient}$=25ºC unless noted otherwise)*

Symbol	Description	Min.	Typ.	Max.	Unit	Conditions
C_{iss}	Input Capacitance	-	20	-	pF	V_{DS}=25V, V_{GS}=0V, f=1MHz
C_{rss}	Reverse Transfer Capacitance	-	4.0	-		
C_{oss}	Output Capacitance	-	9.0	-		
t_{on}	Switching Time Turn-On Time	-	20	-	nS	V_{CC}=30V, R_{GS}=50Ω I_C=0.28A, V_{GS}=10V
t_{off}	Switching Time Turn-Off Time	-	40	-		

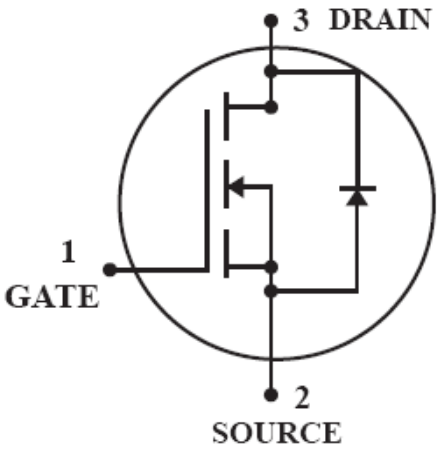
Reverse Diode *($T_{Ambient}$=25ºC)*

Symbol	Description	Min.	Typ.	Max.	Unit	Conditions
V_{SD}	Drain-Source Diode Forward Voltage	-	-	1.3	V	V_{GS}=0V, I_D=0.34A

Note: (1) Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

(2) RF-5=1.0X0.75X0.062m.

Switching Time Test Circuit



Typical Characteristics Curves

Fig.1- Ohmic Region

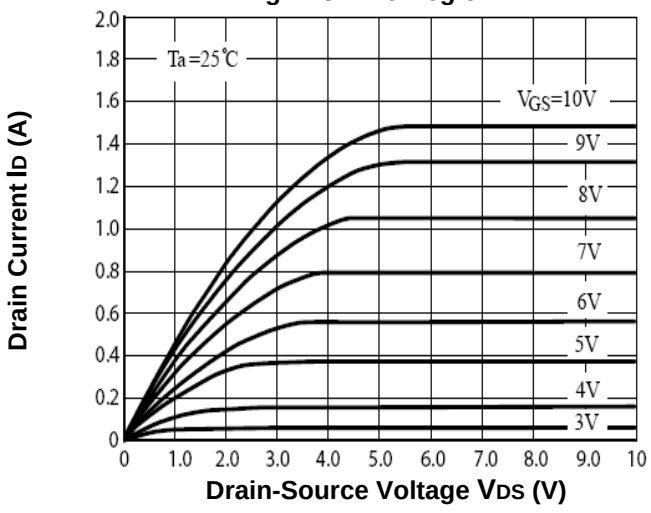


Fig.2- Transfer Characteristics

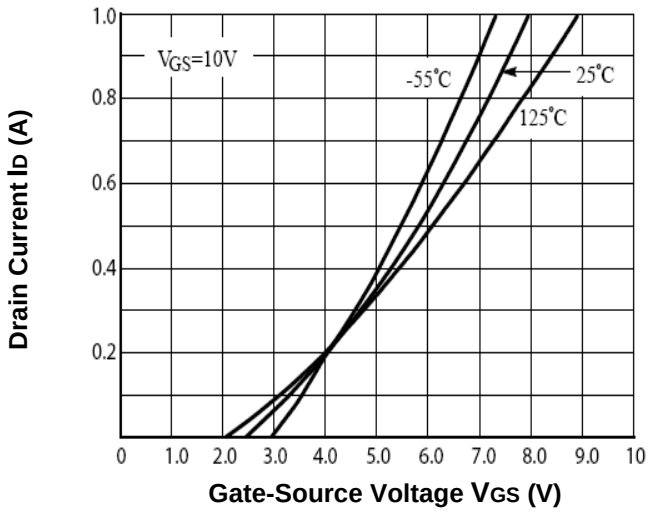


Fig.3- Temperature vs. Static Drain-Source On-Resistance

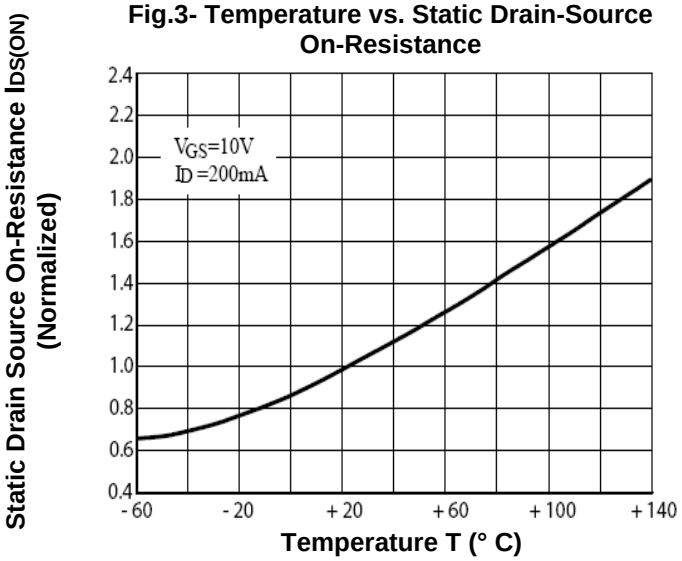
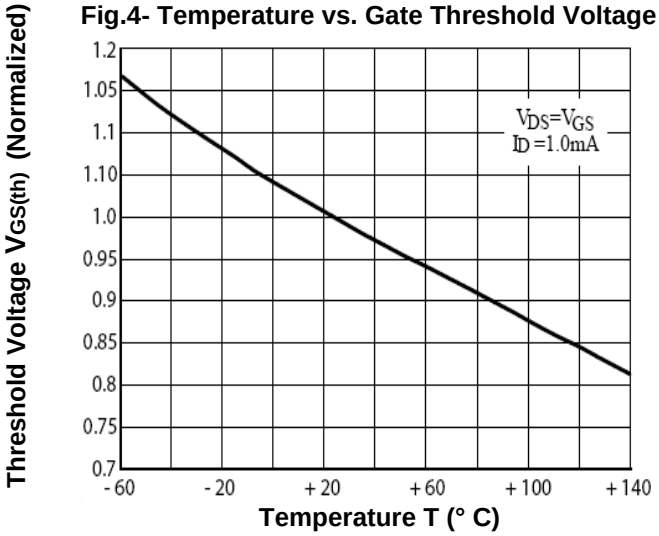


Fig.4- Temperature vs. Gate Threshold Voltage

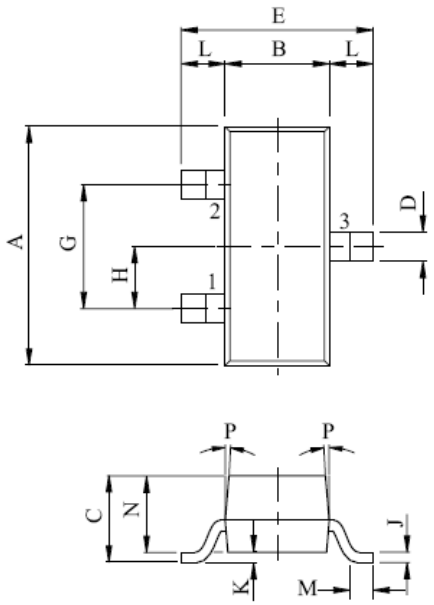


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Dimensions in mm



DIM	MILLIMETERS
A	2.93±0.20
B	1.30+0.20/-0.15
C	1.30 MAX
D	0.45+0.15/-0.05
E	2.40+0.30/-0.20
G	1.90
H	0.95
J	0.13+0.10/-0.05
K	0.00 ~ 0.10
L	0.55
M	0.20 MIN
N	1.00+0.20/-0.10
P	7°

1. Source
2. Gate
3. Drain

SOT-23

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