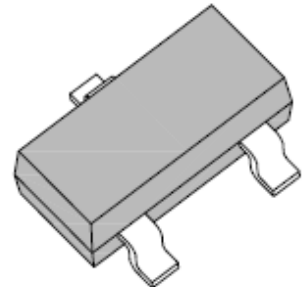


SMD Power MOSFET Transistor (N-Channel)

Features

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



SOT-23



HALOGEN
FREE

Application

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

Mechanical Data

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

Maximum Ratings ($T_{Ambient}=25^{\circ}C$ 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	TA=25° C
I_{DM}	Drain Current Pulsed (Note 1)	680	mA	
P_D	Drain Power Dissipation (Note 2)	225	mW	TA=25° C
R_{thJA}	Thermal Resistance, Junction to Ambient	556	° C/W	
T_J, T_{STG}	Storage Temperature Range	-55 to +150	° C	

SMD Power MOSFET Transistor (N-Channel)

BSS123

Electrical Characteristics ($T_{Ambient}=25^{\circ}\text{C}$ unless noted otherwise)

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

Dynamic Characteristics ($T_{Ambient}=25^{\circ}\text{C}$ unless noted otherwise)

Symbol	Description	Min.	Typ.	Max.	Unit	Conditions
Ciss	Input Capacitance	-	20	-	pF	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$
Crss	Reverse Transfer Capacitance	-	4.0	-		
Coss	Output Capacitance	-	9.0	-		
ton	Switching Time Turn-On Time	-	20	-	nS	$V_{CC}=30V$, $R_{GS}=50\Omega$, $I_C=0.28A$, $V_{GS}=10V$
toff	Switching Time Turn-Off Time	-	40	-		

Reverse Diode ($T_{Ambient}=25^{\circ}\text{C}$)

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

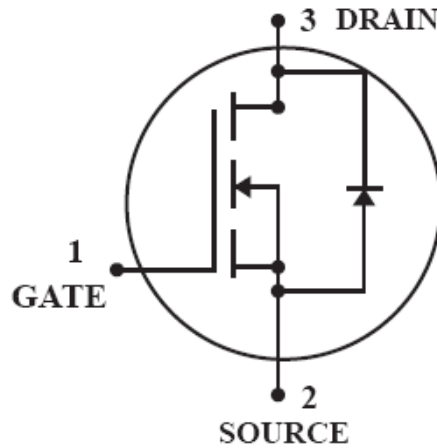
Note: (1) Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

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

SMD Power MOSFET Transistor (N-Channel)

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Switching Time Test Circuit



Typical Characteristics Curves

Fig.1- Ohmic Region

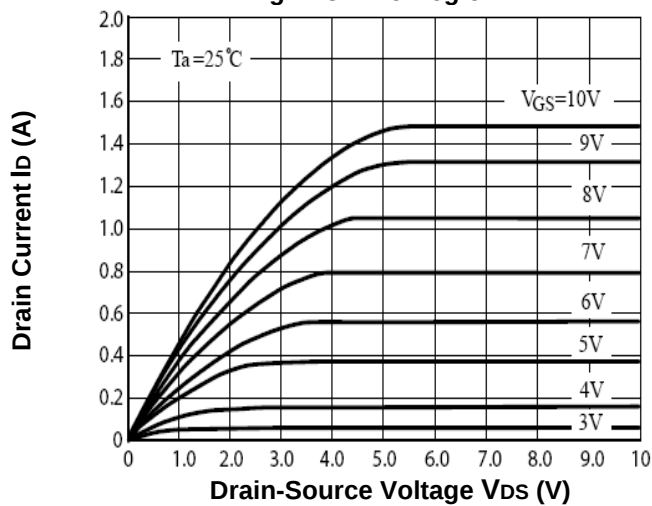
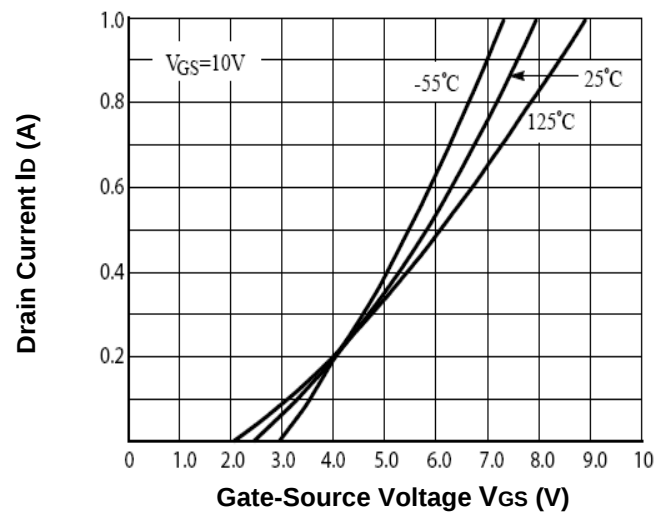


Fig.2- Transfer Characteristics



SMD Power MOSFET Transistor (N-Channel)

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

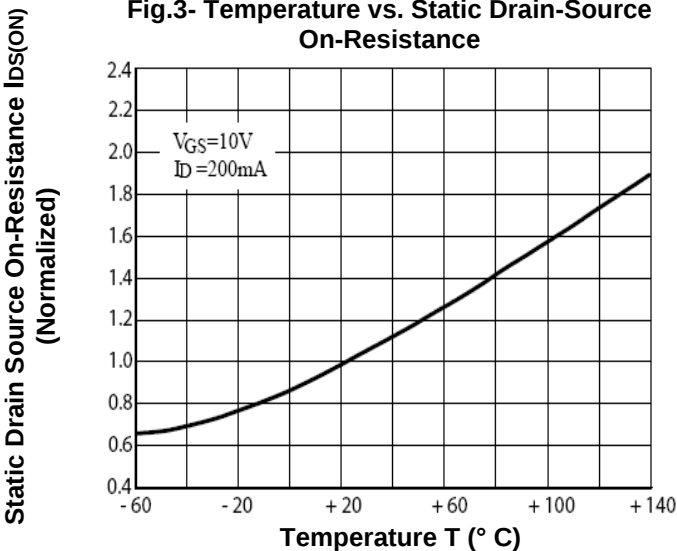
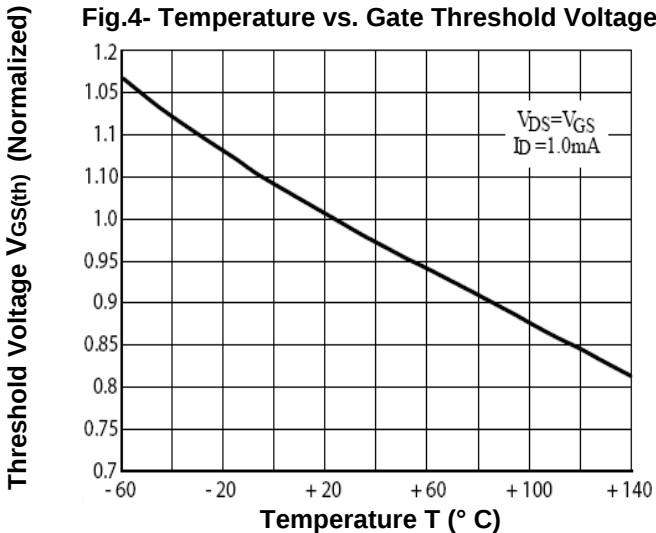
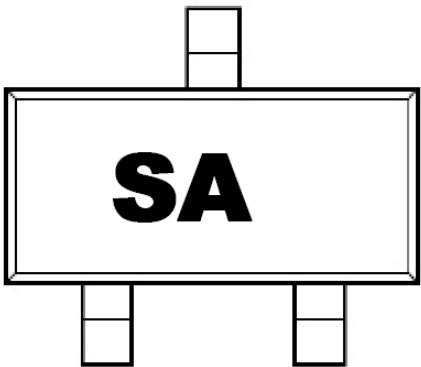


Fig.4- Temperature vs. Gate Threshold Voltage



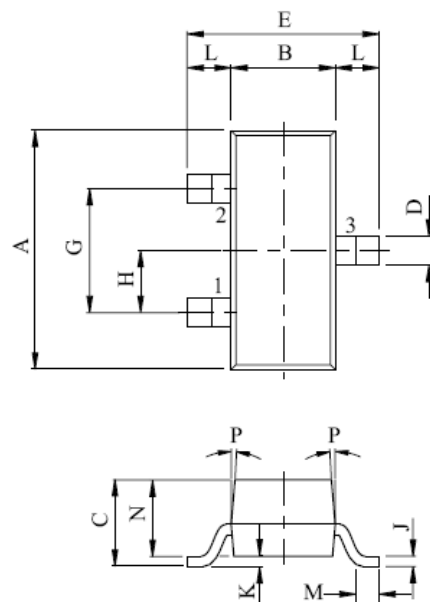
Marking Information:



SMD Power MOSFET Transistor (N-Channel)

BSS123

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

Ordering Information

BSS123 – 78 – RG70

Packing Code:
RG70: 7" reel in Tape and Reel,
Lead free and Halogen free

Factory Location Code

SMD Power MOSFET
Transistor (N-Channel)

SMD Power MOSFET Transistor (N-Channel)

BSS123

How to contact us:

US HEADQUARTERS

28040 WEST HARRISON PARKWAY, VALENCIA, CA 91355-4162

Tel: (800) TAITRON (800) 824-8766 (661) 257-6060

Fax: (800) TAITFAX (800) 824-8329 (661) 257-6415

Email: taitron@taitroncomponents.com

Http://www.taitroncomponents.com

TAITRON COMPONENTS MEXICO, S.A .DE C.V.

BOULEVARD CENTRAL 5000 INTERIOR 5 PARQUE INDUSTRIAL ATITALAQUIA, HIDALGO C.P.
42970 MEXICO

Tel: +52-55-5560-1519

Fax: +52-55-5560-2190

TAITRON COMPONENTS INCORPORATED REPRESENTAÇÕES DO BRASIL LTDA

RUA DOMINGOS DE MORAIS, 2777, 2.ANDAR, SALA 24 SAÚDE - SÃO PAULO-SP 04035-001 BRAZIL

Tel: +55-11-5574-7949

Fax: +55-11-5572-0052

TAITRON COMPONENTS INCORPORATED, SHANGHAI REPRESENTATIVE OFFICE

METROBANK PLAZA, 1160 WEST YAN' AN ROAD, SUITE 1503, SHANGHAI, 200052, CHINA

Tel: +86-21-5424-9942

Fax: +86-21-5424-9931