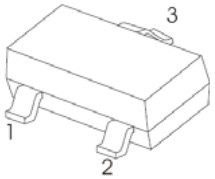
BSS123

SOT-23 Plastic-Encapsulate MOSFETS

FEATURE

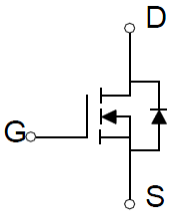
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability

SOT-23



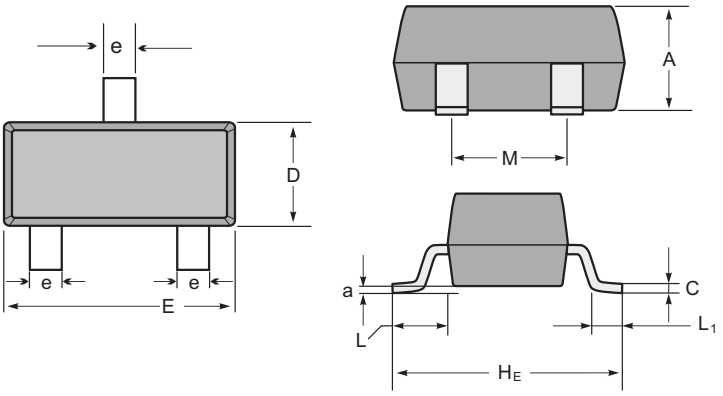
1. GATE
2. SOURCE
3. DRAIN

Equivalent circuit



Marking

Type number	Marking code
BSS123	SAW



SOT-23 mechanical data

UNIT		A	C	D	E	H_E	e	M	L	L_1	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
N-MOSFET			
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (note 1)	I_D	0.17	A
Pulsed Drain Current (tp=10us)	I_{DM}	0.68	A
Continous Source-Drain Diode Current	I_S	0.17	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~+150	℃
Lead Temperature for Soldering Purposes(1/8'' from case for 10 s)	T_L	260	℃

T_a=25℃ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =100V,V_{GS} = 0V			1	μA
		V_{DS} =20V,V_{GS} = 0V			10	nA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±50	nA
Gate threshold voltage (note 2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1		2.8	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =0.17A			10	Ω
		V_{GS} =10V, I_D =0.17A			6	Ω
Forward tranconductance(note 2)	g_{FS}	V_{DS} =10V, I_D =170mA	80			mS
Diode forward voltage	V_{SD}	I_S=340mA, V_{GS} = 0V			1.3	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		29	60	pF
Output Capacitance	C_{oss}			10	15	pF
Reverse Transfer Capacitance	C_{rss}			2	6	pF
SWITCHING CHARACTERISTICS (note 3,4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=30V, I_D=2.8A,R_{GEN}=50Ω			8	ns
Turn-on rise time	t_r				8	ns
Turn-off delay time	$t_{d(off)}$				13	ns
Turn-off fall time	t_f				16	ns
Total Gate Charge	Q_g	V_{DS}=10V,I_D=0.22A, V_{GS}=10V		1.4	2	nC
Gate-Source Charge	Q_{gs}			0.15	0.25	nC
Gate-Drain Charge	Q_{gd}			0.2	0.4	nC

Notes :

1.Surface mounted on FR4 board using the minimum recommended pad size.

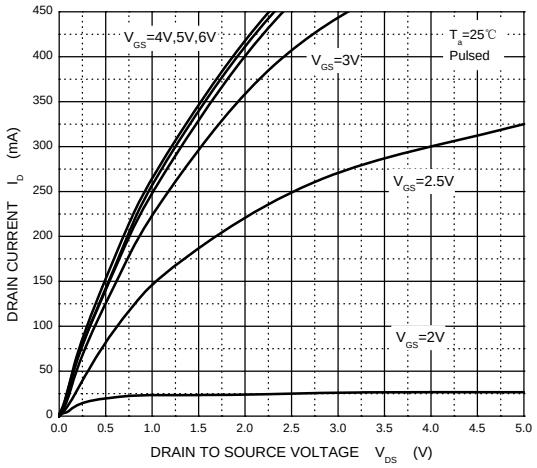
2. Pulse Test : Pulse width=300μs, duty cycle≤2%.

3. Switching characteristics are independent of operating junction temperature.

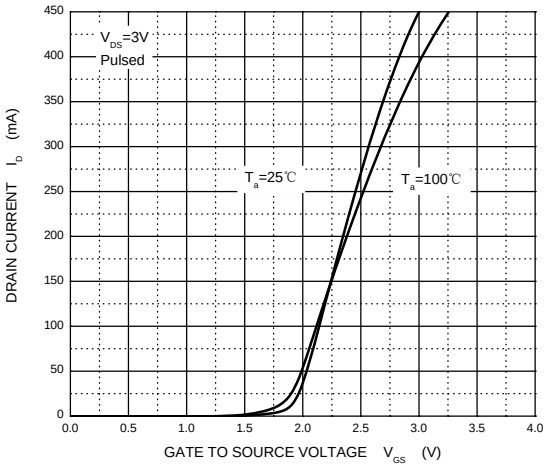
4. Graranted by design，not subject to producting.

RATING AND CHARACTERISTIC CURVES (BSS123)

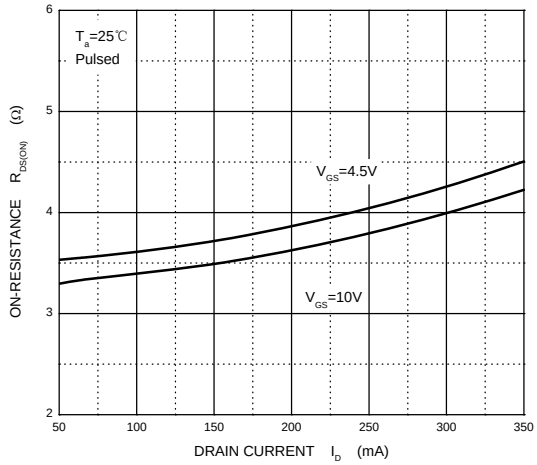
Output Characteristics



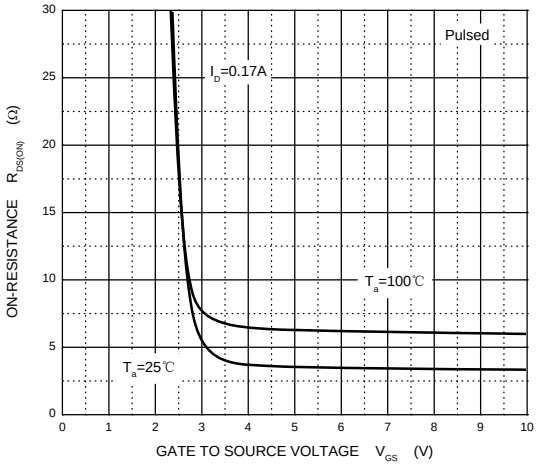
Transfer Characteristics



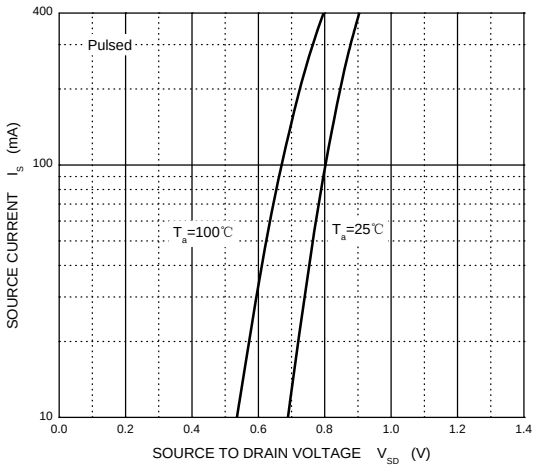
$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage