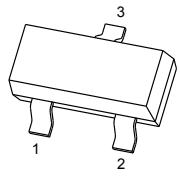
BSS123

SOT-23 Plastic-Encapsulate MOSFETS

100V N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
100V	3.5Ω @ 10V	200mA
	4Ω@ 4.5V	

SOT-23



1. GATE
2. SOURCE
3. DRAIN

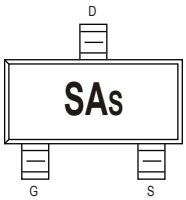
FEATURE

- Surface Mount Package
- High Density Cell Design for Extremely Low $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable

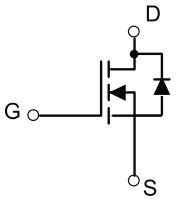
APPLICATION

- Small Servo Motor Controls
- Power MOSFET Gate Driversigh
- Switching Application

MARKING



Equivalent circuit



PACKAGE SPECIFICATIONS

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)	Box Size (mm)	QTY/Box (pcs)	Carton Size (mm)	Q'TY/Carton (pcs)
SOT-23	7'	330	3000	203×203×195	45000	438×438×220	180000

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	0.2	A
Pulsed Drain Current (tp=10us)	I_{DM}	0.8	A
Continous Source-Drain Diode Current	I_S	0.17	A
Power Dissipation	P_D	0.3	W
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	400	℃/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	℃

The above data are for reference only.

MOSFET ELECTRICAL CHARACTERISTICS

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 Ta=25℃			1	μA
		V_{DS} =80V,V_{GS} = 0V Ta=125℃			100	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±10	uA
Gate threshold voltage (note 2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	2.0	3.0	V
Drain-source on-resistance(note 2)	$R_{DS(on)}$	V_{GS} =10V, I_D =0.2A		3.5	6	Ω
		V_{GS} =4.5V, I_D =0.1A		4	8	Ω
Forward tranconductance(note 2)	g_{FS}	V_{DS} =10V, I_D =170mA	80			mS
Diode forward voltage	V_{SD}	I_{SD}=200mA, V_{GS} = 0V		0.85	1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V,f =1MHz		31.6		pF
Output Capacitance	C_{oss}			2.8		pF
Reverse Transfer Capacitance	C_{rss}			2		pF
SWITCHING CHARACTERISTICS (note 3,4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=50V, I_D=0.2A,R_{GEN}=3.3Ω		2		ns
Turn-on rise time	t_r			3.1		ns
Turn-off delay time	$t_{d(off)}$			6.5		ns
Turn-off fall time	t_f			15		ns
Total Gate Charge	Q_g	V_{DS}=50V,I_D=0.2A, V_{GS}=10V		0.74		nC
Gate-Source Charge	Q_{gs}			0.08		nC
Gate-Drain Charge	Q_{gd}			0.26		nC

Notes :

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

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

3. witching characteristics are independent of operating junction temperature.

4.Graranted by design，not subject to producting.

Typical Characteristics

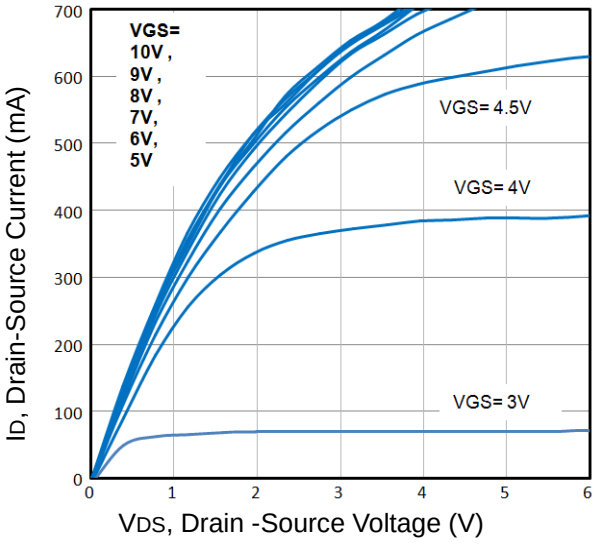


Fig1. Typical Output Characteristics

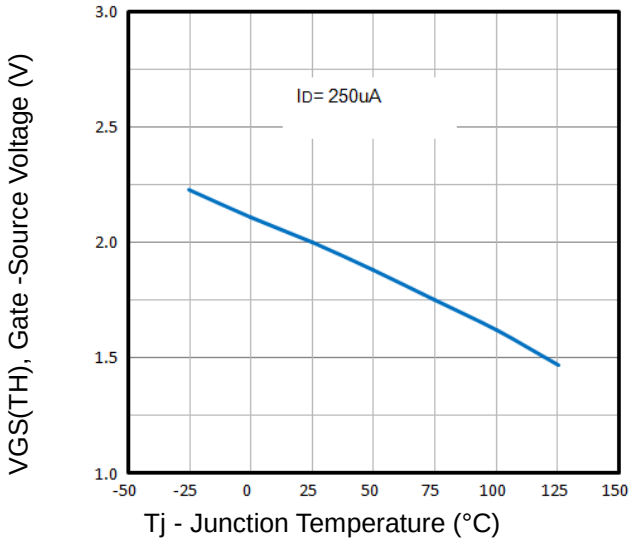


Fig2. Normalized Threshold Voltage Vs. Temperature

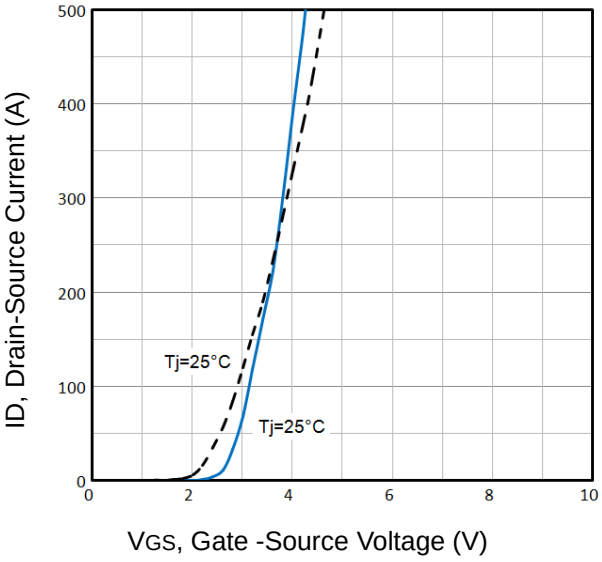


Fig3. Typical Transfer Characteristics

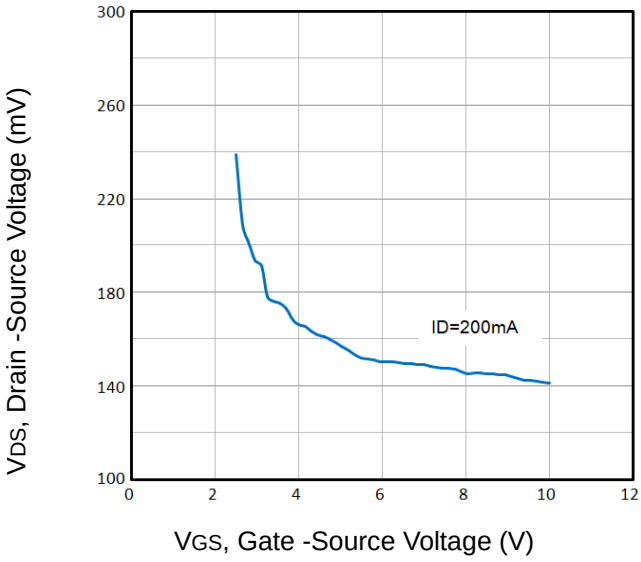


Fig4. Drain -Source Voltage vs Gate -Source Voltage

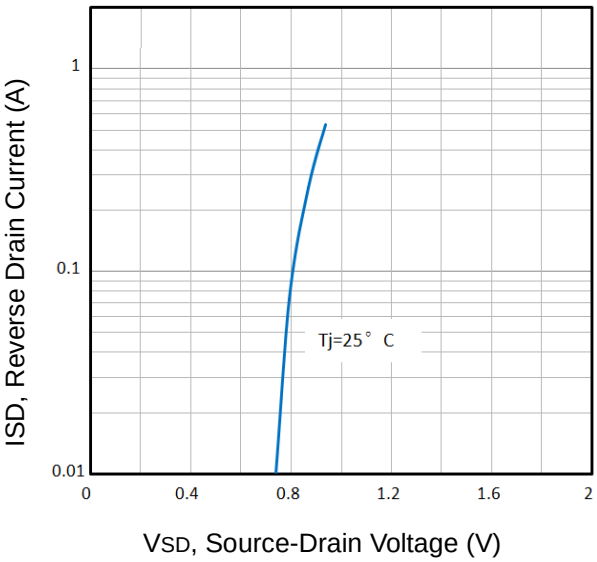


Fig5. Typical Source-Drain Diode Forward Voltage

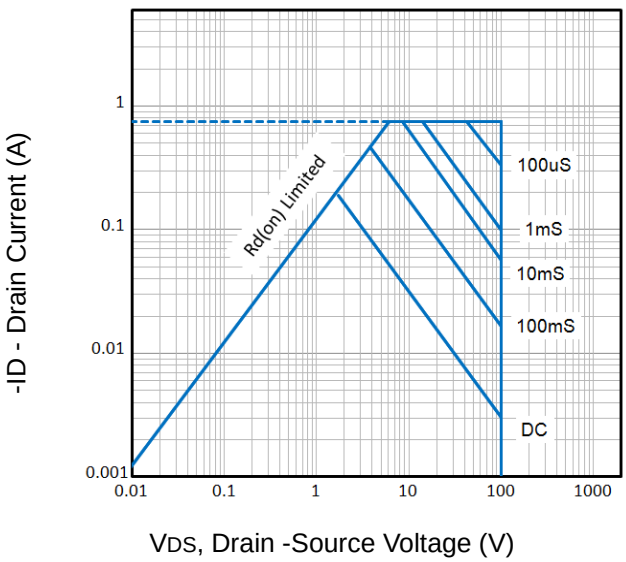


Fig6. Maximum Safe Operating Area

Typical Characteristics

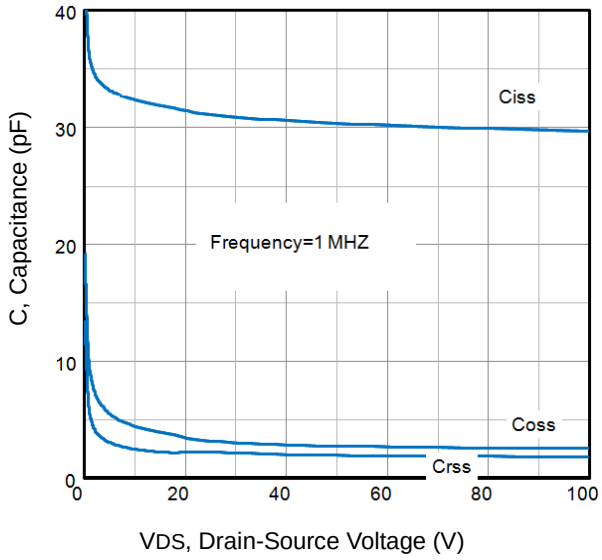


Fig7. Typical Capacitance Vs. Drain-Source Voltage

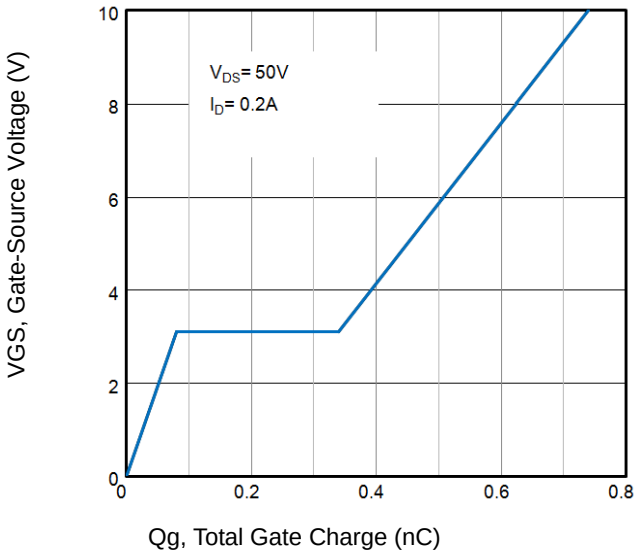


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

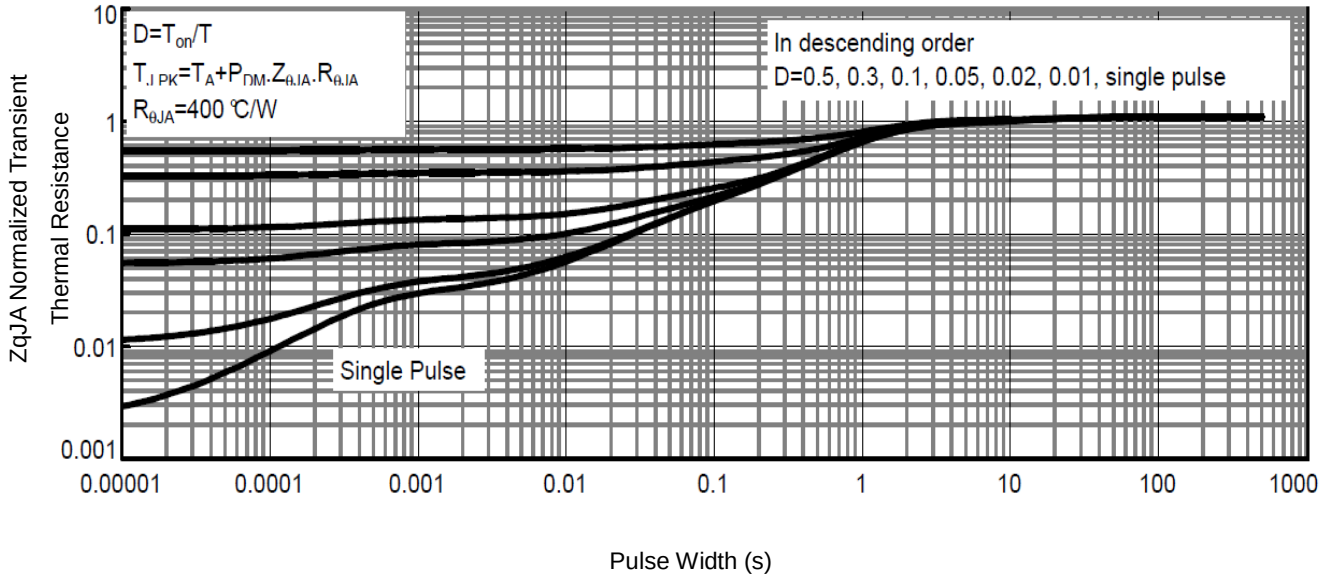


Fig9. Normalized Maximum Transient Thermal Impedance

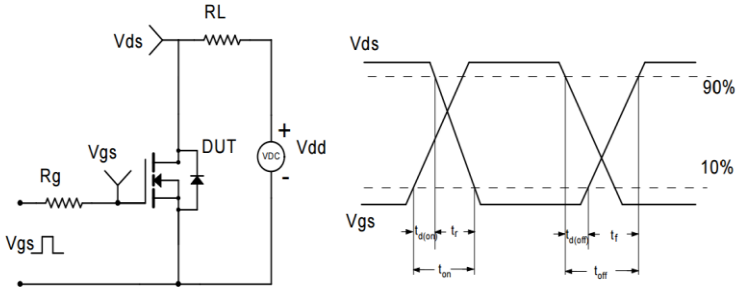
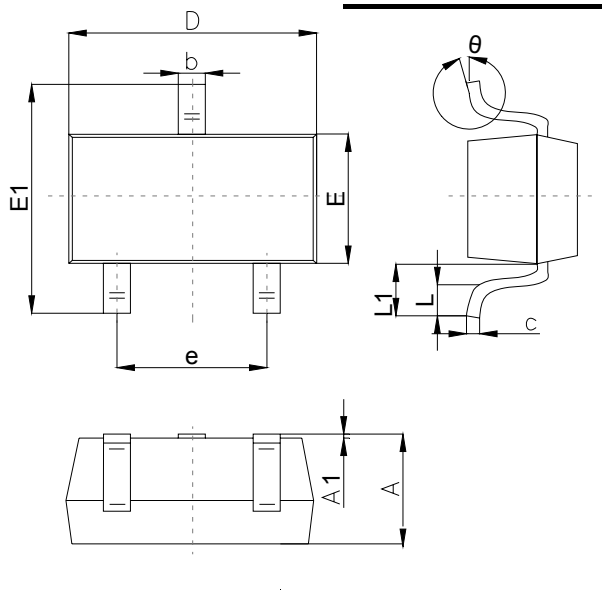


Fig10. Switching Time Test Circuit and waveforms

The curve above is for reference only.

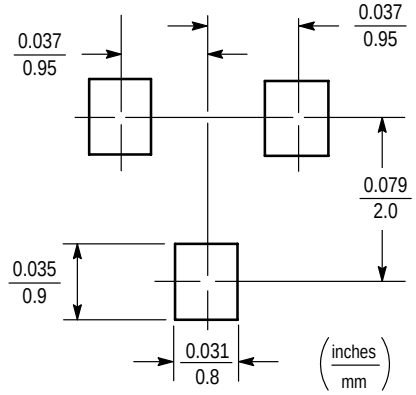
Outlitne Drawing

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	1.00		1.40
A1			0.10
b	0.35		0.50
c	0.10		0.20
D	2.70	2.90	3.10
E	1.40		1.60
E1	2.4		2.80
e		1.90	
L	0.10		0.30
L1	0.4		
θ	0°		10°

Suggested Pad Layout



Note:

1.Controlling dimension:in/millimeters.

2.General tolerance: ±0.05mm.

3.The pad layout is for reference purposes only.