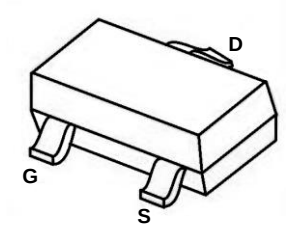
BSS123K

100V N-Channel MOSFET

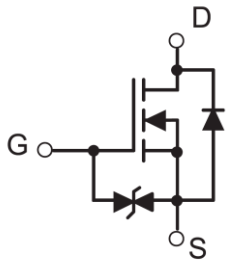
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	3.0Ω@10V	0.17A
	3.2Ω@4.5V	

SOT-23



Schematic diagram



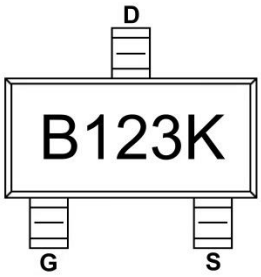
Feature

- Surface Mount Package
- High Density Cell Design for Extremely Low RDS(ON)
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- ESD protected Gate

Application

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

MARKING:



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1,2]	I_D	0.17	A
Pulsed Drain Current (tp=10μs)	I_{DM}	0.51	A
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient[1,2]	$R_{\theta JA}$	357	℃/W
Junction Temperature	T_J	125	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_a = 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off 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} = 80V, V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±5	μA
On Characteristics[3]						
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.45	3	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 0.17A		3.0	4.5	Ω
		V_{GS} = 4.5V, I_D = 0.17A		3.2	6.0	
Forward tranconductance	g_{FS}	V_{DS} = 10V, I_D = 0.17A		0.47		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 45V, V_{GS} = 0V, f = 1MHz		29		pF
Output Capacitance	C_{oss}			4		
Reverse Transfer Capacitance	C_{rss}			2		
Switchig Characteristics						
Turn-on delay time	$t_{d(on)}$	V_{GS} = 10V, V_{DD} = 30V,I_D = 0.17A, R_G = 50Ω		7		ns
Turn-on rise time	t_r			6		
Turn-off delay time	$t_{d(off)}$			10		
Turn-off fall time	t_f			9		
Total Gate Charge	Q_g	V_{DS} =10V, I_D =0.17A, V_{GS} =10V		1.5		nC
Gate-Source Charge	Q_{gs}			0.16		
Gate-Drain Charge	Q_{gd}			0.2		
Diode Characteristics						
Diode forward voltage[3]	V_{SD}	I_S = 0.17A, V_{GS} = 0V		0.8	1.3	V

Notes :

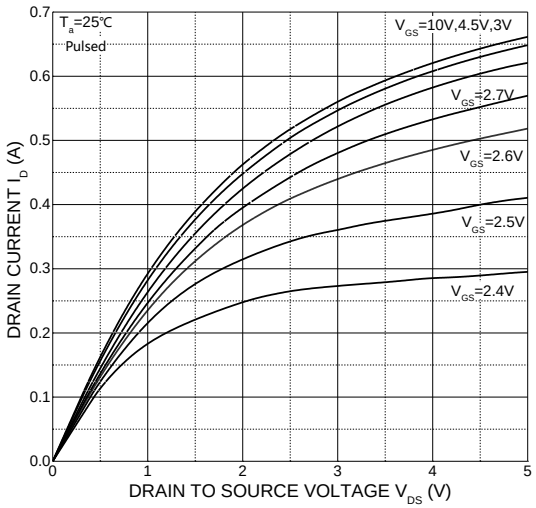
1.$R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR4 board with 1oz. single side copper, in a still air environment with T_A = 25°C.

2.$R_{\theta JA}$ is measured in the steady state

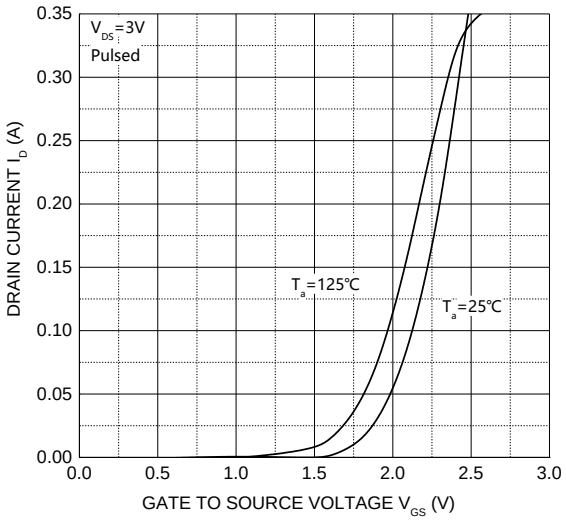
3.Pulse test : Pulse width ≤ 380μs, duty cycle ≤ 2%.

Typical Characteristics

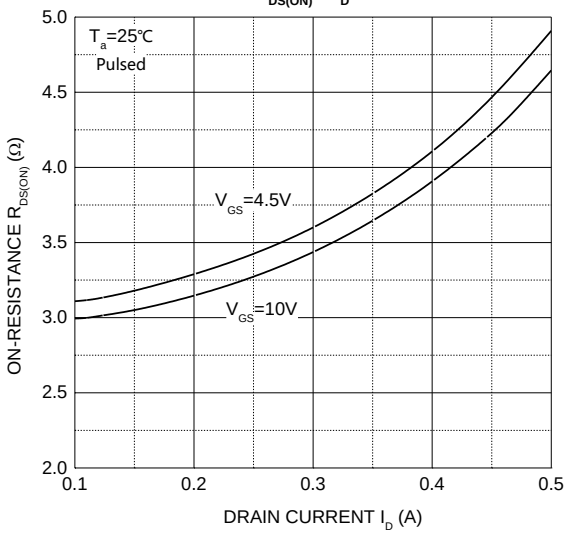
Output Characteristics



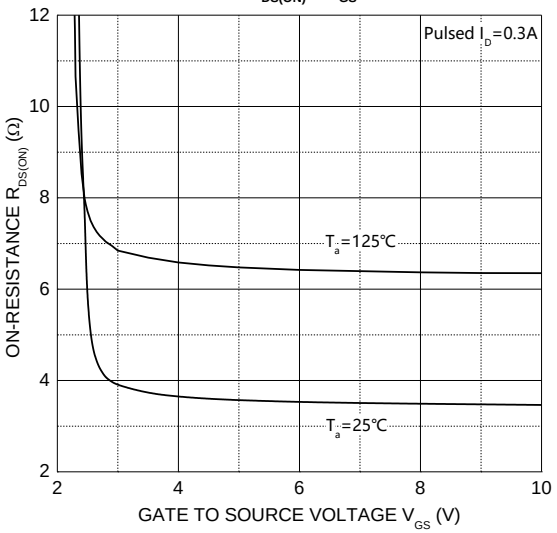
Transfer Characteristics



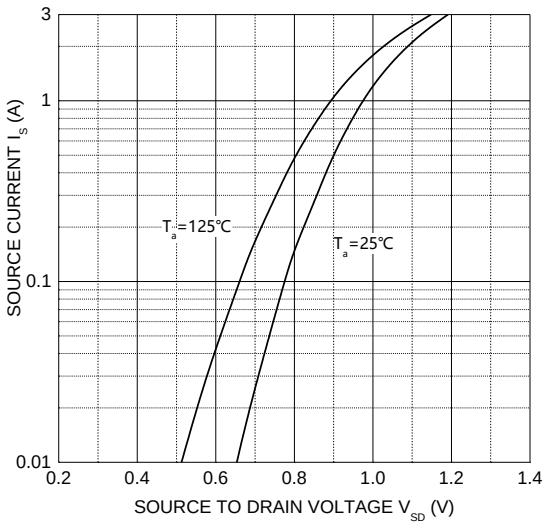
$R_{DS(ON)}$ – I_D



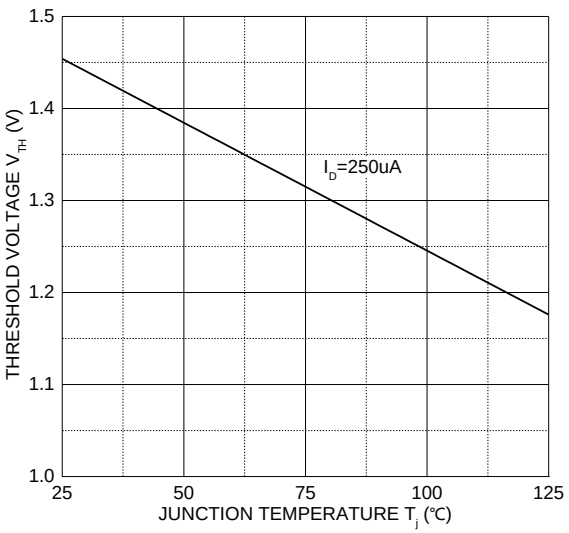
$R_{DS(ON)}$ - V_{GS}



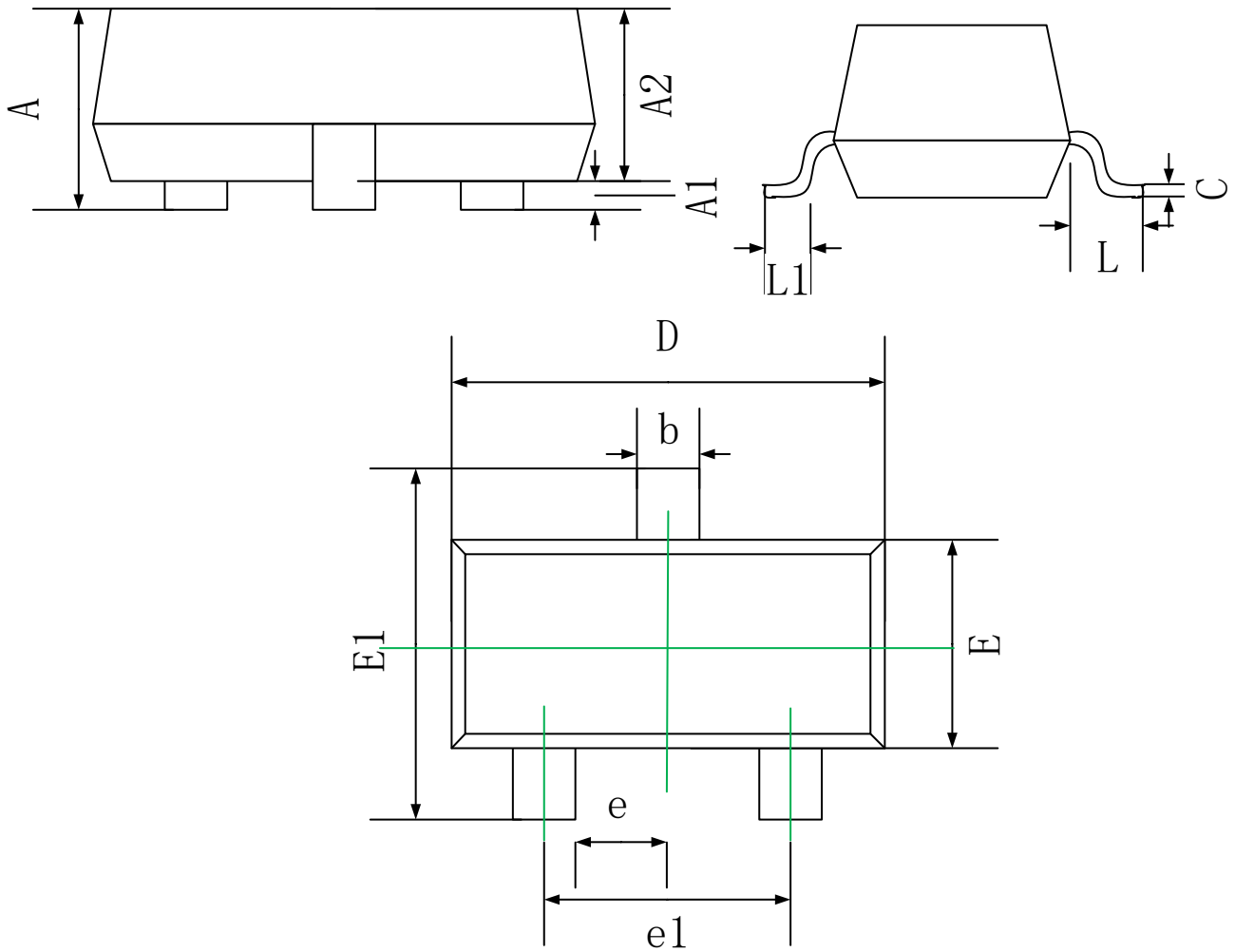
I_S - V_{SD}



Threshold Voltage



SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50