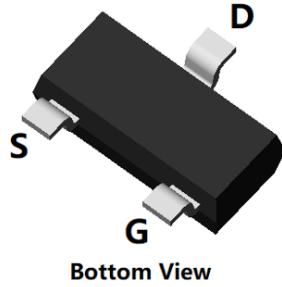
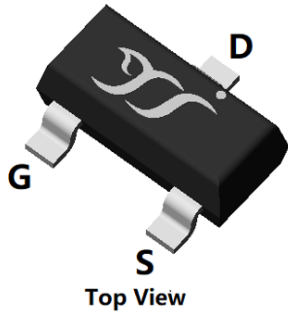
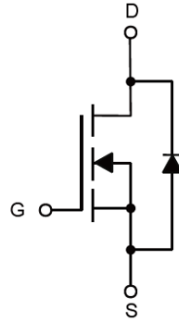


N-Channel Enhancement Mode Field Effect Transistor



SOT-23



Product Summary

- V_{DS} 100V
- I_D 200mA
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <5.0ohm
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) <5.5ohm

General Description

- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- High density cell design for low $R_{DS(ON)}$
- Fast Switching Speed
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Small servo motor control
- Power MOSFET gate drivers
- Switching application

■ Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	100	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current	I_D	$T_A=25^\circ C$ @ Steady State	200
		$T_A=70^\circ C$ @ Steady State	160
Pulsed Drain Current ^A	I_{DM}	800	mA
Total Power Dissipation @ $T_A=25^\circ C$	P_D	350	mW
Thermal Resistance Junction-to-Ambient @ Steady State ^B	$R_{\theta JA}$	357	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$

■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	Marking	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BSS123	F2	B123.	3000	30000	120000	7" reel



BSS123

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS1}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
	I_{GSS2}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 50	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=200mA$		3.0	5.0	Ω
		$V_{GS}=4.5V, I_D=175mA$		3.5	5.5	
Diode Forward Voltage	V_{SD}	$I_S=200mA, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	I_S				200	mA
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		32		pF
Output Capacitance	C_{oss}			10		
Reverse Transfer Capacitance	C_{rss}			7		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=50V, I_D=0.2A$		1.61		nC
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=50V, I_D=0.2A, R_{GEN}=6\Omega$		1.7		ns
Turn-on Rise Time	t_r			9		
Turn-off Delay Time	$t_{D(off)}$			17		
Turn-off fall Time	t_f			7		

A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.



■ Typical Performance Characteristics

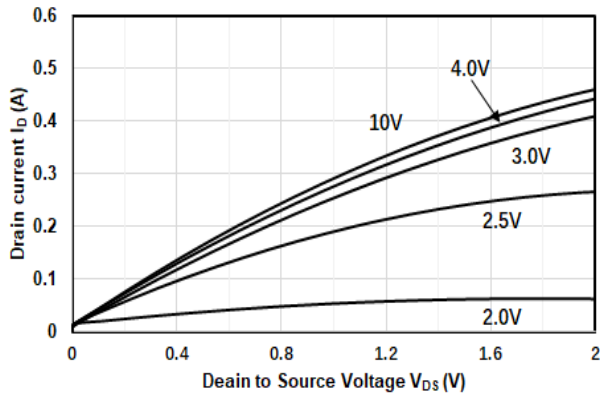


Figure1. Output Characteristics

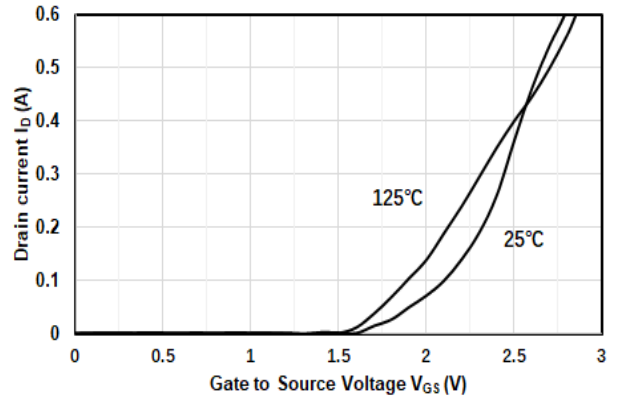


Figure2. Transfer Characteristics

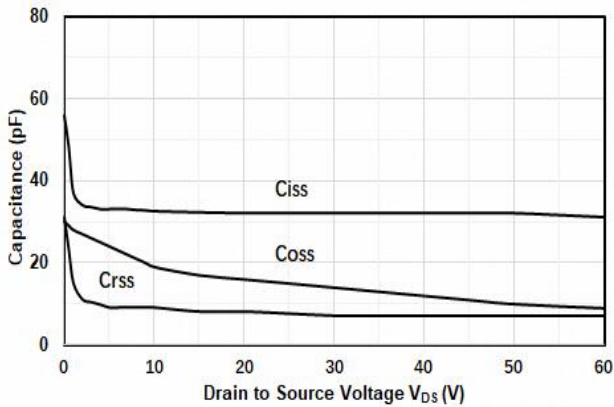


Figure3. Capacitance Characteristics

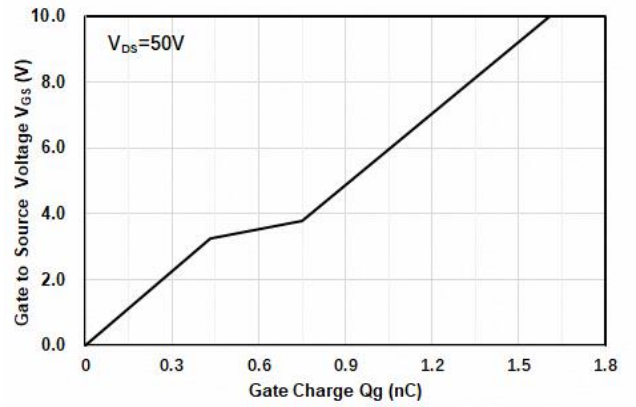


Figure4. Gate Charge

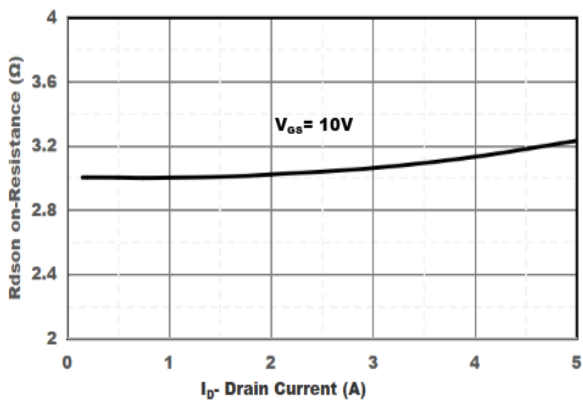


Figure5. Drain-Source on Resistance

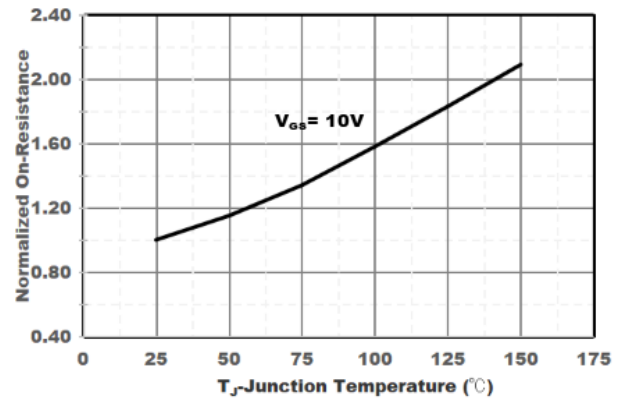


Figure6. Drain-Source on Resistance

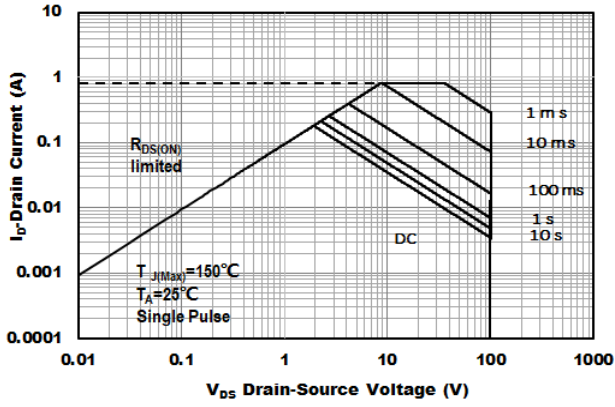


Figure7. Safe Operation Area

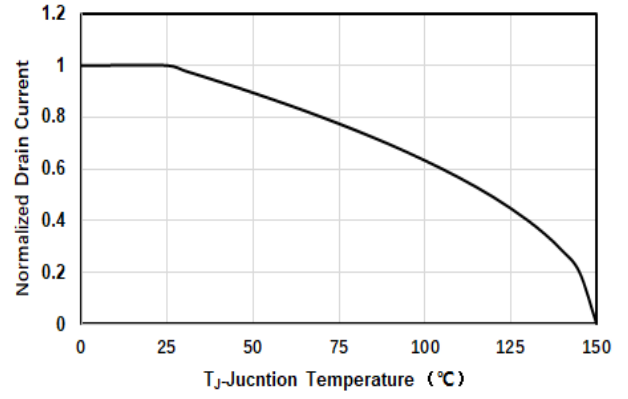


Figure8. Drain-Source Current

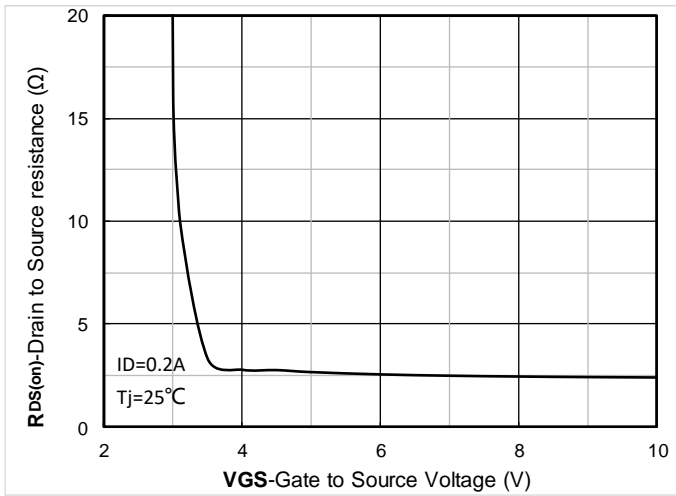


Figure 9. On-Resistance vs Gate to Source Voltage

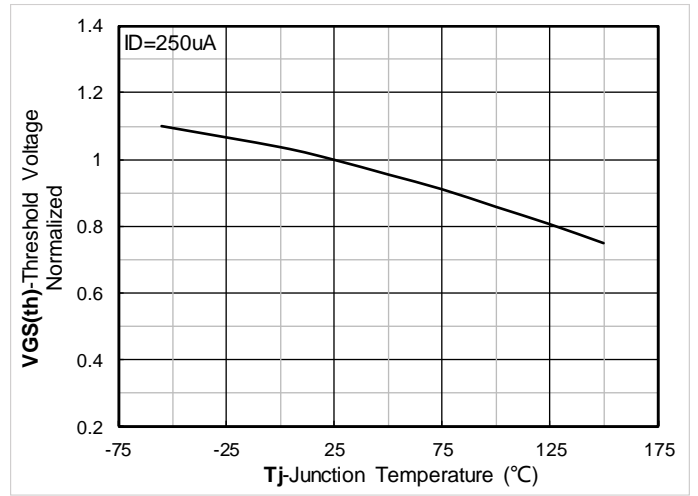
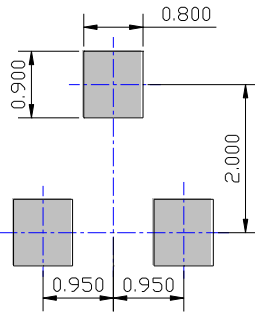
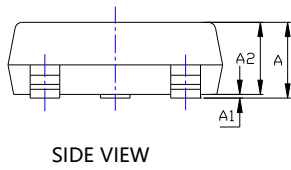
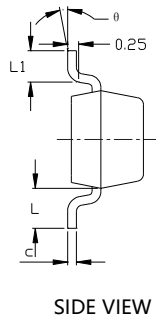
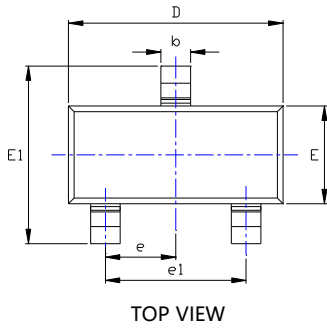


Figure 10. Normalized Threshold voltage

■ SOT-23 Package information



UNIT: mm

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

NOTE:
 1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
 2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
 3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.



BSS123

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