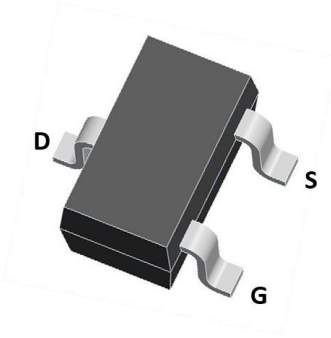
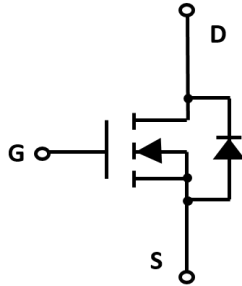
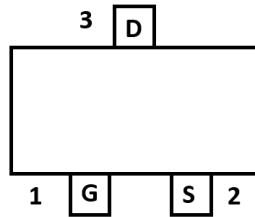


## N-Channel Enhancement Mode Field Effect Transistor



**SOT-323**



### 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

### 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	$V_{GS}$	$\pm 20$	V
Drain Current	$I_D$	$T_A=25^\circ C$ @ Steady State	200
		$T_A=70^\circ C$ @ Steady State	160
Pulsed Drain Current <sup>A</sup>	$I_{DM}$	800	mA
Total Power Dissipation @ $T_A=25^\circ C$	$P_D$	350	mW
Thermal Resistance Junction-to-Ambient @ Steady State <sup>B</sup>	$R_{\theta JA}$	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



# BSS123W

## ■ Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			1	μA
Gate-Body Leakage Current	I <sub>GSS1</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> =0V			±100	nA
	I <sub>GSS2</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> =0V			±50	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	1	1.8	3.0	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> =200mA		3.0	5.0	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> =200mA		3.5	5.5	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =200mA, V <sub>GS</sub> =0V			1.2	V
Maximum Body-Diode Continuous Current	I <sub>S</sub>				200	mA
<b>Dynamic Parameters</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f=1MHZ		14		pF
Output Capacitance	C <sub>oss</sub>			10		
Reverse Transfer Capacitance	C <sub>rss</sub>			5		
<b>Switching Parameters</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V, I <sub>D</sub> =0.2A		1.8	2.5	nC
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =50V, I <sub>D</sub> =0.2A, R <sub>GEN</sub> =6Ω		1.7		ns
Turn-on Rise Time	t <sub>r</sub>			9		
Turn-off Delay Time	t <sub>D(off)</sub>			17		
Turn-off fall Time	t <sub>f</sub>			7		

A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

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



## ■ Typical Performance Characteristics

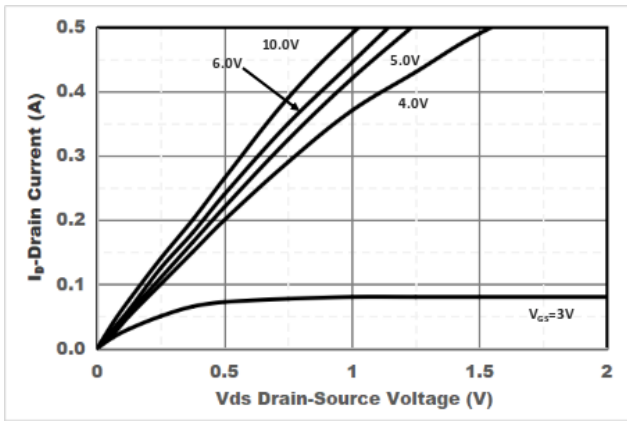


Figure1. Output Characteristics

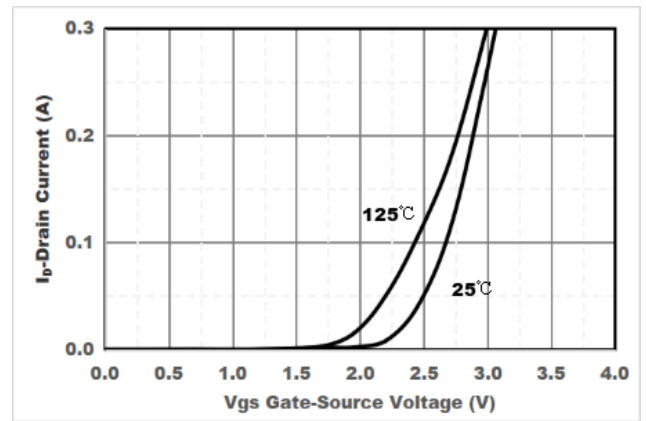


Figure2. Transfer Characteristics

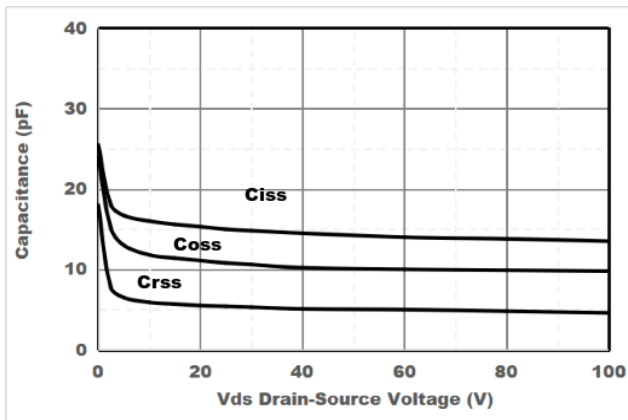


Figure3. Capacitance Characteristics

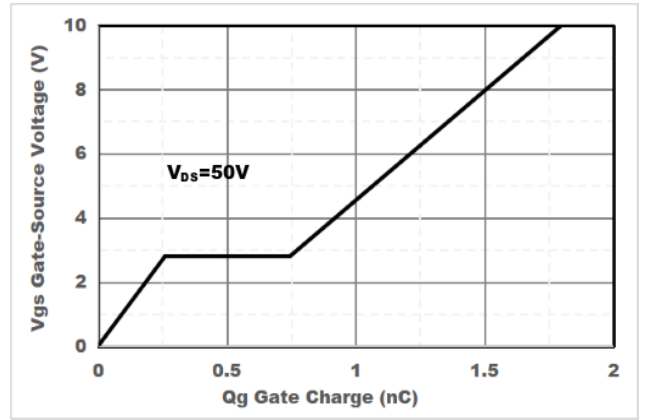


Figure4. Gate Charge

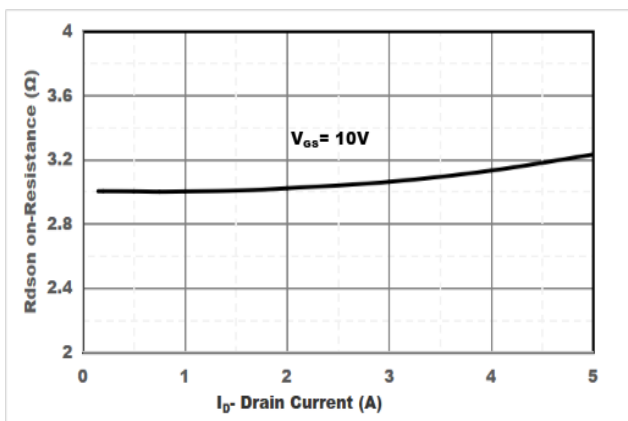


Figure5. Drain-Source on Resistance

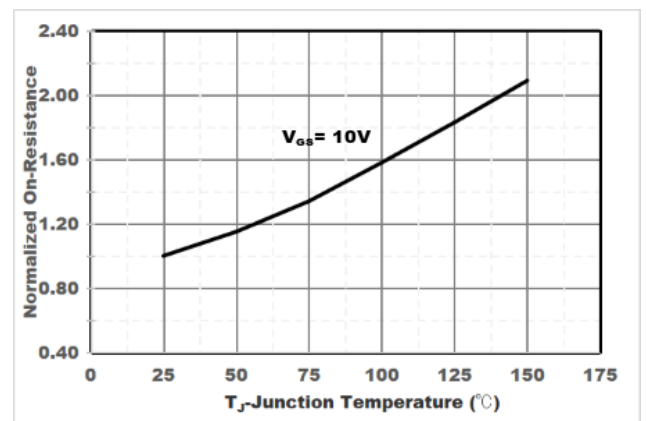


Figure6. Drain-Source on Resistance

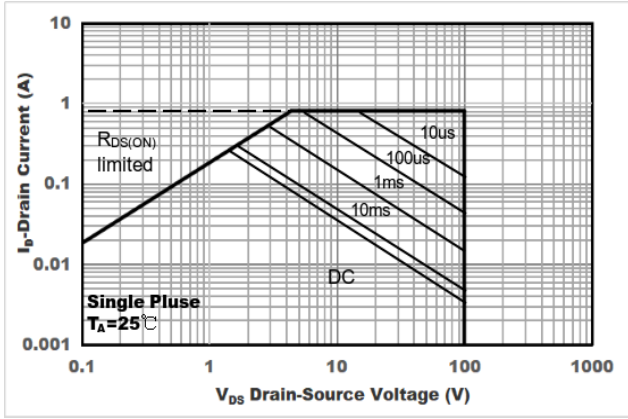


Figure7. Safe Operation Area

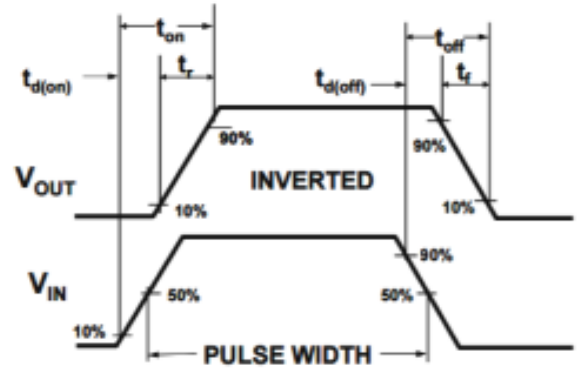
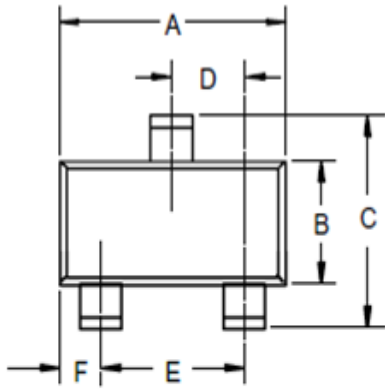


Figure8. Switching wave

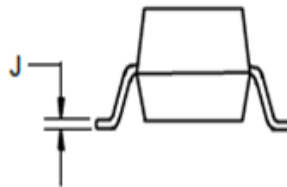
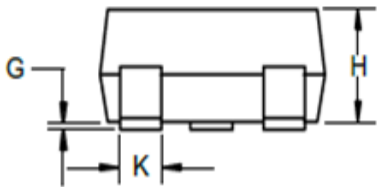


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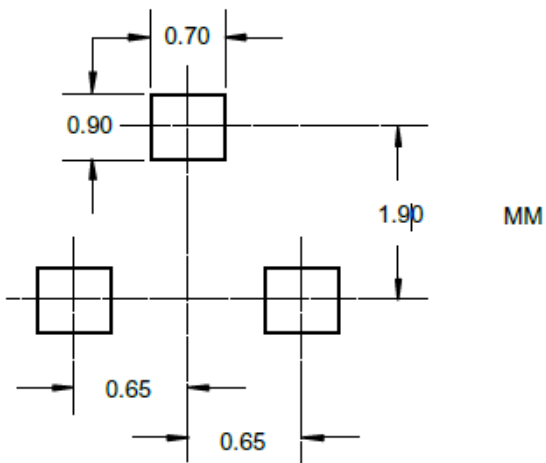
## ■ SOT-323 Package information



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.083	.096	2.10	2.45	
D	.026 Nominal		0.65Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.006	.016	.15	.40	



## ■ SOT-323 Suggested Pad Layout





## BSS123W

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