

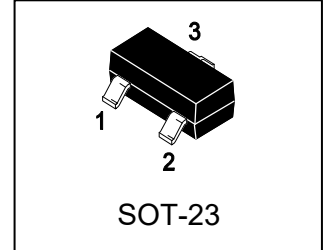
# BSS123L

# S-BSS123L

## N-CHANNEL POWER MOSFET

### 1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

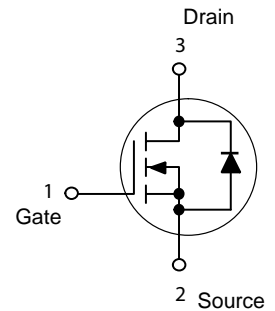


### 2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
BSS123L	SA	3000/Tape&Reel

### 3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	100	V
Gate–to–Source Voltage			
– Continuous	VGS	±20	V
– Non–repetitive (tp ≤ 50 μs)	VGSM	±40	
Drain Current			A
– Continuous (Note 1)	ID	0.17	
– Pulsed (Note 2)	IDM	0.68	



### 4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-5 Board (Note 3) @ TA = 25°C Derate above 25°C	PD	225 1.8	mW mW/°C
Thermal Resistance, Junction–to–Ambient	RθJA	556	°C/W
Junction and Storage temperature	TJ, Tstg	-55~+150	°C

1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.
3. FR-5 = 1.0×0.75×0.062 in.



## 5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

### OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)	VBRDSS	100	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = 100 V, Tj=25°C)	IDSS	-	-	15	μA
(VGS = 0, VDS = 100 V, Tj=125°C)		-	-	60	
Gate–Body Leakage Current (VGS = 20 V, VDS = 0)	IGSS	-	-	50	nA

### ON CHARACTERISTICS (Note 4)

Gate Threshold Voltage (VDS = VGS, ID = 1.0mA)	VGS(th)	0.8	-	2.0	V
Static Drain–Source On–State Resistance (VGS = 10 V, ID = 100 mA)	RDS(on)	-	5	6	Ω
Forward Transconductance (VGS = 0V, ID = 100 mA)	gfs	0.8	-	-	S

### DYNAMIC CHARACTERISTICS

Input Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Ciss	15	42.7	88	pF
Output Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Coss	5	14	29.5	pF
Reverse Transfer Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Crss	1	3	6.3	pF
Total Gate Charge (VDS = 10 V, VGS = 10V, ID=0.22A)	Qg	2.3	6.32	13.3	nC
Gate-Source Charge (VDS = 10 V, VGS = 10V, ID=0.22A)	Qgs	0.55	1.55	3.3	nC
Gate-Drain Charge (VDS = 10 V, VGS = 10V, ID=0.22A)	Qgd	0.25	0.68	1.43	nC

### SWITCHING CHARACTERISTICS (Note 4)

Turn-On Delay Time	(VCC = 30 V, IC = 0.28 A, VGS = 10 V, RGS = 50 Ω)	td(on)	-	20	-	ns
Turn-Off Delay Time		td(off)	-	40	-	

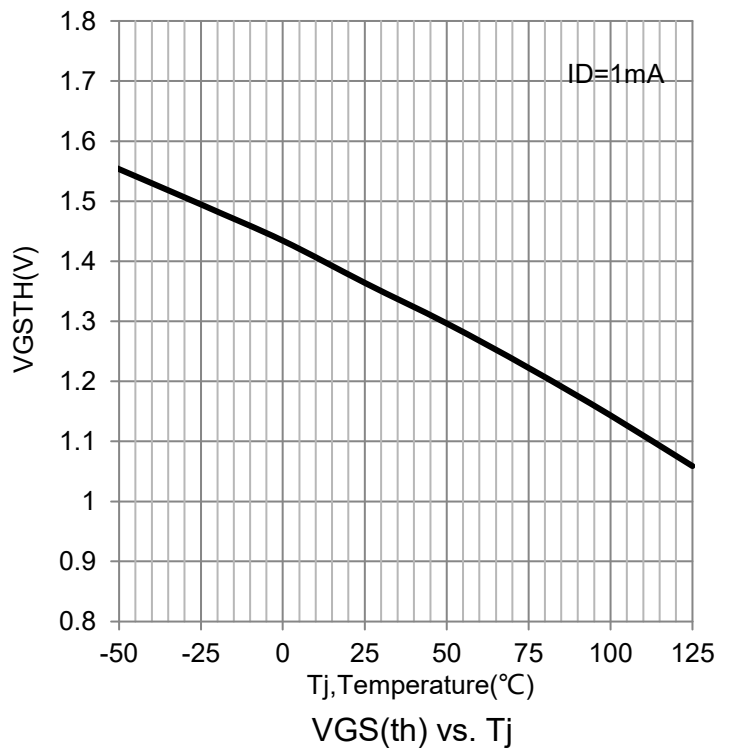
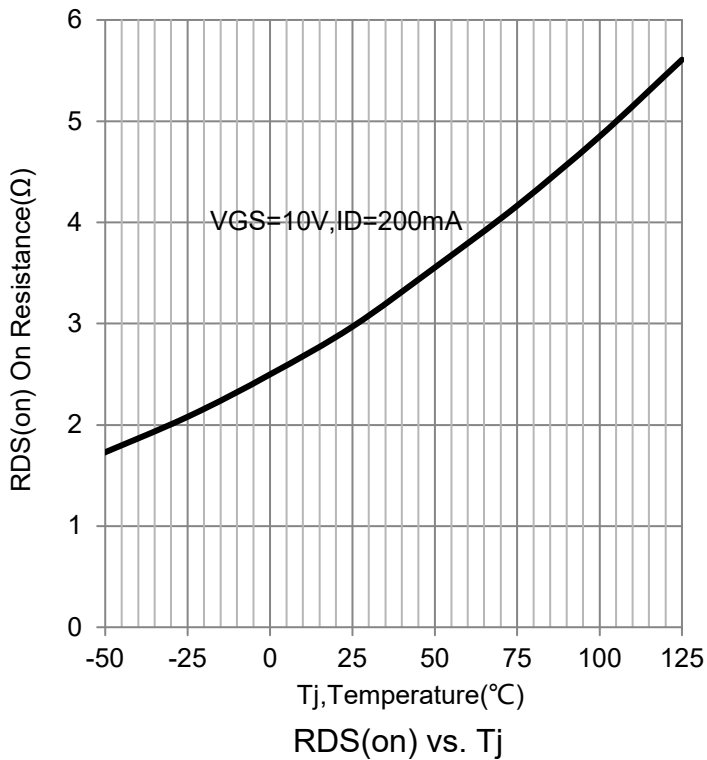
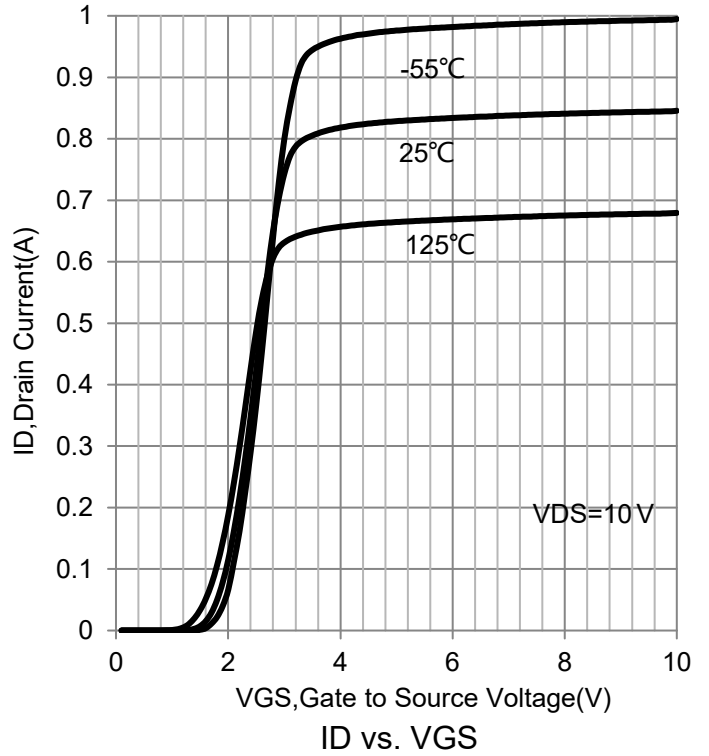
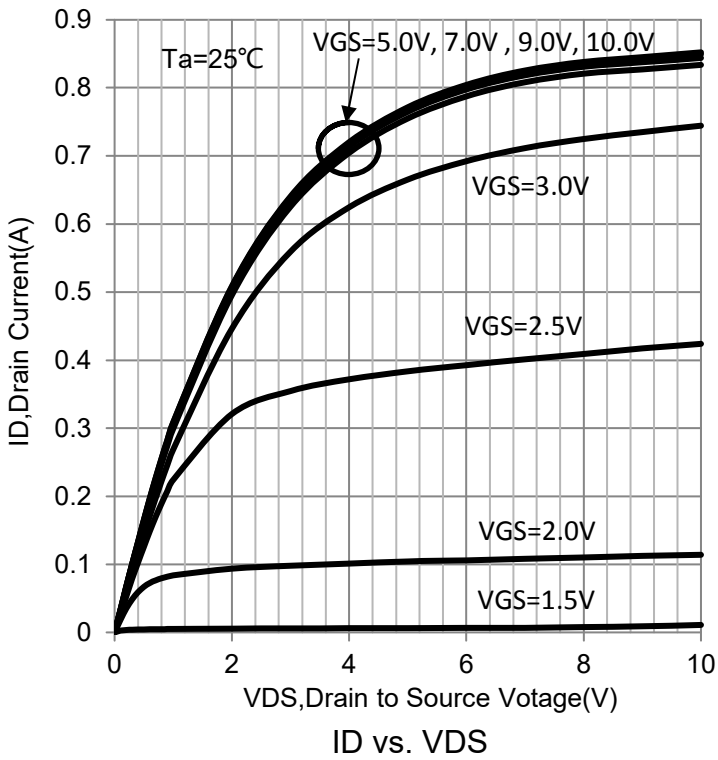
### REVERSE DIODE

Diode Forward On–Voltage (ID = 0.34 A, VGS = 0 V)	VSD	-	-	1.3	V
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4. Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.



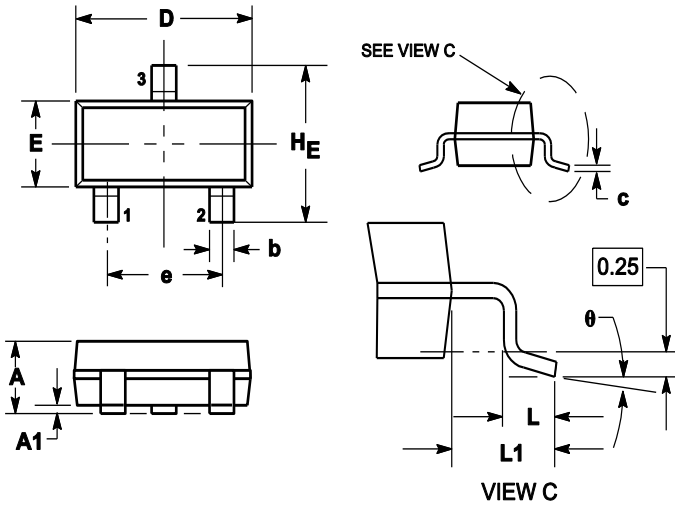
## 6. ELECTRICAL CHARACTERISTICS CURVES



## 7. OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

## 8. SOLDERING FOOTPRINT

