DESCRIPTION

The BSS123L is available in SOT-23 package

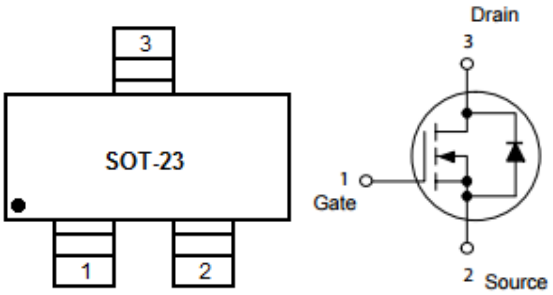
FEATURES

- Available in SOT-23 package

ORDERING INFORMATION

Package Type	Part Number
SOT-23	BSS123L
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS Compliant Products	

PIN DESCRIPTION



ABSOLUTE MAXIMUM RATINGS

V_{DSS}, Drain–Source Voltage	100Vdc
V_{GS}, Gate–Source Voltage– Continuous	±20Vdc
V_{GSM}, Gate–Source Voltage– Non–repetitive (tp ≤ 50 μs)	±40Vpk
I_D, Drain Current Continuous NOTE1	0.17Adc
I_{DM}, Drain Current Pulsed NOTE2	0.68Adc

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Total Device Dissipation FR–5 Board NOTE3			
T_A = 25°C	P_D	225	mW
Derate above 25°C		1.8	mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Junction and Storage Temperature	T_J, T_{STG}	-55 to +150	°C

NOTE1: The Power Dissipation of the package may result in a lower continuous drain current.
NOTE2: Pulse Width ≤300μs, Duty Cycle ≤ 2.0%.
NOTE3: FR–5 = 1.0 x 0.75x 0.062 in.

ELECTRICAL CHARACTERISTICS

T_A = 25°C, unless otherwise noted

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS							
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0, I_D = 250μAdc		100	-	-	Vdc
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0, V_{DS} = 100Vdc	T_J = 25°C	-	-	15	μAdc
			T_J = 125°C	-	-	60	
Gate–Body Leakage Current	I_{GSS}	V_{GS} = 20Vdc, V_{DS} = 0		-	-	50	nAdc
ON CHARACTERISTICS NOTE4							
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 1.0mAdc		0.8	-	2.0	Vdc
Static Drain–Source On–Resistance	$R_{DS(on)}$	V_{GS} = 10Vdc, I_D = 100mAdc		-	5.0	6.0	Ω
Forward Transconductance	g_{fs}	V_{DS} = 25Vdc, I_D = 100mAdc		80	-	-	mmhos
DYNAMIC CHARACTERISTICS							
Input Capacitance	C_{iss}	V_{DS} = 25Vdc, V_{GS} = 0, f = 1.0 MHz		-	20	-	pF
Output Capacitance	C_{oss}	V_{DS} = 25Vdc, V_{GS} = 0, f = 1.0 MHz		-	9.0	-	pF
Reverse Transfer Capacitance	C_{rss}	V_{DS} = 25Vdc, V_{GS} = 0, f = 1.0 MHz		-	4.0	-	pF
SWITCHING CHARACTERISTICS NOTE4							
Turn–On Delay Time	$t_{d(on)}$	V_{CC} = 30Vdc, I_C = 0.28Adc,		-	20	-	ns
Turn–Off Delay Time	$t_{d(off)}$	V_{GS} = 10Vdc, R_{GS} = 50Ω		-	40	-	ns
REVERSE DIODE							
Diode Forward On–Voltage	V_{SD}	I_D = 0.34Adc, V_{GS} = 0Vdc		-	-	1.3	V

NOTE4: Pulse Test: Pulse Width≤300μs, Duty Cycle≤2.0%.

TYPICAL CHARACTERISTICS

Figure 1. Ohmic Region

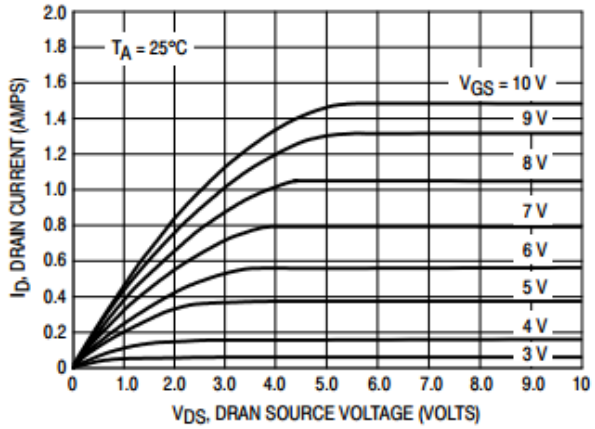


Figure 2. Transfer Characteristics

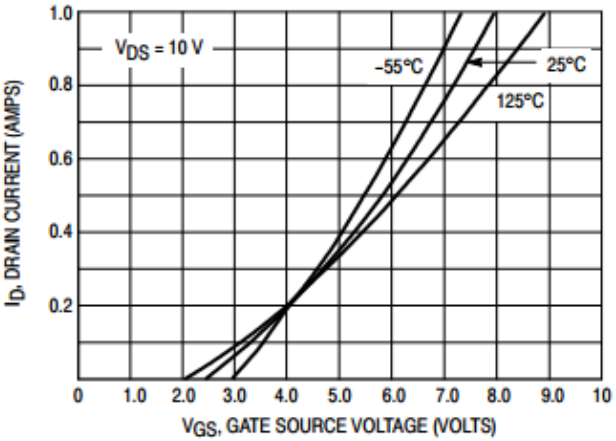


Figure 3. Temperature vs. Static Drain–Source On–Resistance

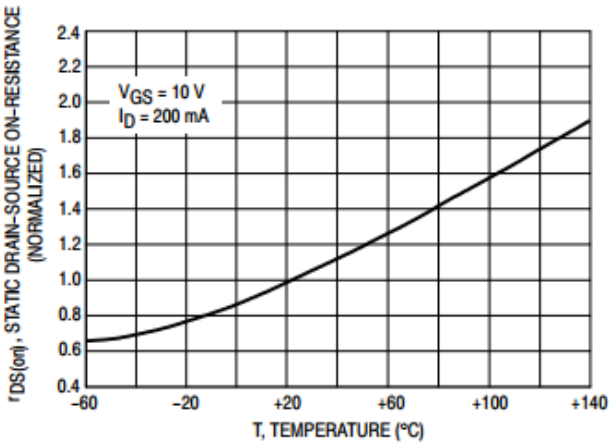
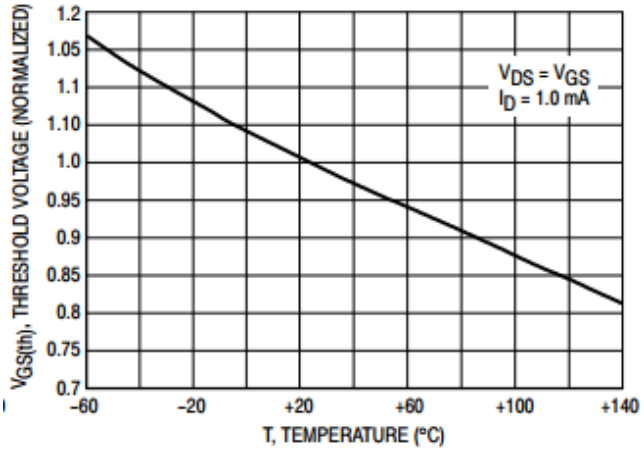
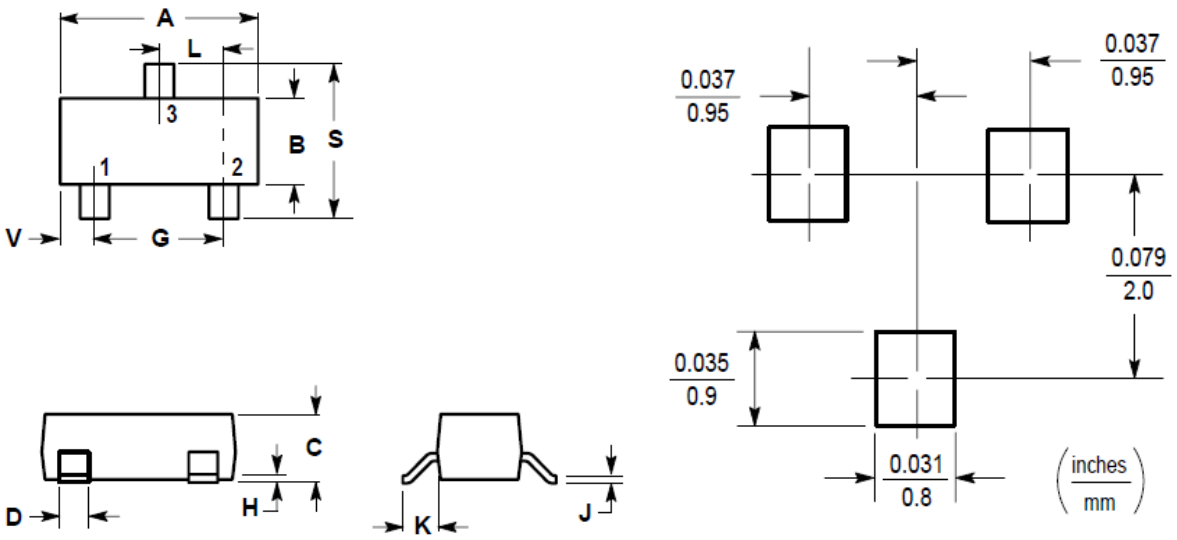


Figure 4. Temperature vs. Gate Threshold Voltage



PACKAGE INFORMATION

Dimension in SOT-23 Package (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	0.89	1.11	0.0350	0.0440
D	0.37	0.50	0.0150	0.0200
G	1.78	2.04	0.0701	0.0807
H	0.013	0.100	0.0005	0.0040
J	0.085	0.177	0.0034	0.0070
K	0.35	0.69	0.0140	0.0285
L	0.89	1.02	0.0350	0.0401
S	2.10	2.64	0.0830	0.1039
V	0.45	0.60	0.0177	0.0236

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