



DESCRIPTION

The BSS123L is available in SOT-23 package

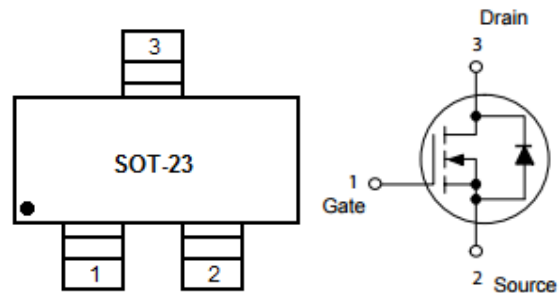
FEATURES

- 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	± 20 Vdc
V_{GSM} , Gate–Source Voltage– Non–repetitive ($t_p \leq 50 \mu s$)	± 40 Vpk
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} $T_A = 25^\circ C$ Derate above $25^\circ C$	P_D	225 1.8	mW mW/ $^\circ C$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ C/W$
Junction and Storage Temperature	T_J, T_{STG}	-55 to +150	$^\circ C$

NOTE1: The Power Dissipation of the package may result in a lower continuous drain current.

NOTE2: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2.0\%$.

NOTE3: FR–5 = $1.0 \times 0.75 \times 0.062$ 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, V _{GS} = 10Vdc, R _{GS} = 50Ω	-	20	-	ns	
Turn–Off Delay Time	t _{d(off)}		-	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

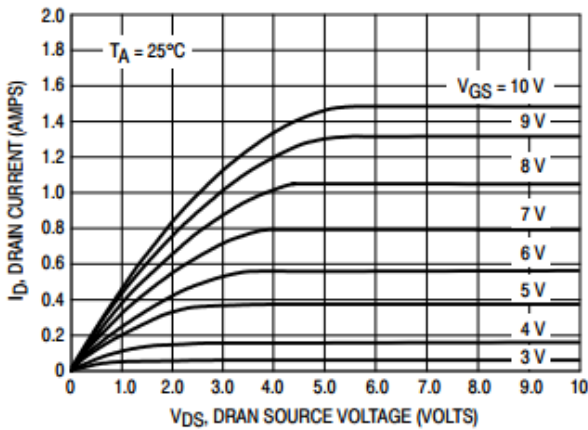


Figure 2. Transfer Characteristics

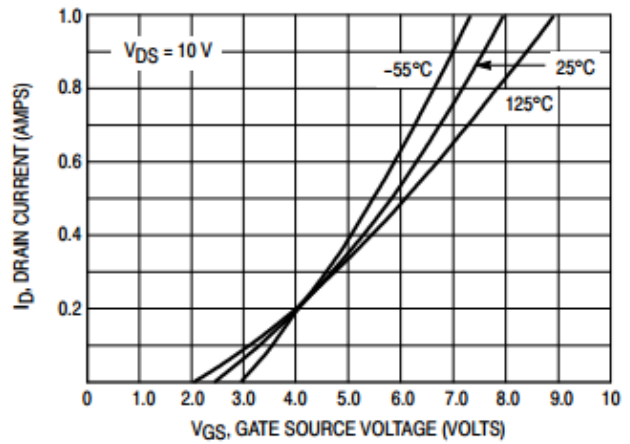


Figure 3. Temperature vs. Static Drain-Source On-Resistance

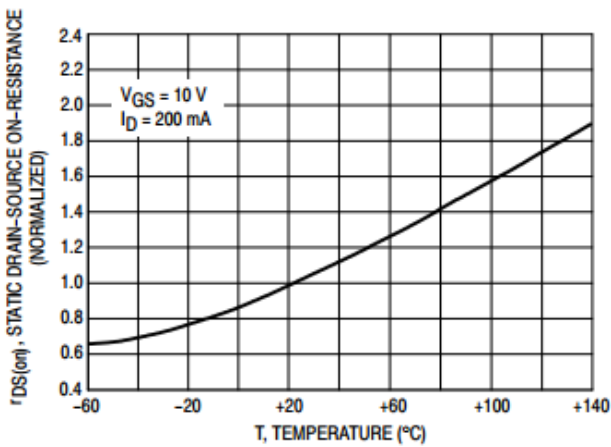
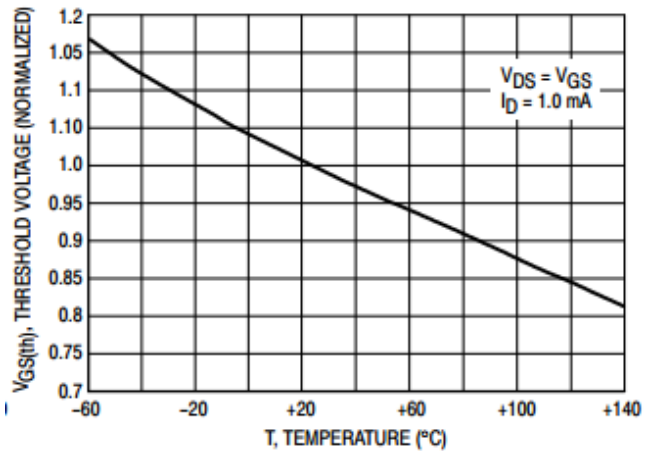


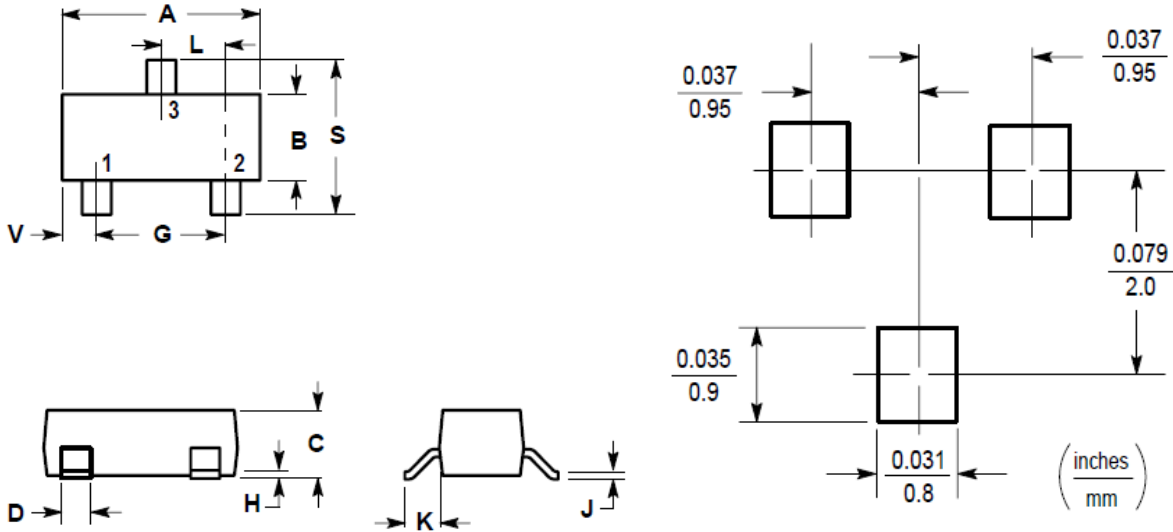
Figure 4. Temperature vs. Gate Threshold Voltage





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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