



## Description

The BSS123 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ . This device is suitable for use as a load switch or in PWM applications.

## General Features

$V_{DS} = 100V, I_D = 0.17A$

$R_{DS(ON)} < 6 \Omega @ V_{GS} = 10V$

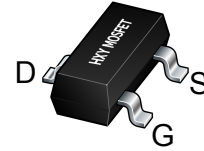
ESD Rating: 1500V HBM

## Application

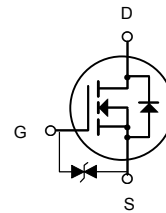
Battery protection

Load switch

Uninterruptible power supply



**SOT-23**



N-Channel MOSFET

## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
BSS123	SOT-23	SA	3000

## Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage	100	V
$V_{GS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Drain Current-Continuous	0.17	A
$I_{DM}$	Drain Current-Pulsed <sup>(Note 1)</sup>	0.68	A
$P_D$	Maximum Power Dissipation	0.35	W
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient <sup>(Note 2)</sup>	350	°C/W



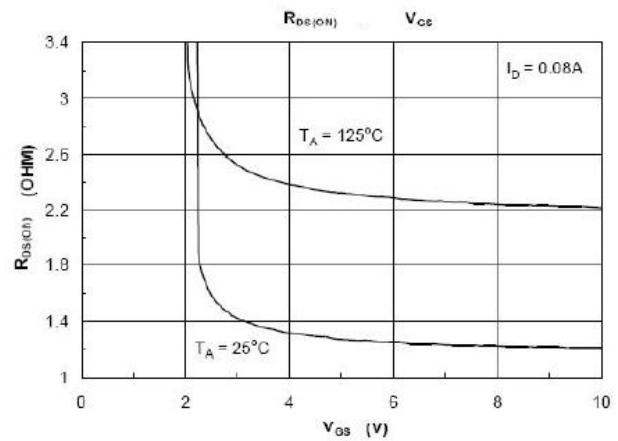
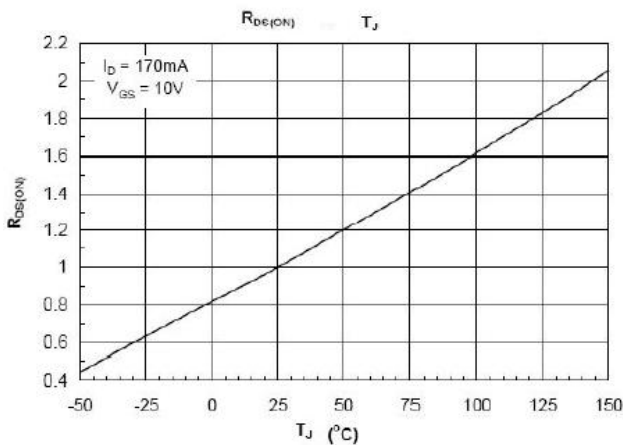
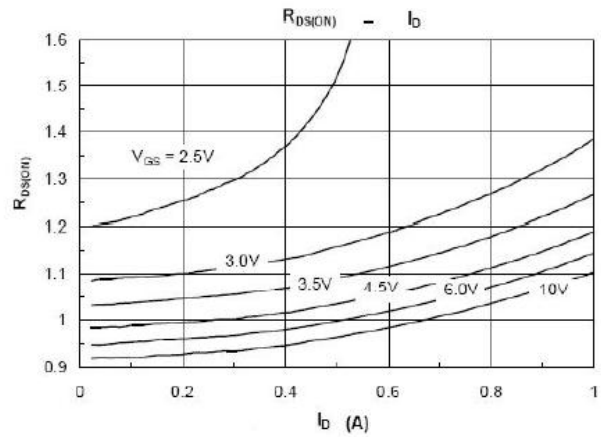
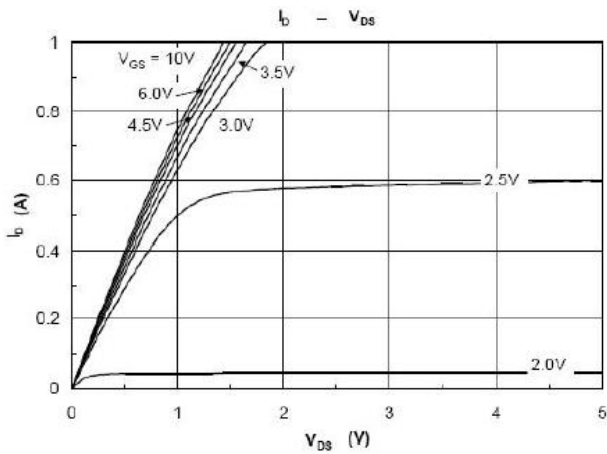
**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

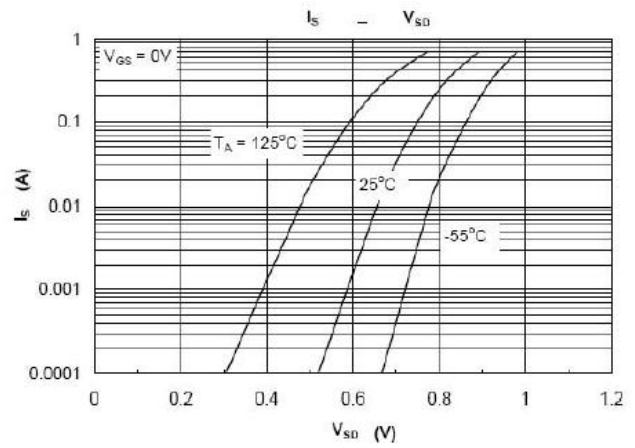
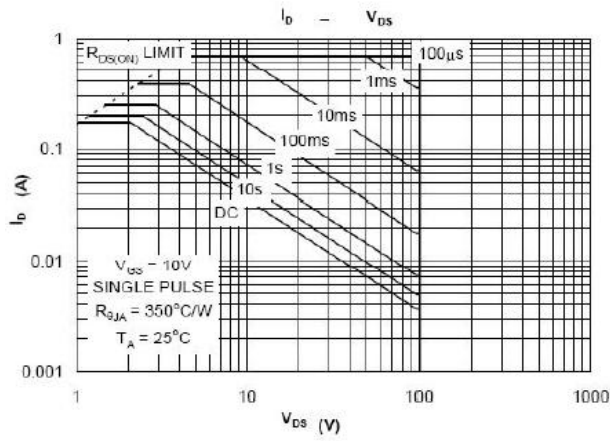
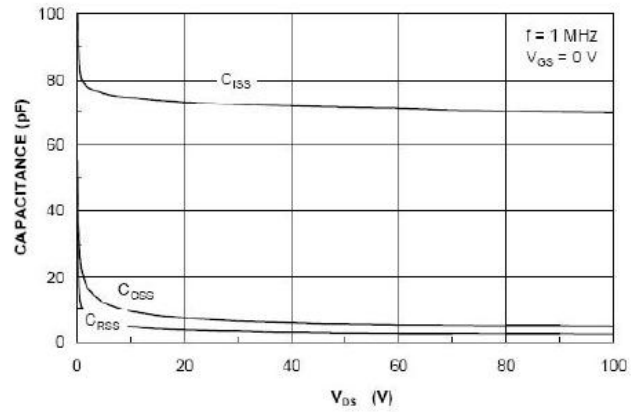
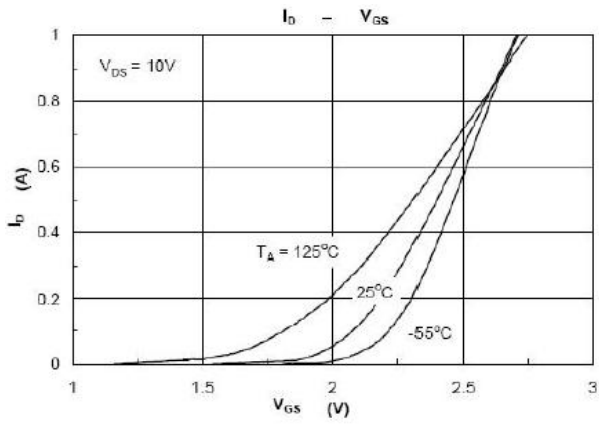
Symbol	Parameter	Test conditions	M n	Typ	Max	Unit
<b>Static</b>						
V <sub>(BR)DSS</sub>	Drain-source breakdown voltage	V <sub>GS</sub> =0, I <sub>D</sub> =250μA	100			V
V <sub>GS(th)</sub>	Gate threshold voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.5		2.5	V
I <sub>GSS</sub>	Gate-body leakage current	V <sub>DS</sub> =0, V <sub>GS</sub> =±20V			±10	μA
I <sub>DSS</sub>	Zero gate voltage drain current	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			1	μA
R <sub>DS(on)</sub>	Drain-source on-resistance <sup>a</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =0.17A			6.0	Ω
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.17A			9.0	Ω
V <sub>SD</sub>	Diode forward voltage	I <sub>S</sub> =0.2A, V <sub>GS</sub> =0V			1.0	V
<b>Dynamic</b>						
C <sub>iss</sub>	Input capacitance	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f=1MHz		30		pF
C <sub>oss</sub>	Output capacitance			10		
C <sub>rss</sub>	Reverse transfer capacitance <sup>b</sup>			7		
<b>Switching<sup>b</sup></b>						
t <sub>d(on)</sub>	Turn-on delay time	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V I <sub>D</sub> =200mA, R <sub>GEN</sub> =6Ω		1.7		nS
t <sub>r</sub>	Rise time			9		
t <sub>d(off)</sub>	Turn-off delay time			17		
t <sub>f</sub>	Fall time			7		

Notes :

- a. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
- b. Guaranteed by design, not subject to producing.

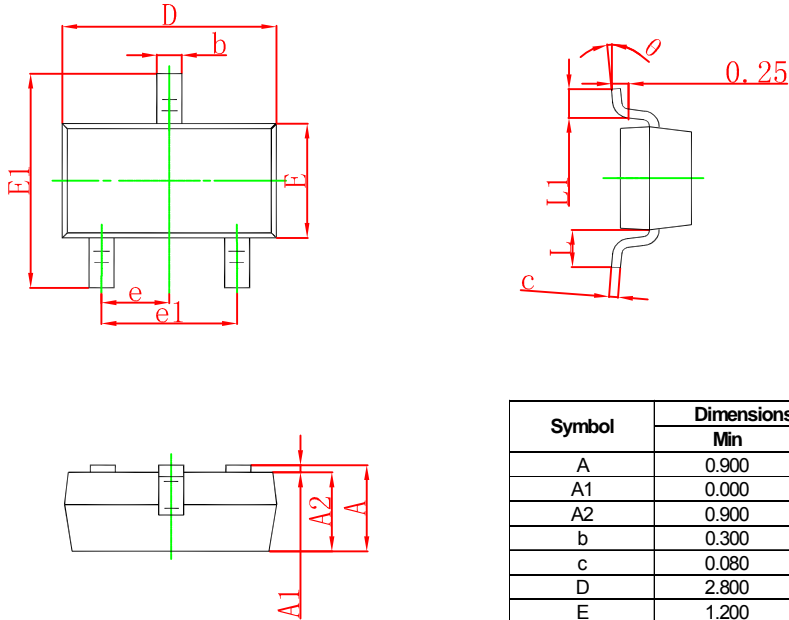
**Typical Characteristics**





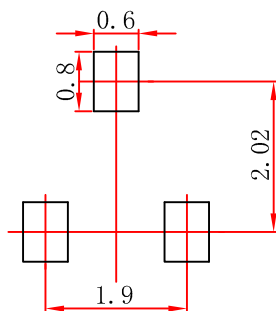


### SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

### SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05$ mm.
  3. The pad layout is for reference purposes only.



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