



Description

The BSS123LT1G 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

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

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

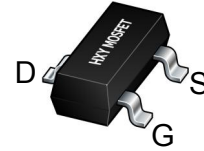
ESD Rating: 1500V HBM

Application

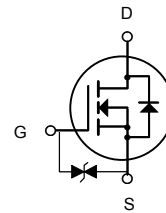
Battery protection

Load switch

Uninterruptible power supply



SOT-23



N-Channel MOSFET

Package Marking and Ordering Information

| Product ID | Pack | Marking | Qty(PCS) |
|------------|--------|---------|----------|
| BSS123LT1G | 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 | ± 20 | V |
| I_D | Drain Current-Continuous | 0.17 | A |
| I_{DM} | Drain Current-Pulsed ^(Note 1) | 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 ^(Note 2) | 350 | °C/W |



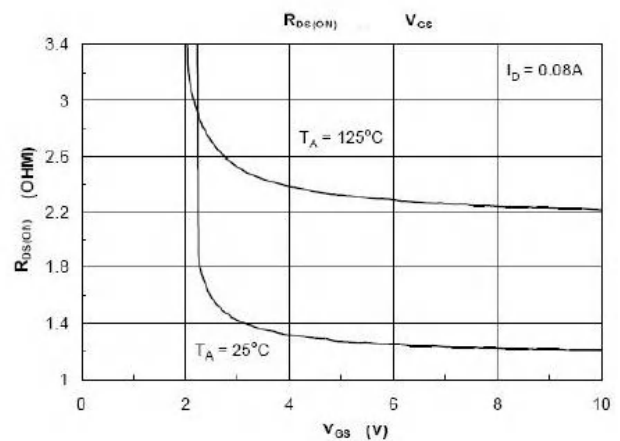
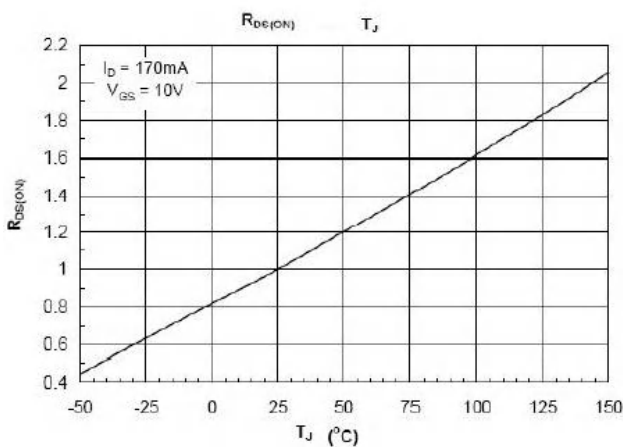
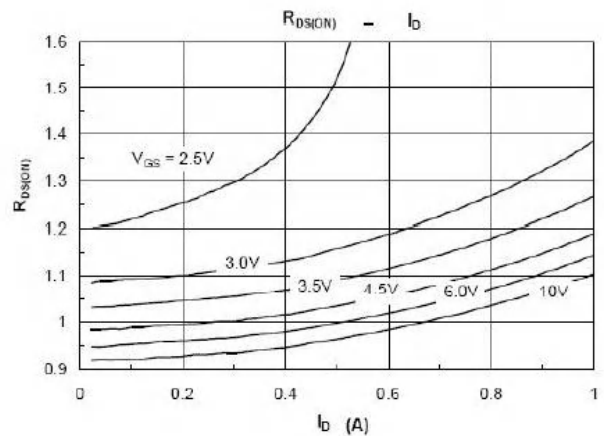
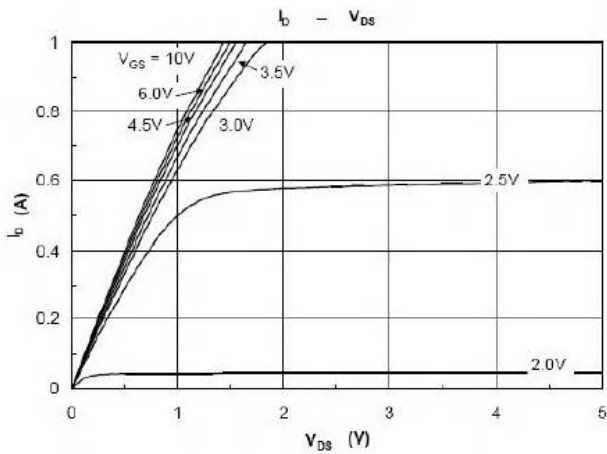
Electrical Characteristics (T_A=25°C unless otherwise noted)

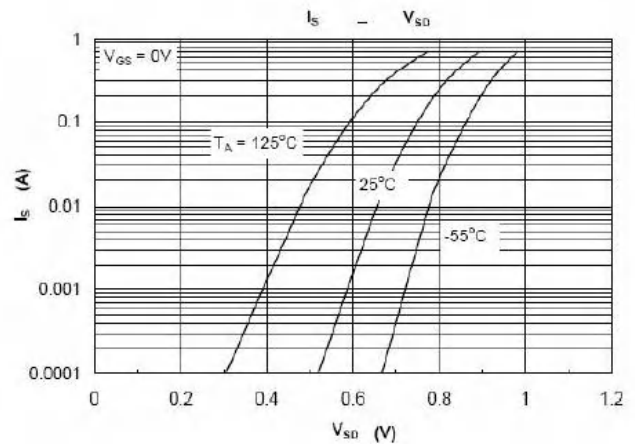
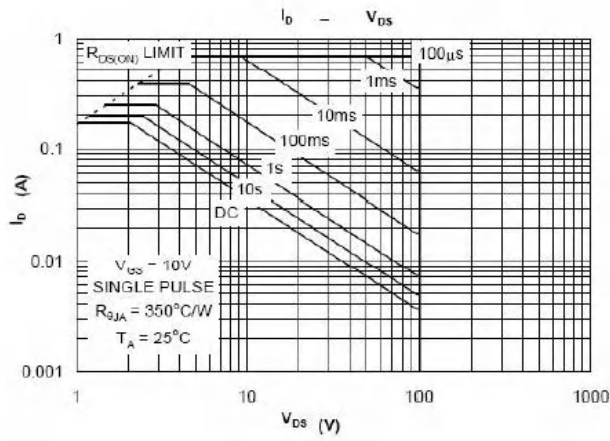
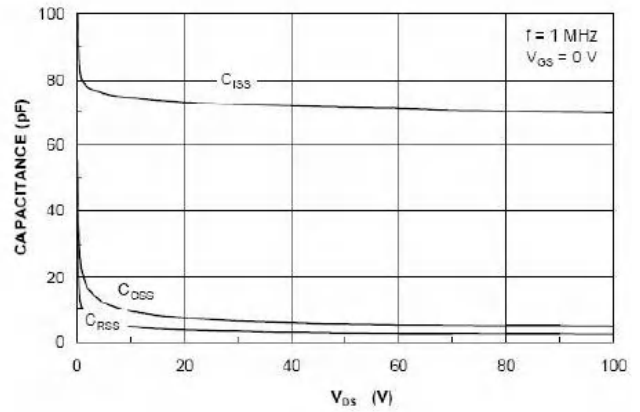
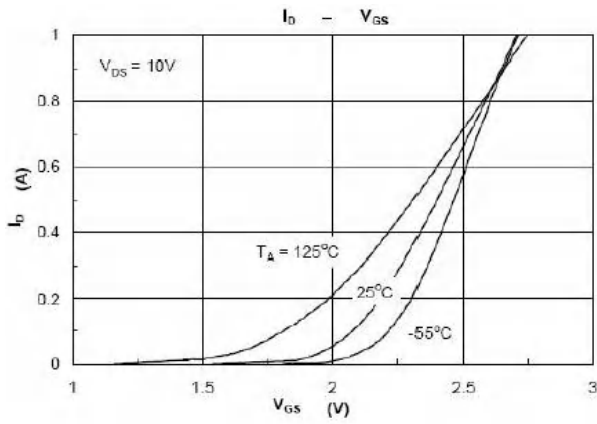
| Symbol | Parameter | Test conditions | M n | Typ | Max | Unit |
|------------------------------|---|---|-----|-----|-----|------|
| Static | | | | | | |
| V _{(BR)DSS} | Drain-source breakdown voltage | V _{GS} =0, I _D =250μA | 100 | | | V |
| V _{GS(th)} | Gate threshold voltage | V _{DS} =V _{GS}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

Notes :

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

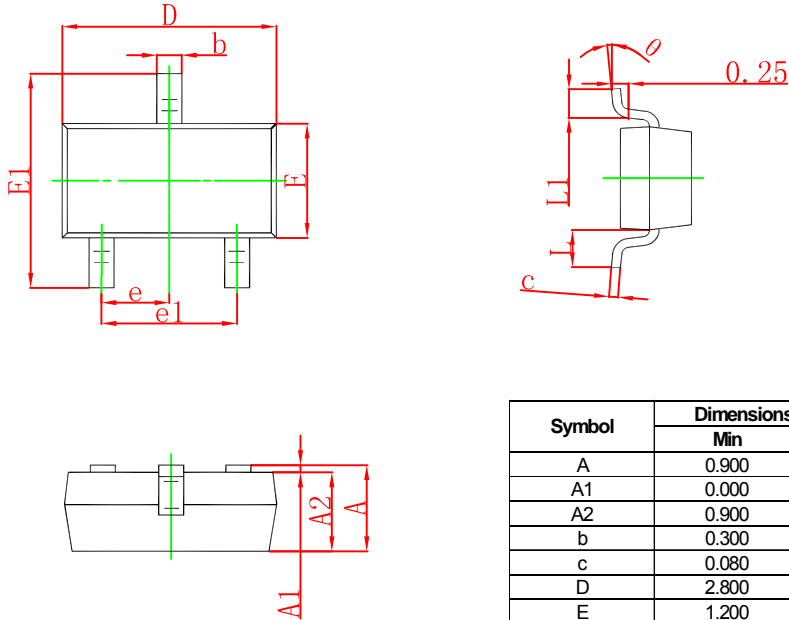
Typical Characteristics





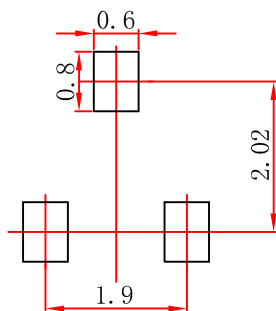


SOT-23 Package Outline Dimensions



| 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: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.



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