



Description

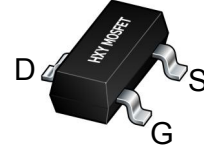
The BSS84 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

General Features

$V_{DS} = -50V, I_D = -0.13A$

$R_{DS(ON)} < 5 \Omega @ V_{GS} = -10V$

$R_{DS(ON)} < 6 \Omega @ V_{GS} = -4.5V$



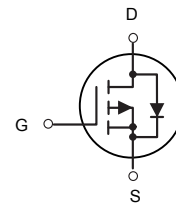
SOT-23

Application

Power switching application

Hard switched and high frequency circuits

DC-DC converter



P-Channel MOSFET

Package Marking and Ordering Information

| Product ID | Pack | Marking | Qty(PCS) |
|------------|--------|---------|----------|
| BSS84 | SOT-23 | B84 | 3000 |

Absolute Maximum Ratings ($T_A = 25^\circ C$ unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|---|-----------------|------------|--------------|
| Drain-Source Voltage | V_{DS} | -50 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current-Continuous | I_D | -0.13 | A |
| Pulsed Drain Current | I_{DM} | -0.5 | A |
| Maximum Power Dissipation | P_D | 0.35 | W |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 To 150 | $^\circ C$ |
| Thermal Resistance ,Junction-to-Ambient ^(Note 2) | $R_{\theta JA}$ | 62.5 | $^\circ C/W$ |



Electrical Characteristics (Ta=25°C unless otherwise specified)

| Symbol | Parameter | Test conditions | Min | Typ | Max | Unit |
|------------------------------|---|--|------|------|----------|----------|
| Static | | | | | | |
| $V_{(BR)DSS}$ | Drain-source breakdown voltage | $V_{GS}=0, I_D=250\mu A$ | -50 | | | V |
| $V_{GS(th)}$ | Gate threshold voltage | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -0.8 | | -2.0 | V |
| I_{GSS} | Gate-body leakage current | $V_{DS}=0, V_{GS}=\pm 10V$ | | | ± 10 | μA |
| I_{DSS} | Zero gate voltage drain current | $V_{DS}=-50V, V_{GS}=0V$ | | | -10 | μA |
| | | $V_{DS}=-40V, V_{GS}=0V$ | | | -100 | nA |
| $R_{DS(on)}$ | Drain-source on-resistance ^a | $V_{GS}=-10V, I_D=-0.13A$ | | 2 | 5 | Ω |
| | | $V_{GS}=-4.5V, I_D=-0.13A$ | | 2.5 | 6 | Ω |
| g_{FS} | Forward transconductance ^a | $V_{DS}=-25V, I_D=-0.13A$ | 50 | | | mS |
| V_{SD} | Diode forward voltage | $I_S=-0.13A, V_{GS}=0V$ | | | -1.0 | V |
| Dynamic | | | | | | |
| C_{iss} | Input capacitance | $V_{DS}=-25V, V_{GS}=0V, f=1MHz$ | | 25 | | pF |
| C_{oss} | Output capacitance | | | 15 | | |
| C_{rss} | Reverse transfer capacitance ^b | | | 3.5 | | |
| Switching^b | | | | | | |
| $t_{d(on)}$ | Turn-on delay time | $V_{GS}=-10V, V_{DS}=-15V$ $I_D=-200mA, R_{GEN}=25\Omega$ | | 16.7 | | nS |
| t_r | Rise time | | | 8.6 | | |
| $t_{d(off)}$ | Turn-off delay time | | | 17.9 | | |
| t_f | Fall time | | | 5.3 | | |

Notes :

a. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

b. Guaranteed by design, not subject to producing.



Typical Characteristics

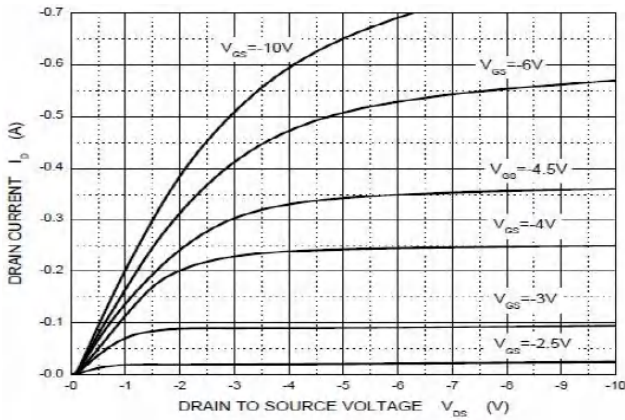


Figure1. Output Characteristics

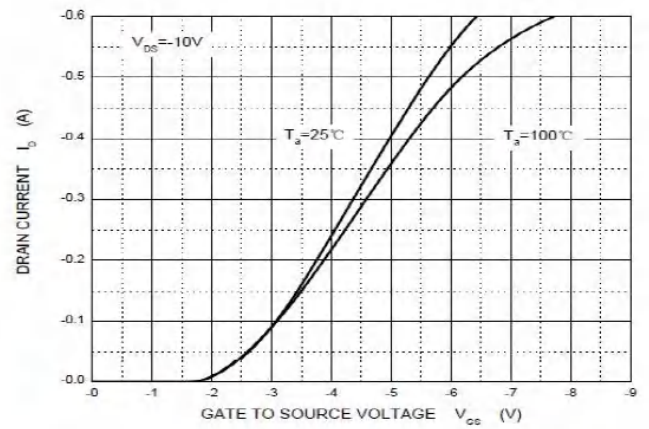


Figure2. Transfer Characteristics

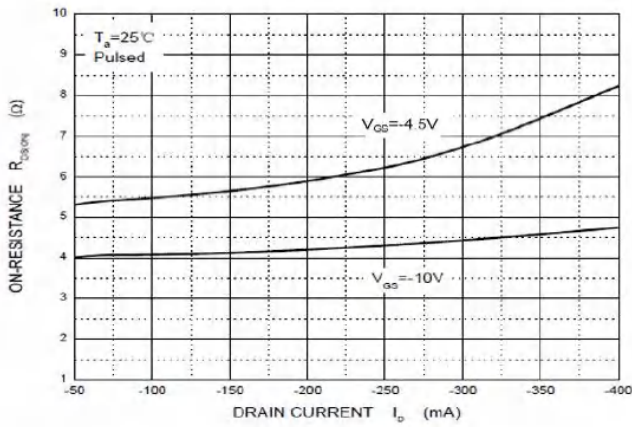


Figure3. Drain-Source on Resistance

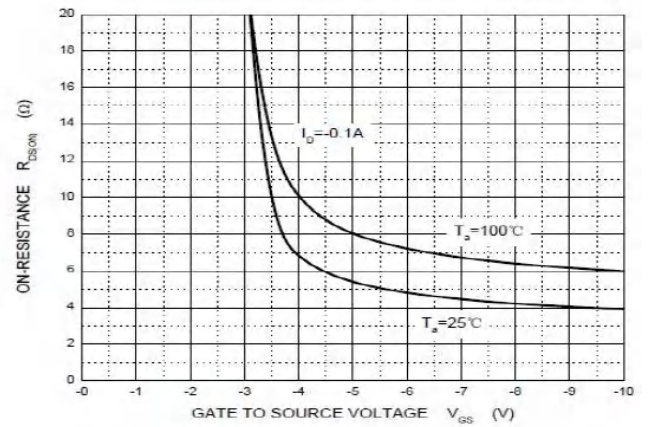


Figure4. Drain-Source on Resistance

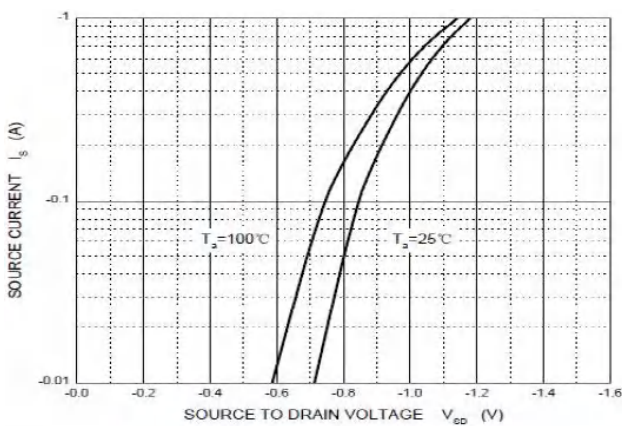


Figure5. Diode Forward Voltage vs. current

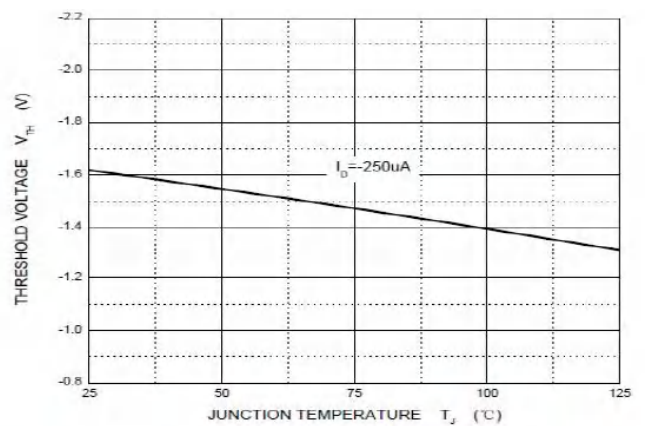
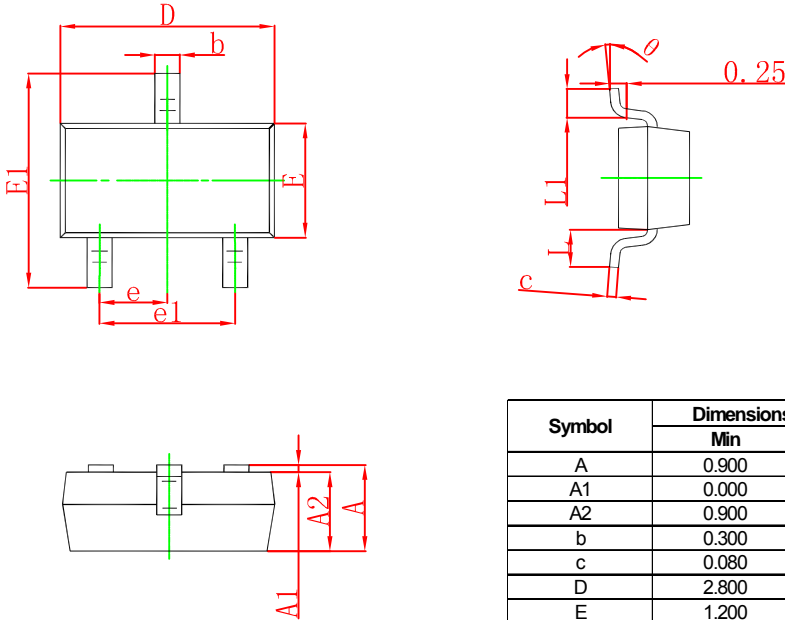


Figure6. Gate Threshold vs. Junction Temperature

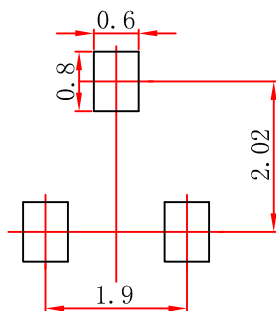


SOT-23 Package Outline Dimensions



| 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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