

Description

The BSS84 is the high cell density trenched P-ch MOSFETs, which provides excellent R_{DS(ON)} and efficiency for most of the small power switching and load switch applications.

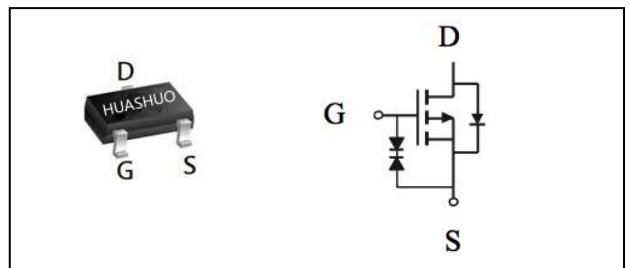
The BSS84 meet the RoHS and Green Product requirement with full function reliability approved.

- 100% EAS Guaranteed
- Green Device Available
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

Product Summary

| | | |
|-------------------------|------|---|
| V _{DS} | -60 | V |
| R _{DS(ON),max} | 6 | Ω |
| I _D | -0.3 | A |

SOT23 Pin Configuration



Absolute Maximum Ratings

| Symbol | Parameter | Rating | Units |
|---------------------------------------|---|------------|-------|
| V _{DS} | Drain-Source Voltage | -60 | V |
| V _{GS} | Gate-Source Voltage | ±20 | V |
| I _D @T _A =25°C | Continuous Drain Current, V _{GS} @ -10V ₁ | -0.3 | A |
| I _D @T _A =100°C | Continuous Drain Current, V _{GS} @ -10V ₁ | -0.24 | A |
| I _{DM} | Pulsed Drain Current ₂ | -1 | A |
| P _D @T _A =25°C | Total Power Dissipation ₃ | 0.35 | W |
| T _{STG} | Storage Temperature Range | -40 to 150 | °C |
| T _J | Operating Junction Temperature Range | -40 to 150 | °C |

Thermal Data

| Symbol | Parameter | Typ. | Max. | Unit |
|------------------|--|------|------|------|
| R _{θJA} | Thermal Resistance Junction-Ambient ₁ | --- | 400 | °C/W |



Electrical Characteristics (T_J=25 °C, unless otherwise noted)

| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-------------------------------------|--|---|------|--------|------|-------|
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =-250uA | -60 | --- | --- | V |
| ΔBV _{DSS} /ΔT _J | BV _{DSS} Temperature Coefficient | Reference to 25°C, I _D =-1mA | --- | -0.021 | --- | V/°C |
| R _{DS(ON)} | Static Drain-Source On-Resistance ₂ | V _{GS} =-10V, I _D =-0.2A | --- | 4 | 6 | Ω |
| | | V _{GS} =-4.5V, I _D =-0.1A | --- | 4.5 | 7 | |
| V _{GS(th)} | Gate Threshold Voltage | V _{GS} =V _{DS} , I _D =-250uA | -1.0 | --- | -2.5 | V |
| ΔV _{GS(th)} | V _{GS(th)} Temperature Coefficient | | --- | 4.08 | --- | mV/°C |
| I _{DSS} | Drain-Source Leakage Current | V _{DS} =-48V, V _{GS} =0V, T _J =25°C | --- | --- | 1 | uA |
| | | V _{DS} =-48V, V _{GS} =0V, T _J =55°C | --- | --- | 10 | |
| I _{GSS} | Gate-Source Leakage Current | V _{GS} =±20V, V _{DS} =0V | --- | --- | ±100 | nA |
| g _{fs} | Forward Transconductance | V _{DS} =-20V, I _D =-0.2A | --- | 0.18 | --- | S |
| Q _g | Total Gate Charge (-4.5V) | V _{DS} =-20V, V _{GS} =-10V, I _D =-0.2A | --- | 1.8 | --- | nC |
| Q _{gs} | Gate-Source Charge | | --- | 0.5 | --- | |
| Q _{gd} | Gate-Drain Charge | | --- | 0.8 | --- | |
| T _{d(on)} | Turn-On Delay Time | V _{DS} =-15V, V _{GS} =-10V, R _G =50Ω, I _D =-0.2A | --- | 2.8 | --- | ns |
| T _r | Rise Time | | --- | 1 | --- | |
| T _{d(off)} | Turn-Off Delay Time | | --- | 19 | --- | |
| T _f | Fall Time | | --- | 9 | --- | |
| C _{iss} | Input Capacitance | V _{DS} =-25V, V _{GS} =0V, f=1MHz | --- | 170 | --- | pF |
| C _{oss} | Output Capacitance | | --- | 53 | --- | |
| C _{rss} | Reverse Transfer Capacitance | | --- | 9 | --- | |

Diode Characteristics

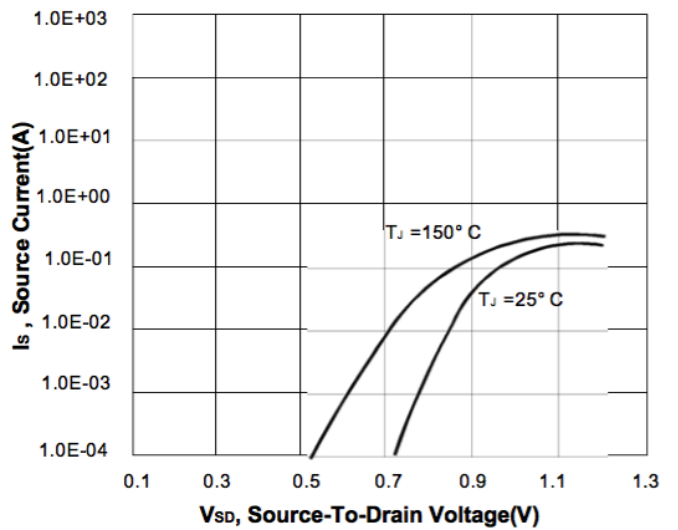
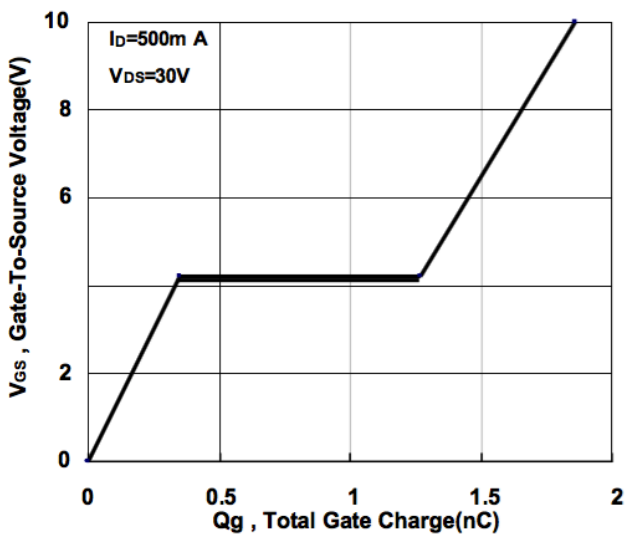
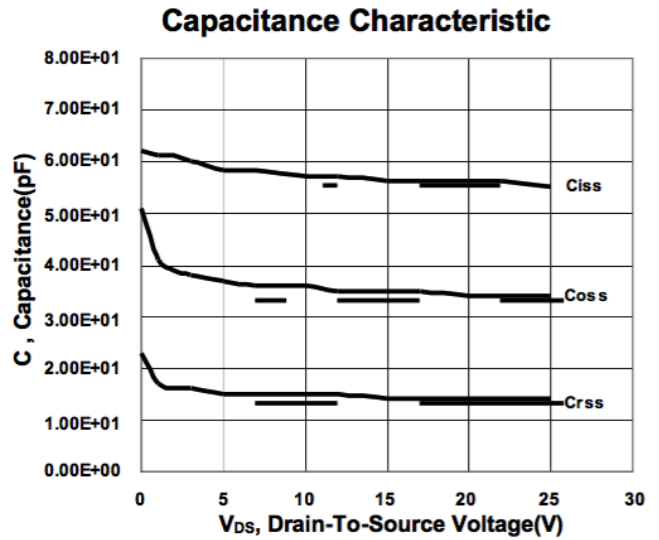
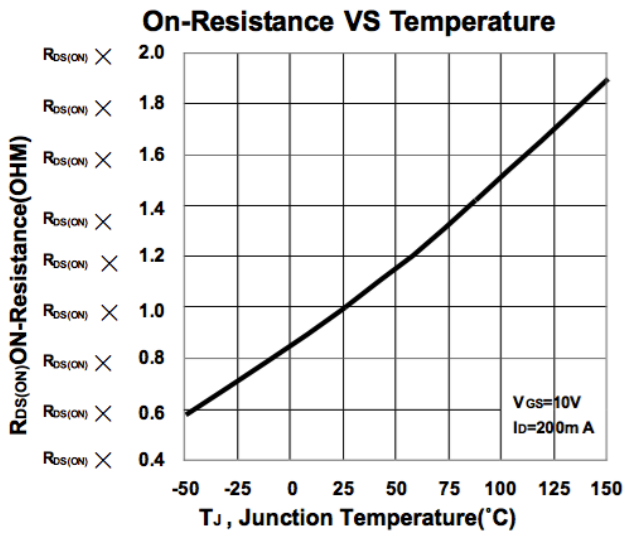
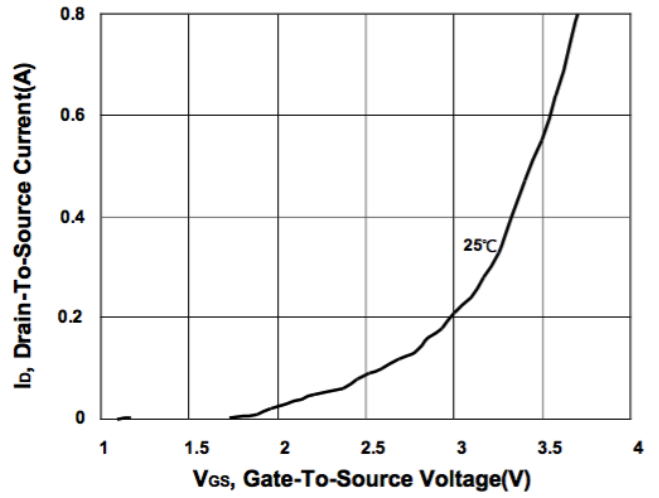
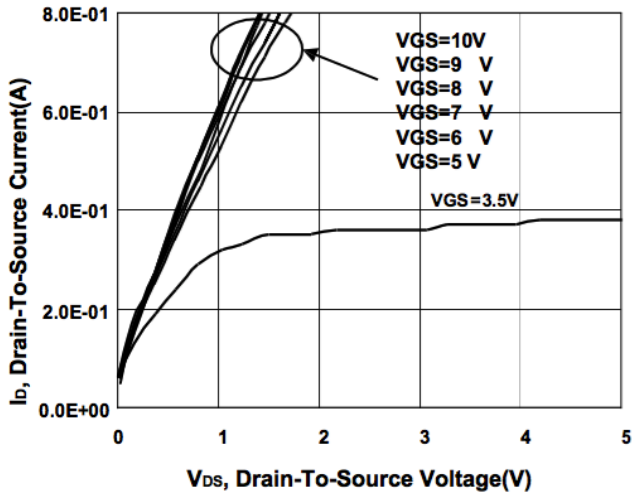
| Symbol | Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------|--|--|------|------|------|------|
| I _S | Continuous Source Current _{1,4} | V _G =V _D =0V, Force Current | --- | --- | -0.3 | A |
| I _{SM} | Pulsed Source Current _{2,4} | | --- | --- | -1 | A |
| V _{SD} | Diode Forward Voltage ₂ | V _{GS} =0V, I _S =-1A, T _J =25°C | --- | --- | -1.2 | V |

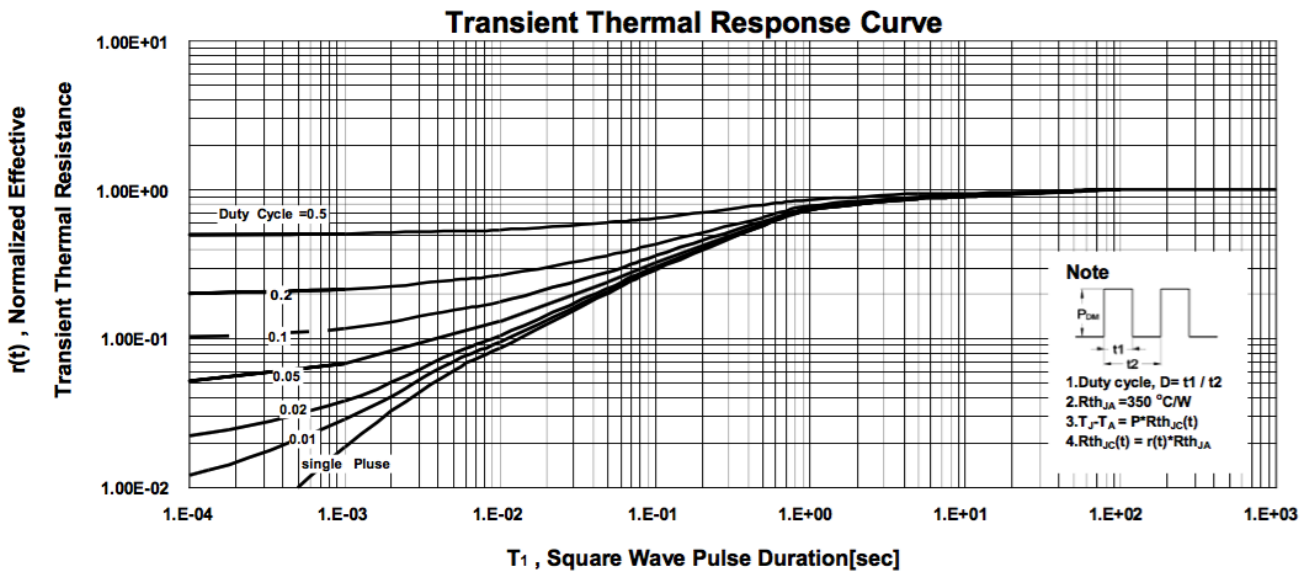
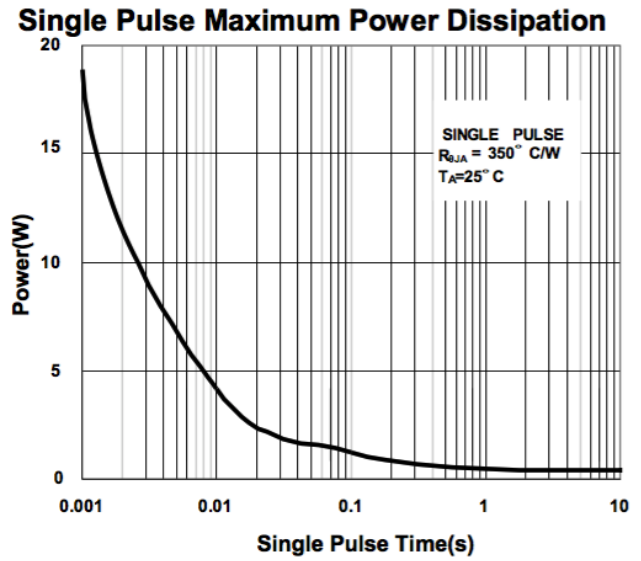
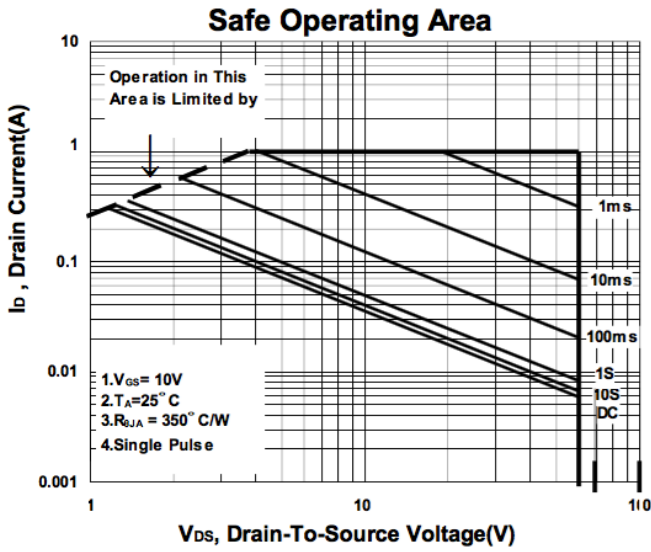
Note :

- 1.The data tested by surface mounted on a 1 inch₂ FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The power dissipation is limited by 150°C junction temperature
- 4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.



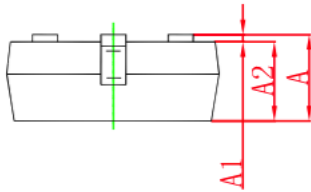
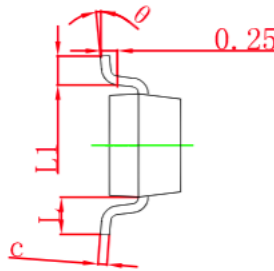
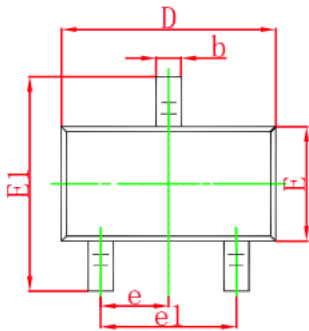
Typical Characteristics





Ordering Information

| Part Number | Package code | Packaging |
|-------------|--------------|----------------|
| BSS84 | SOT-23 | 3000/Tape&Reel |



| 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° |

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