# P-Channel Enhancement Mode MOSFET

# BSS84EV

## Features

- Low on-resistance
- High-speed switching
- Drive circuits can be simple
- Parallel use is easy
- ESD protected gate up to 1kV HBM

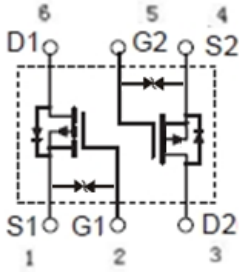
HF

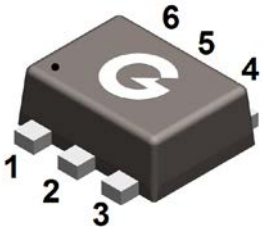
## Typical Applications

- P-channel enhancement mode effect transistor
- Switching application

## Mechanical Data

- Case: SOT-563
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin-Plated Leads, Solderability-per MIL-STD-202, Method 208




SOT-563

## Ordering Information

| Part Number | Package | Shipping Quantity | Marking Code |
|---|---|---|---|
| BSS84EV | SOT-563 | 3000pcs / Tape & Reel | ES |

## Maximum Ratings (@ $T_A$ = 25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | -50 | V |
| Gate -Source Voltage | $V_{GSS}$ | ±20 | V |
| Continuous Drain Current | $I_D$ | -130 | mA |
| Pulsed Drain Current *4 | $I_{DM}$ | -520 | mA |
| Power Dissipation *1 | $P_D$ | 0.25 | W |

## Thermal Characteristics

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Thermal Resistance Junction-to-Air *1 | $R_{\theta JA}$ | 500 | °C/W |
| Thermal Resistance Junction-to-Case *1 | $R_{\theta JC}$ | 342 | °C/W |
| Thermal Resistance Junction-to-Lead *1 | $R_{\theta JL}$ | 280 | °C/W |
| Operating Junction Temperature Range | $T_J$ | -55 ~ +150 | °C |
| Storage Temperature Range | $T_{STG}$ | -55 ~ +150 | °C |

## Electrical Characteristics (@ $T_A$ = 25°C unless otherwise specified)

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| **Static Characteristics** | | | | | | |
| $V_{DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}$ = 0V, $I_D$ = -250μA | -50 | - | - | V |
| $I_{DSS}$ | Drain to Source Leakage Current | $V_{DS}$ = -50V, $V_{GS}$ = 0V | - | - | -1 | μA |
| $I_{GSS}$ | Gate-body Leakage | $V_{GS}$ = ±20V, $V_{DS}$ = 0V | - | - | ±10 | μA |
| **On Characteristics** *2 | | | | | | |
| $R_{DS(ON)}$ | Static Drain-Source On-resistance | $V_{GS}$ = -5V, $I_D$ = -0.1A | - | 4 | 8 | Ω |
| | | $V_{GS}$ = -10V, $I_D$ = -0.13A | - | 3.5 | 6 | Ω |
| $V_{GS(TH)}$ | Gate Threshold Voltage | $V_{DS}$ = $V_{GS}$, $I_D$ = -250μA | -1 | -1.7 | -3 | V |
| **Dynamic Characteristics** *3 | | | | | | |
| $C_{ISS}$ | Input Capacitance | $V_{GS}$ = 0V<br>$V_{DS}$ = -20V<br>f = 1.0MHz | - | 32 | - | pF |
| $C_{OSS}$ | Output Capacitance | | - | 16 | - | |
| $C_{RSS}$ | Reverse Transfer Capacitance | | - | 4 | - | |
| $R_G$ | Gate Resistance | $V_{GS}$ = 0V, $V_{DS}$ = -15mV<br>f = 1.0MHz | - | 945 | - | Ω |
| **Source-Drain Diode Characteristics** | | | | | | |
| $V_{SD}$ | Diode Forward Voltage *2 | $I_S$ = 0.26A, $V_{GS}$ = 0V | - | -0.8 | -1.4 | V |
| $I_S$ | Diode Continuous Forward Current | $T_C$=25°C | - | - | -0.3 | A |

Notes:

1、 Surface mounted on FR4 board, t ≤ 10 sec

2、 Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

3、 Guaranteed by design, not subject to production

4、 Pulse width limited by maximum junction temperature

## Ratings and Characteristics Curves (@ $T_A$ = 25°C unless otherwise specified)

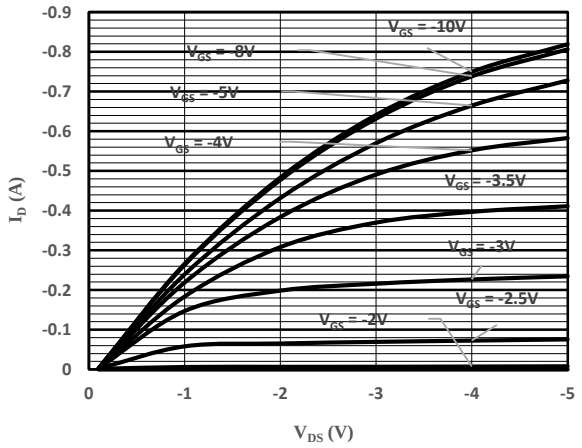



Fig 1 On-Region Characteristics

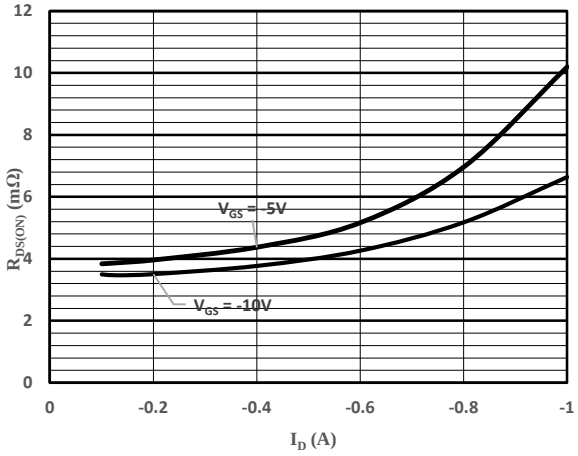



Fig 2 On-Resistance vs. Drain Current and Gate Voltage

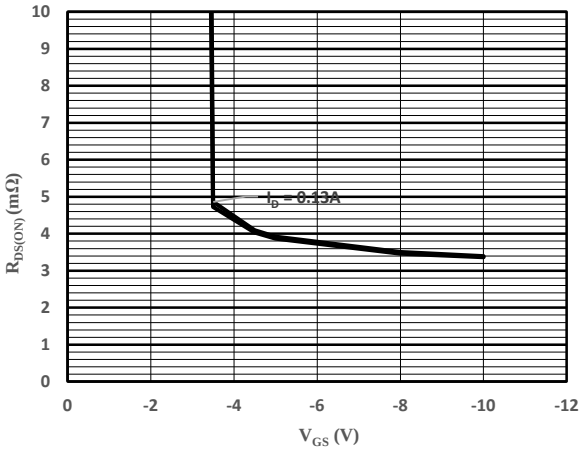



Fig 3 On-Resistance vs. Gate-Source Voltage

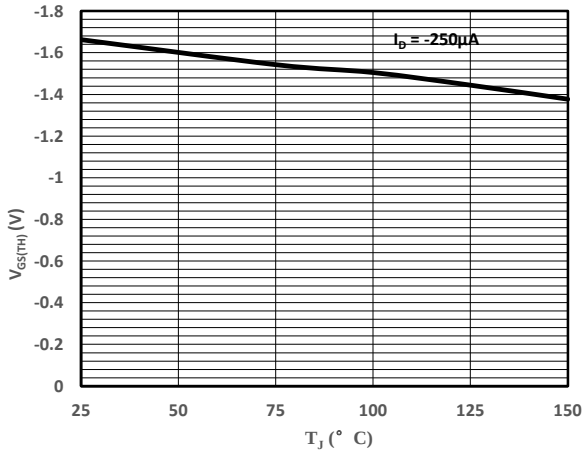



Fig 4 Gate Voltage vs. Junction Temperature

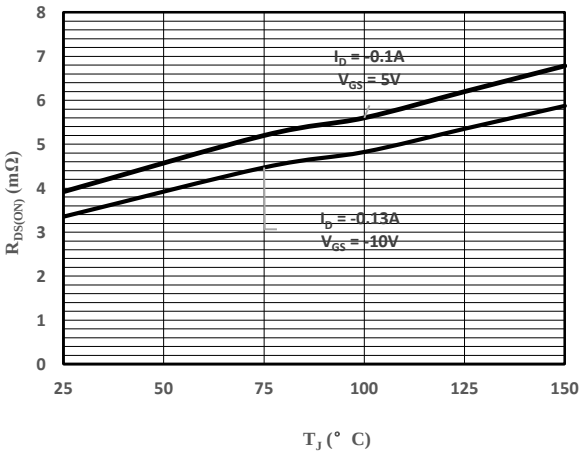



Fig 5 On-Resistance vs. Junction Temperature

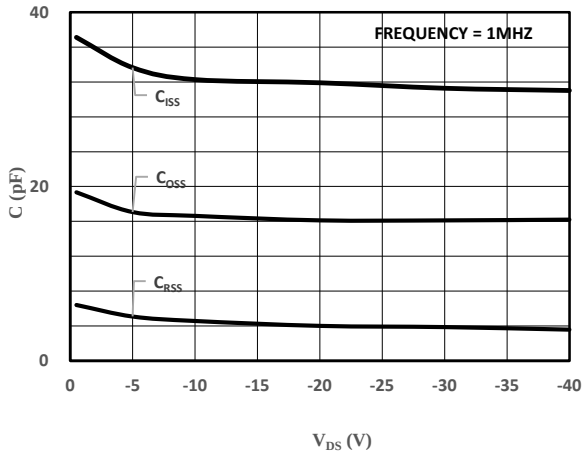
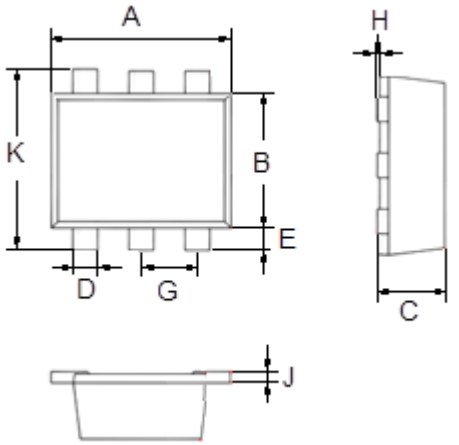



Fig 6 Capacitance Characteristics

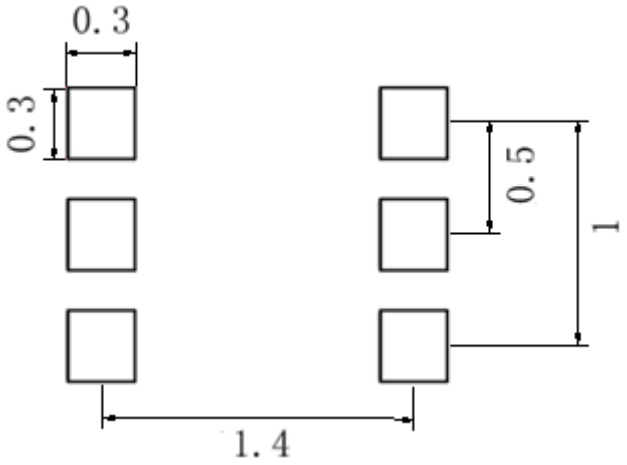
## Package Outline Dimensions (Unit: mm)




| SOT-563 | | |
|---|---|---|
| **Dimension** | **Min.** | **Max.** |
| A | 1.500 | 1.700 |
| B | 1.100 | 1.300 |
| C | 0.525 | 0.600 |
| D | 0.170 | 0.270 |
| E | 0.100 | 0.300 |
| G | 0.450 | 0.550 |
| H | 0.000 | 0.050 |
| J | 0.090 | 0.160 |
| K | 1.500 | 1.700 |

## Mounting Pad Layout (Unit: mm)

### SOT-563

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