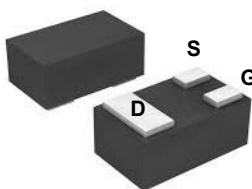
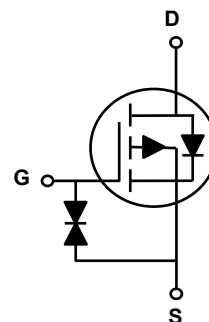


Main Product Characteristics

| | |
|---------------|-------------|
| $V_{(BR)DSS}$ | -50V |
| $R_{DS(ON)}$ | 4.7Ω (max.) |
| I_D | -0.3A |



SOT-883



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery
- ESD Rating: HBM 2KV



Description

The GSFW0501 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

Absolute Maximum Ratings (T_C=25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|---|------------------|-------------|------|
| Drain-Source Voltage | V _{DS} | -50 | V |
| Gate-Source Voltage | V _{GS} | ±20 | V |
| Continuous Drain Current | I _D | -0.3 | A |
| Pulsed Drain Current @ t _p < 10μs ¹ | I _{DM} | -0.6 | A |
| Power Dissipation | P _D | 270 | mW |
| Thermal Resistance from Junction to Ambient ² | R _{θJA} | 450 | °C/W |
| Junction Temperature | T _J | 150 | °C |
| Storage Temperature Range | T _{STG} | -55 to +150 | °C |
| Maximum Lead Temperature for Soldering Purposes, Duration for 5 Seconds | T _L | 260 | °C |

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---------------|--|------|-----|----------|---------------|
| On / Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0\text{V}, I_D=-250\mu\text{A}$ | -50 | - | - | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-50\text{V}, V_{GS}=0\text{V}$ | - | - | -1.0 | μA |
| | | $V_{DS}=-25\text{V}, V_{GS}=0\text{V}$ | - | - | -0.5 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$ | - | - | ± 10 | μA |
| Gate Threshold Voltage ³ | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu\text{A}$ | -1.1 | - | -2.1 | V |
| Drain-Source On-Resistance ³ | $R_{DS(ON)}$ | $V_{GS}=-10\text{V}, I_D=-0.15\text{A}$ | - | 3.6 | 4.7 | Ω |
| | | $V_{GS}=-5\text{V}, I_D=-0.1\text{A}$ | - | 4.4 | 5.7 | Ω |
| Forward Transconductance ¹ | g_{fs} | $V_{DS}=-25\text{V}, I_D=-100\text{mA}$ | 50 | - | - | mS |
| Dynamic and Switching Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=5\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$ | - | 30 | - | pF |
| Output Capacitance | C_{oss} | | - | 10 | - | |
| Reverse Transfer Capacitance | C_{rss} | | - | 5 | - | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=-15\text{V}, R_L=50\Omega, I_D=-2.5\text{A}$ | - | 2.5 | - | nS |
| Turn-on Rise Time | t_r | | - | 1 | - | |
| Turn-off Delay Time | $t_{d(off)}$ | | - | 16 | - | |
| Turn-off Fall Time | t_f | | - | 8 | - | |
| Source-Drain Ratings and Characteristics | | | | | | |
| Continuous Current | I_S | - | - | - | -0.3 | A |
| Pulsed Current | I_{SM} | | - | - | -0.6 | A |
| Diode Forward Voltage ³ | V_{SD} | $I_S=-0.1\text{A}, V_{GS}=0\text{V}$ | - | - | -1.2 | V |

Notes:

1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, $t \leq 10\text{s}$.
3. Pulse test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

Typical Electrical and Thermal Characteristic Curves

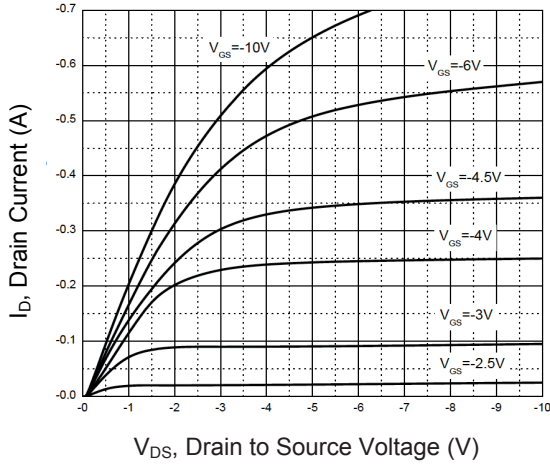


Figure 1. Output Characteristics

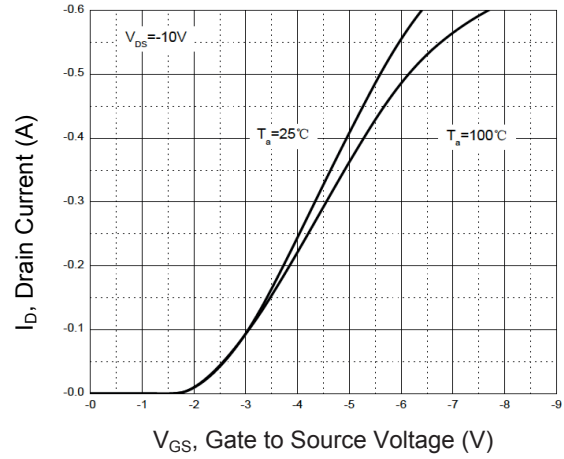


Figure 2. Transfer Characteristics

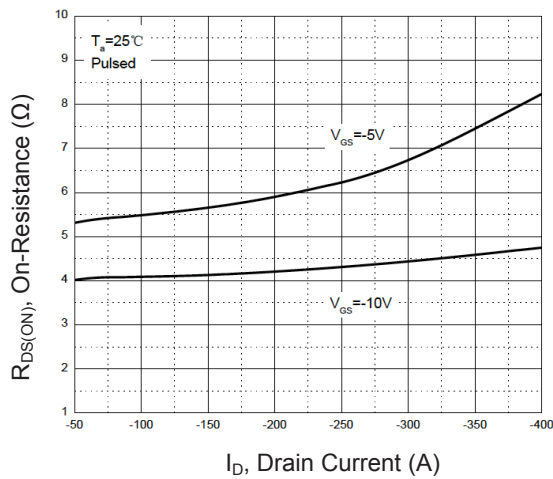


Figure 3. On Resistance vs. I_D

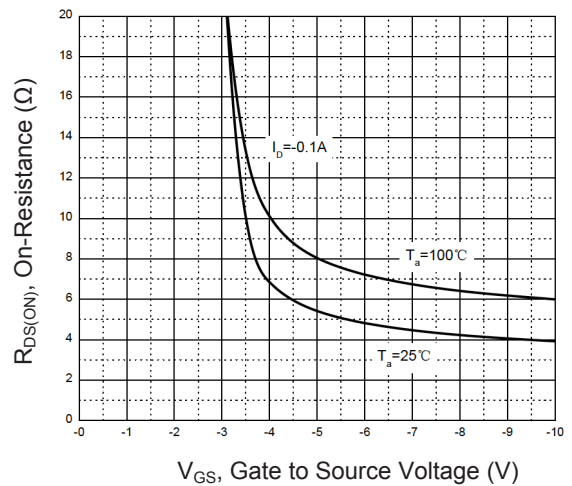


Figure 4. On Resistance vs. V_{GS}

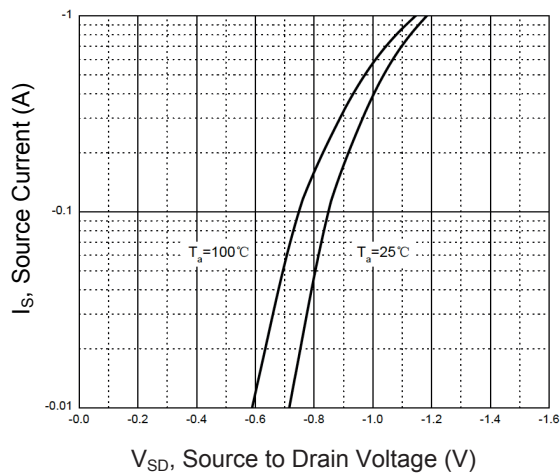


Figure 5. I_S vs. V_{SD}

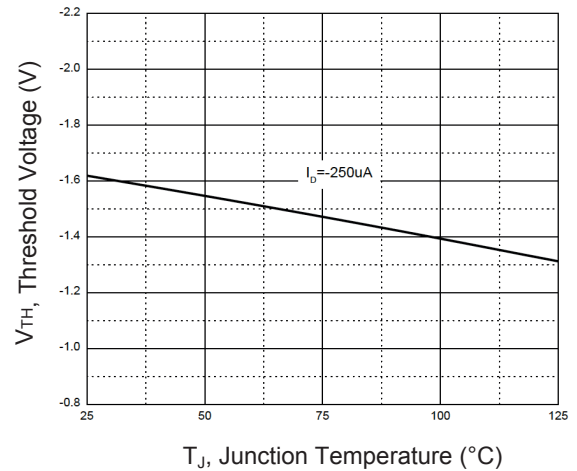
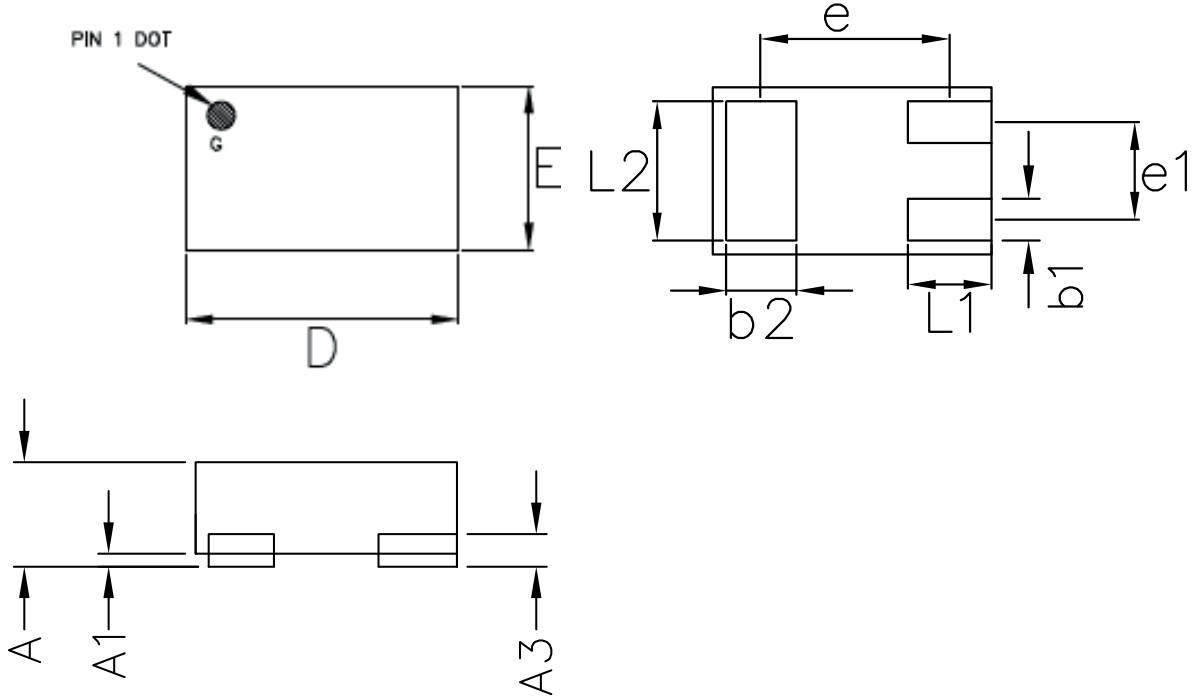


Figure 6. Threshold Voltage

Package Outline Dimensions (SOT-883)



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.400 | 0.500 | 0.016 | 0.020 |
| A1 | 0.001 | 0.050 | 0.000 | 0.002 |
| A3 | 0.125 REF | | 0.005 REF | |
| D | 0.950 | 1.050 | 0.037 | 0.041 |
| E | 0.550 | 0.650 | 0.022 | 0.026 |
| b1 | 0.100 | 0.200 | 0.004 | 0.008 |
| b2 | 0.200 | 0.300 | 0.008 | 0.012 |
| L1 | 0.200 | 0.400 | 0.008 | 0.016 |
| L2 | 0.400 | 0.600 | 0.016 | 0.024 |
| e1 | 0.350 BSC | | 0.014 BSC | |
| e | 0.675 BSC | | 0.027 BSC | |

Order Information

| Device | Package | Marking | Carrier | Quantity |
|----------|---------|---------|-------------|-------------------|
| GSFW0501 | SOT-883 | ES | Tape & Reel | 10,000 Pcs / Reel |