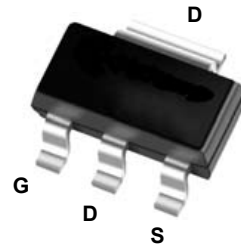
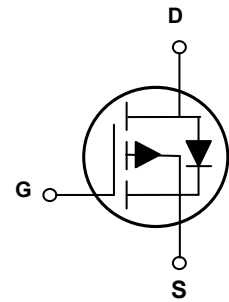


Main Product Characteristics

| | |
|---------------|-------------|
| $V_{(BR)DSS}$ | -30V |
| $R_{DS(ON)}$ | 55mΩ (Max.) |
| I_D | -10A |



SOT-223



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



Description

The GSFL3403 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 supplies and a wide variety of other applications.

Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--------------------------------------------------------|-----------------|-------------|--------------------|
| Drain-Source Voltage | V_{DS} | -30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current-Continuous @ Current-Pulsed ¹ | I_D | -10 | A |
| Drain Current-Pulsed ² | I_{DM} | -40 | A |
| Maximum Power Dissipation | P_D | 8.4 | W |
| Thermal Resistance, Junction-to-Ambient ¹ | $R_{\theta JA}$ | 71 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction-to-Case ¹ | $R_{\theta JC}$ | 14.8 | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range | T_J | -55 To +150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -55 To +150 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|-------------------------------------------------|--------------|----------------------------------------------------|------|-------|-----------|------------|
| On / Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=-250\mu A$ | -30 | - | - | V |
| Drain-Source Leakage Current | I_{DSS} | $V_{DS}=-20V, V_{GS}=0V$ | - | - | -1 | μA |
| Gate-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | - | - | ± 100 | nA |
| Static Drain-Source On-Resistance ³ | $R_{DS(ON)}$ | $V_{GS}=-10V, I_D=-4.0A$ | - | 45 | 55 | m Ω |
| | | $V_{GS}=-4.5V, I_D=-3.0A$ | - | 52 | 66 | |
| Gate Threshold Voltage ³ | $V_{GS(th)}$ | $V_{GS}=V_{DS}, I_D=-250\mu A$ | -0.6 | -0.9 | -1.4 | V |
| Forward Transconductance ³ | gfs | $V_{DS}=-5V, I_D=-3A$ | - | 12 | - | S |
| Dynamic and Switching Characteristics | | | | | | |
| Total Gate Charge ⁴ | Q_g | $V_{DS}=-5V, I_D=-4A, V_{GS}=-5V$ | - | 7.2 | - | nC |
| Gate-Source Charge ⁴ | Q_{gs} | | - | 1.2 | - | |
| Gate-Drain Charge ⁴ | Q_{gd} | | - | 1.6 | - | |
| Turn-On Delay Time ⁴ | $t_{d(on)}$ | $V_{DD}=-15V, R_G=2.6\Omega, V_{GS}=-10V, I_D=-1A$ | - | 15 | - | nS |
| Rise Time ⁴ | t_r | | - | 63 | - | |
| Turn-Off Delay Time ⁴ | $t_{d(off)}$ | | - | 21 | - | |
| Fall Time ⁴ | t_f | | - | 12 | - | |
| Input Capacitance ⁴ | C_{iss} | $V_{DS}=-15V, V_{GS}=0V, F=1MHz$ | - | 680 | - | pF |
| Output Capacitance ⁴ | C_{oss} | | - | 105 | - | |
| Reverse Transfer Capacitance ⁴ | C_{rss} | | - | 68 | - | |
| Gate Resistance ³ | R_g | $V_{GS}=0V, V_{DS}=0V, F=1MHz$ | - | 4.1 | - | Ω |
| Drain-Source Ratings and Characteristics | | | | | | |
| Diode Forward Voltage ³ | V_{SD} | $V_{GS}=0V, I_S=-2A$ | - | -0.85 | -1.3 | V |
| Continuous Source Current ² | I_S | - | - | - | -10 | A |

Notes:

1. Device mounted on 1"x1" FR-4 PC board on 0.1 inch² pads on 2oz copper pads and test pulse width $t \leq 10s$.
2. Repetitive rating: Pulsed width limited by maximum junction temperature.
3. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristic Curves

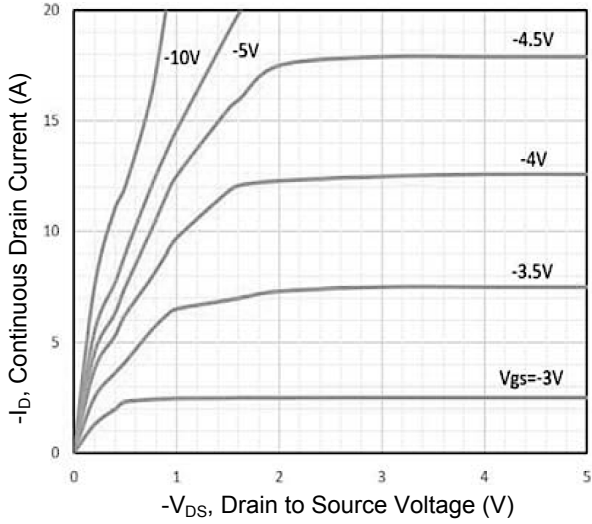


Figure 1. Typical Output Characteristics

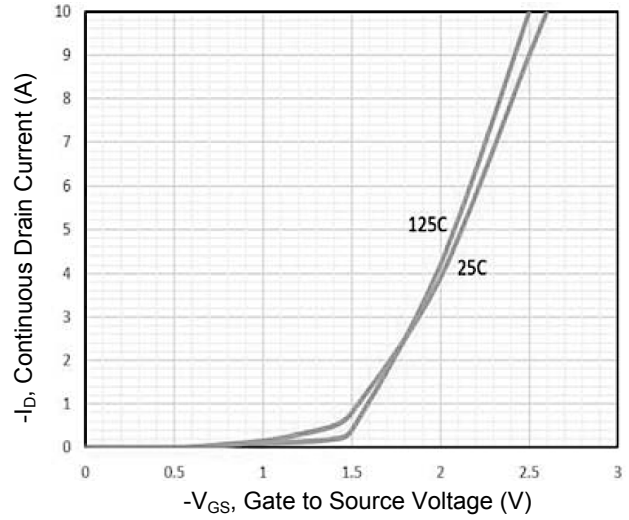


Figure 2. Transfer Characteristics

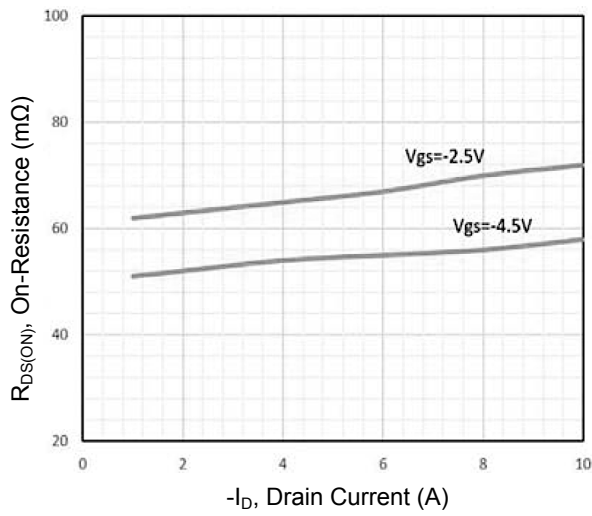


Figure 3. Drain-Source On-Resistance

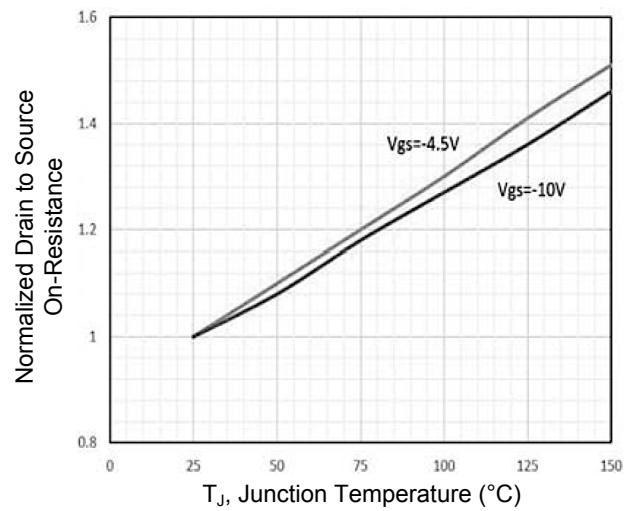


Figure 4. Drain-Source On-Resistance

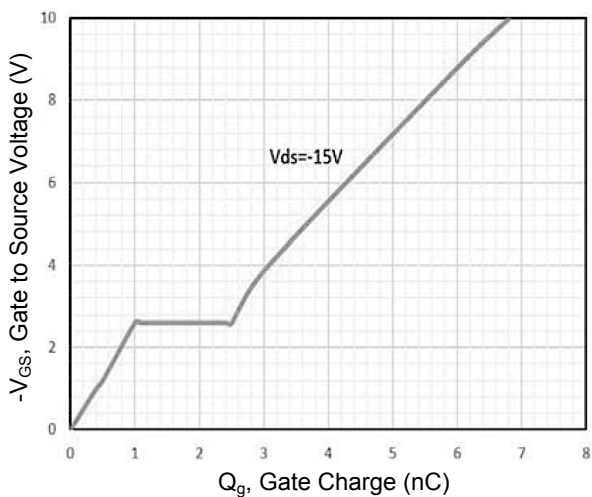


Figure 5. Gate Charge

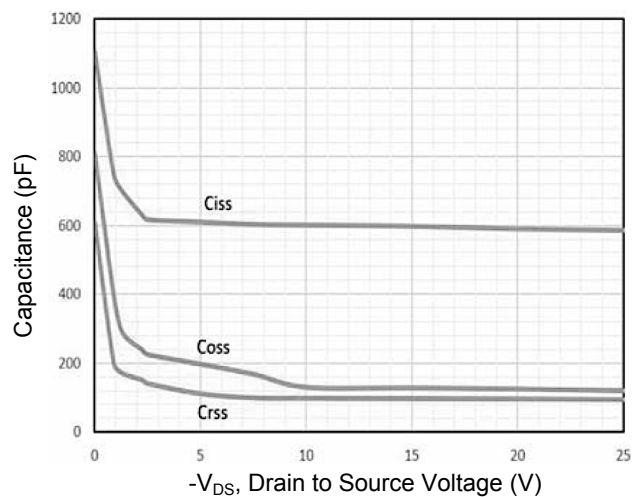
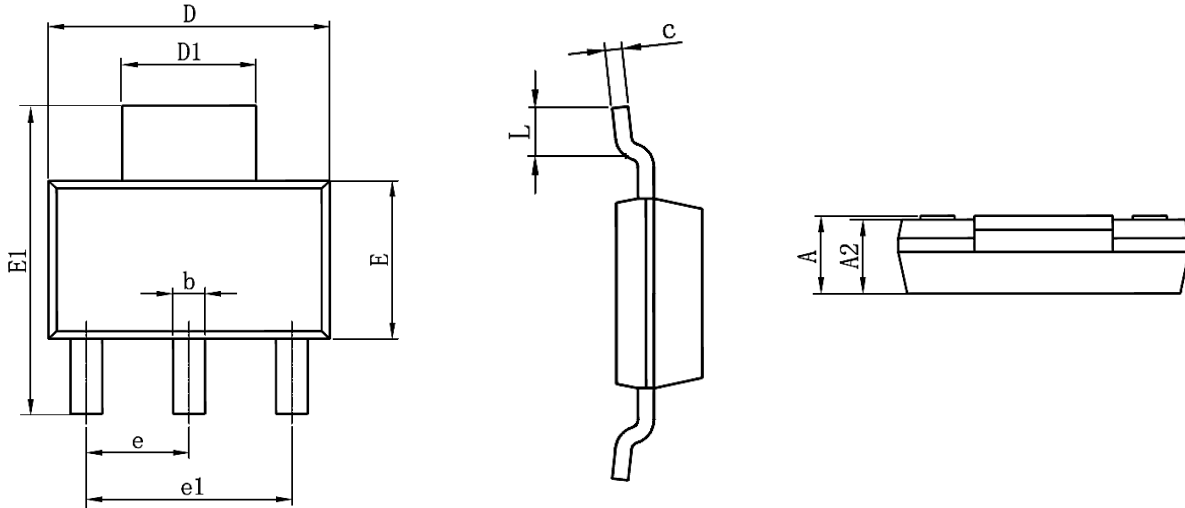


Figure 6. Capacitance vs. V_{DS}

Package Outline Dimensions (SOT-223)



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.50 | 1.80 | 0.059 | 0.071 |
| A2 | 1.45 | 1.80 | 0.057 | 0.071 |
| b | 0.60 | 0.84 | 0.024 | 0.033 |
| c | 0.20 | 0.35 | 0.008 | 0.014 |
| D | 6.20 | 6.70 | 0.244 | 0.264 |
| D1 | 2.90 | 3.10 | 0.114 | 0.122 |
| E | 3.30 | 3.70 | 0.130 | 0.146 |
| E1 | 6.70 | 7.30 | 0.264 | 0.287 |
| e | 2.30 TYP | | 0.091 TYP | |
| e1 | 4.40 | 4.70 | 0.173 | 0.185 |
| L | 0.70 | 1.10 | 0.028 | 0.043 |

Order Information

| Device | Package | Marking | Packaging | SPQ |
|----------|---------|---------|-------------|------------------|
| GSFL3403 | SOT-223 | L3403 | Tape & Reel | 3,000 Pcs / Reel |