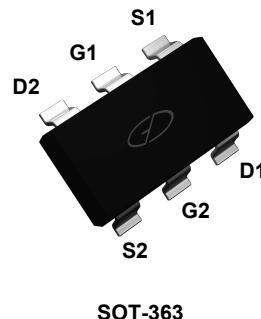
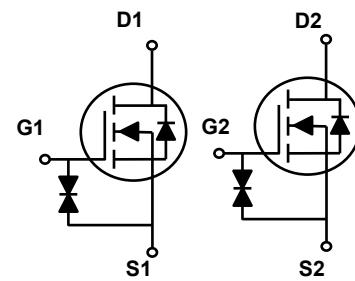


Main Product Characteristics

| | |
|--------------|-------|
| V_{DS} | 60V |
| $R_{DS(ON)}$ | 1.6Ω |
| I_D | 360mA |



SOT-363



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switch mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GSFK0600 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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Max. | Unit |
|--|-----------------|-------------|------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current-Continuous ($T_c=25^\circ\text{C}$) ¹ | I_D | 360 | mA |
| Power Dissipation ($T_c=25^\circ\text{C}$) ¹ | P_D | 0.31 | W |
| Thermal Resistance, Junction to Ambient ¹ | $R_{\theta JA}$ | 411 | °C/W |
| Operating Junction Temperature Range | T_J | -55 To +150 | °C |
| Storage Temperature Range | T_{STG} | -55 To +150 | °C |

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

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|--------------|--|------|------|----------|----------|
| On/Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=250\mu A$ | 60 | - | - | V |
| Drain-Source Leakage Current | $I_{DS(0)}$ | $V_{DS}=60V, V_{GS}=0V$ | - | - | 1 | μA |
| Gate-Source Leakage Current | $I_{GS(0)}$ | $V_{GS}=\pm 20V, V_{DS}=0V$ | - | - | ± 10 | μA |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}=10V, I_D=0.5A$ | - | - | 1.6 | Ω |
| | | $V_{GS}=4.5V, I_D=0.2A$ | - | - | 2.5 | |
| | | $V_{GS}=2.5V, I_D=0.1A$ | - | - | 4.5 | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{GS}=V_{DS}, I_D=250\mu A$ | 0.8 | - | 1.5 | V |
| Dynamic and Switching Characteristics | | | | | | |
| Turn-On Delay Time ³ | $t_{d(on)}$ | $V_{DD}=30V, R_G=6\Omega$ $V_{GS}=10V, I_D=0.29A$ | - | - | 5 | nS |
| Rise Time ³ | t_r | | - | - | 18 | |
| Turn-Off Delay Time ³ | $t_{d(off)}$ | | - | - | 36 | |
| Fall Time ³ | t_f | | - | - | 14 | |
| Input Capacitance ³ | C_{iss} | $V_{DS}=25V, V_{GS}=0V, F=1MHz$ | - | 27 | - | pF |
| Output Capacitance ³ | C_{oss} | | - | 13 | - | |
| Reverse Transfer Capacitance ³ | C_{rss} | | - | 6 | - | |
| Drain-Source Diode Characteristics and Maximum Ratings | | | | | | |
| Diode Forward Voltage ¹ | V_{SD} | $V_{GS}=0V, I_{SD}=0.5A, T_J=25^\circ C$ | - | - | 1.4 | V |

Note:

1. Surface Mounted on FR4 Board, and standard footprint, $t \leq 10$ sec
2. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Guaranteed by design, not subject to production

Typical Electrical and Thermal Characteristic Curves

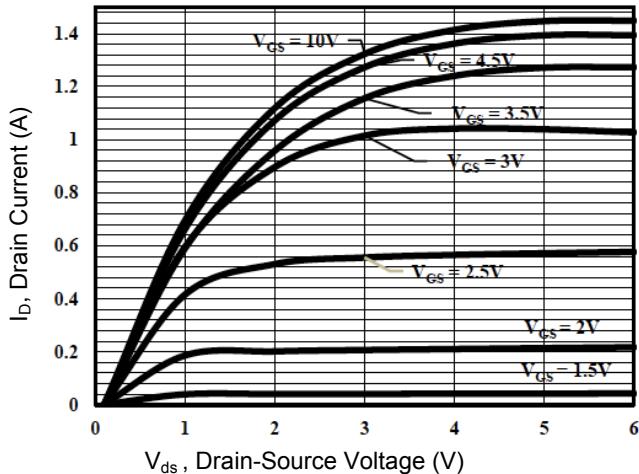


Figure 1. Typical Output Characteristics

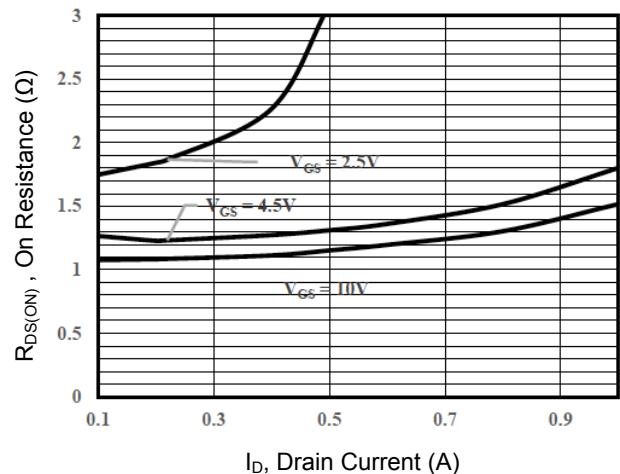


Figure 2. Turn-On Resistance vs. I_D and Gate Voltage

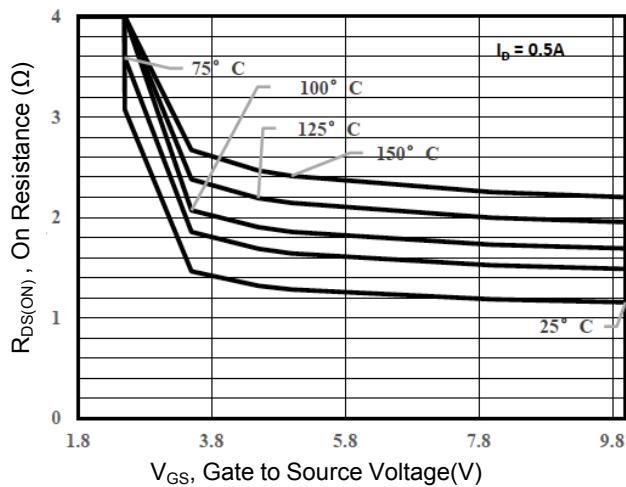


Figure 3. On-Resistance $R_{DS(on)}$ vs. V_{GS}

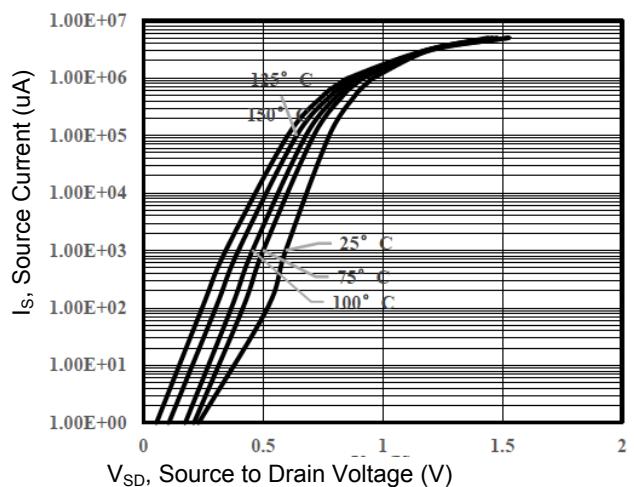


Figure 4. Body-Diode Characteristics

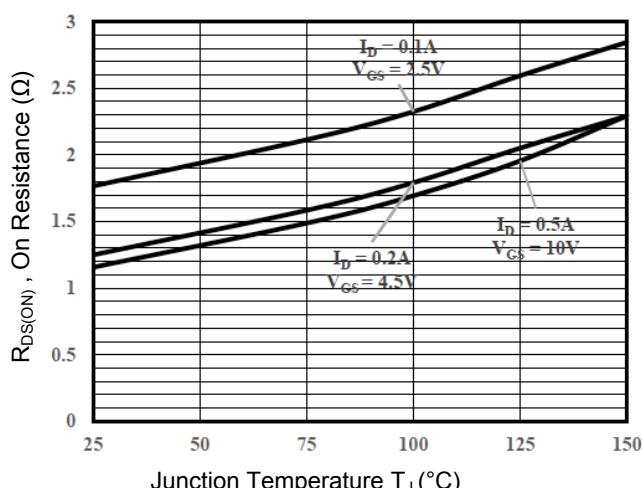


Figure 5. On-Resistance $R_{DS(on)}$ vs. T_J

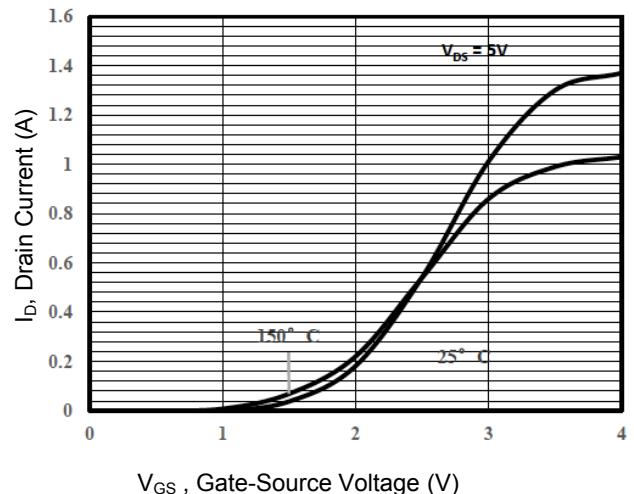


Figure 6. Transfer Characteristics

Typical Electrical and Thermal Characteristic Curves

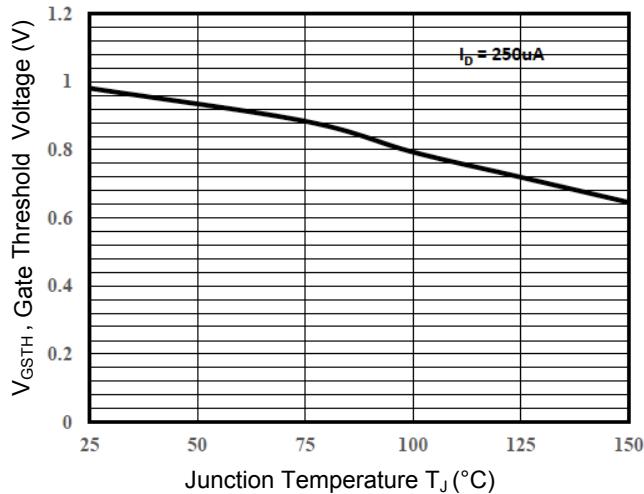


Figure 7. Gate Voltage vs. Junction Temperature

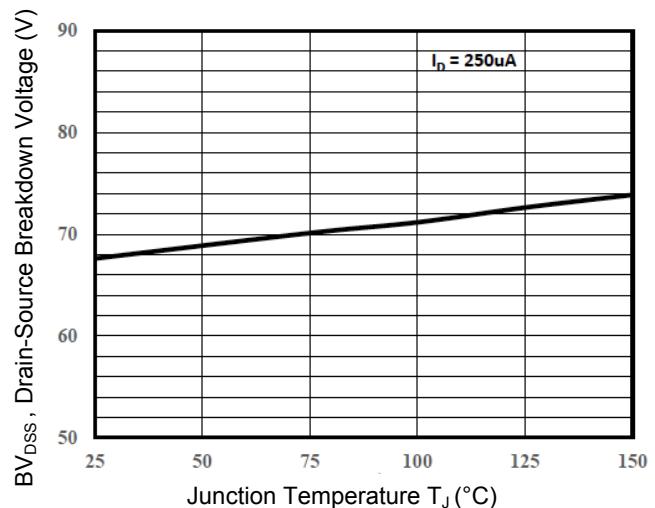
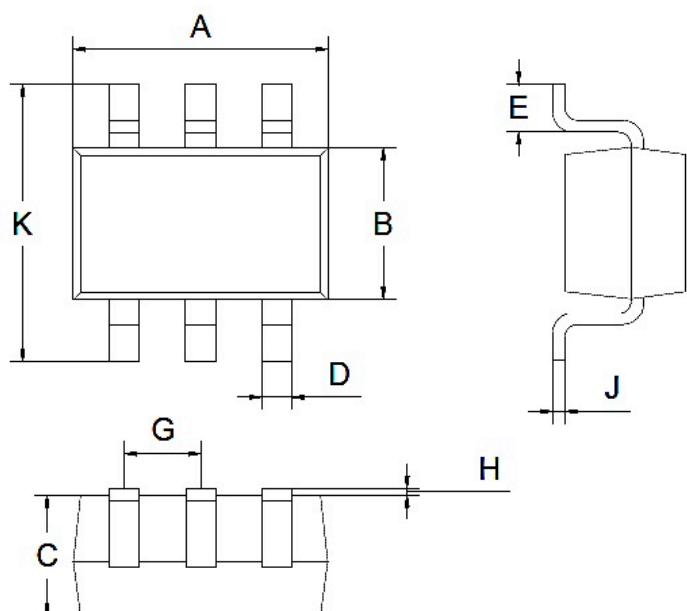


Figure 8. Drain-Source vs. Junction Temperature

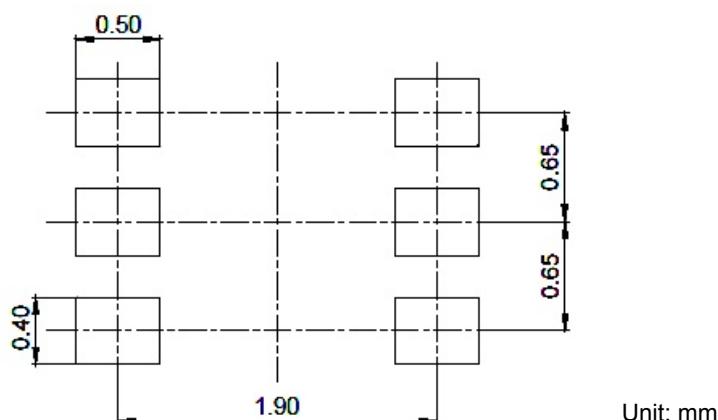
Package Outline Dimensions

SOT-363



| SOT-363 Unit: mm | | |
|-------------------------|------|------|
| Dimension | Min. | Max. |
| A | 2.00 | 2.20 |
| B | 1.15 | 1.35 |
| C | 0.85 | 1.05 |
| D | 0.15 | 0.35 |
| E | 0.25 | 0.40 |
| G | 0.60 | 0.70 |
| H | 0.02 | 0.10 |
| J | 0.05 | 0.15 |
| K | 2.20 | 2.40 |

Recommended Pad Layout



Order Information

| Device | Package | Marking Code | Carrier | Quantity | HSF Status |
|----------|---------|--------------|-------------|-----------|----------------|
| GSFK0600 | SOT-363 | 138 | Tape & Reel | 3000/Reel | RoHS Compliant |