

FEATURES

- Trench Power LV MOSFET technology
- High density cell design for low $R_{DS(ON)}$
- High Speed switching



| Product Summary | | | |
|-----------------|--------------------------------|-----------|-------------|
| V_{DS} | $R_{DS(on)}$ (m Ω) Typ | I_D (A) | Q_g (Typ) |
| 30V | 21 @ 10V | 5.6 | 4.8nc |
| | 25 @ 4.5V | 5.0 | |

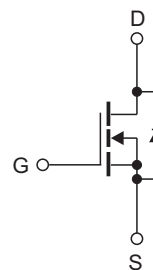
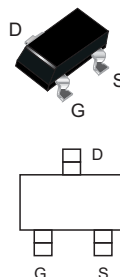
APPLICATIONS

- Battery protection
- Load switch
- Power management

MECHANICAL DATA

- Case: SOT-23(TO-236)
- Terminals: Plated solderable per MIL-STD-750, method 2026
- Mounting Position: Any

SOT-23



N-channel MOSFET

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

| Parameters | Symbol | Value | Unit |
|--|----------------|------------------------|------------------|
| Drain-Source voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current ($T_J = 150^\circ\text{C}$) | I_D | $T_A=25^\circ\text{C}$ | 5.6 |
| | | $T_A=70^\circ\text{C}$ | 4.5 |
| Pulsed Drain Current ¹⁾ | I_{DM} | 23 | A |
| Maximum Power Dissipation @ $T_A=25^\circ\text{C}$ | P_D | 1.2 | W |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Thermal Resistance Ratings

| Parameters | Symbol | Typ | Max | Unit |
|---|-----------------|-----|-----|---------------------------|
| Junction to Ambient, Steady State ²⁾ | $R_{\theta JA}$ | - | 104 | $^\circ\text{C}/\text{W}$ |

RATINGS AND CHARACTERISTIC OF JH3400A

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

| Parameters | Symbol | Conditions | Min | Typ | Max | Unit |
|---|---------------------|---|------|-----|------|------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | V _{GS} =0V, I _D =250μA | 30 | - | - | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =30V, V _{GS} =0V, T _C =25°C | - | - | 1 | μA |
| Gate-Source Leakage Current | I _{GSS} | V _{GS} =±12V, V _{DS} =0V | - | - | ±100 | nA |
| Gate-Source Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 0.65 | 0.9 | 1.5 | V |
| Drain-Source On-State Resistance | R _{DS(ON)} | V _{GS} =10V, I _D =5.6A | - | 21 | 27 | mΩ |
| | | V _{GS} =4.5V, I _D =5.0A | - | 25 | 33 | |
| | | V _{GS} =2.5V, I _D =3.0A | - | 33 | 51 | |
| Dynamic | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} =15V, V _{GS} =0V, f=1MHz | - | 535 | - | pF |
| Output Capacitance | C _{oss} | | - | 130 | - | |
| Reverse Transfer Capacitance | C _{rss} | | - | 56 | - | |
| Total Gate Charge | Q _g | V _{DS} =15V, V _{GS} =4.5V, I _D =5.6A | - | 4.8 | - | nC |
| Gate-Source Charge | Q _{GS} | | - | 1.2 | - | |
| Gate-Drain Charge | Q _{GD} | | - | 1.7 | - | |
| Turn-on Delay Time | t _{D(on)} | V _{GS} =10V, V _{DD} =30V, I _D =300mA, R _{GEN} =6Ω | - | 12 | - | ns |
| Turn-On Rise Time | t _r | | - | 52 | - | |
| Turn-off Delay Time | t _{D(off)} | | - | 17 | - | |
| Turn-Off Fall Time | t _f | | - | 10 | - | |
| Drain-Source Body Diode Characteristics | | | | | | |
| Maximum Body-Diode Continuous Current | I _S | | - | - | 5.6 | A |
| Diode Forward Voltage | V _{SD} | I _S =5.6A, V _{GS} =0V | - | 0.8 | 1.2 | V |

- Notes: 1. Pulse Test: Pulse Width≤300us, Duty cycle ≤2%.
 2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

RATINGS AND CHARACTERISTIC OF JH3400A

Typical Performance Characteristics

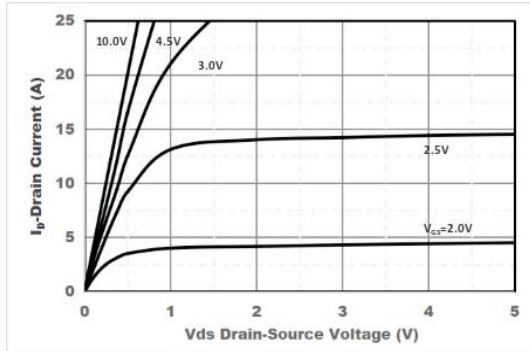


Figure1. Output Characteristics

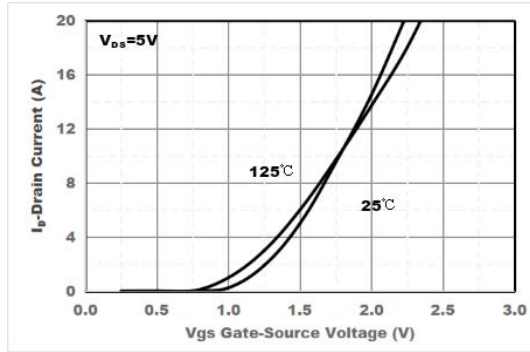


Figure2. Transfer Characteristics

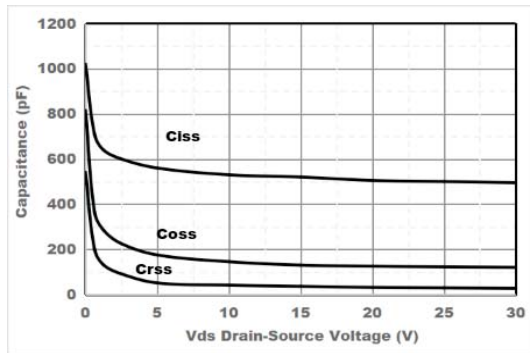


Figure3. Capacitance Characteristics

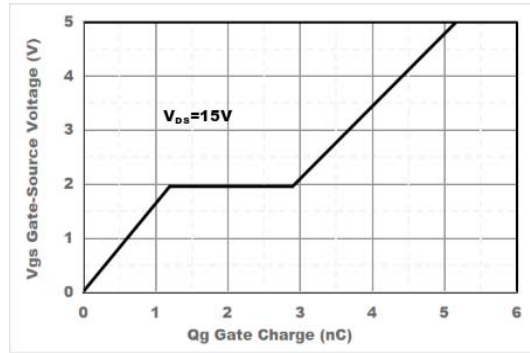


Figure4. Gate Charge

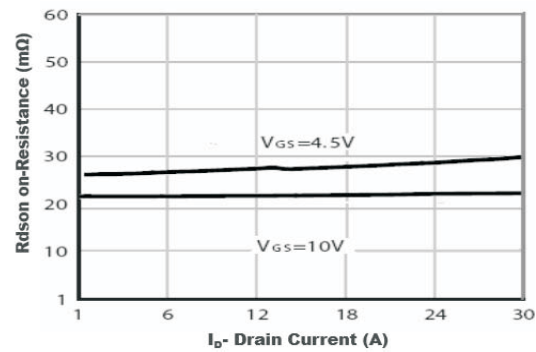


Figure5. Drain-Source on Resistance

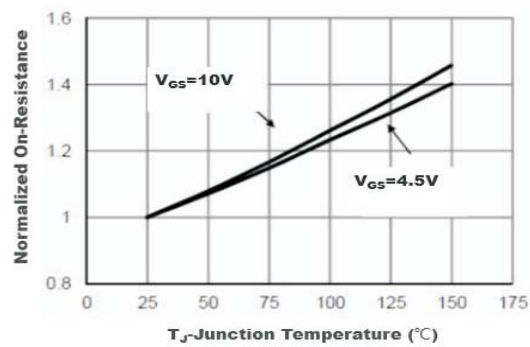


Figure6. Drain-Source on Resistance

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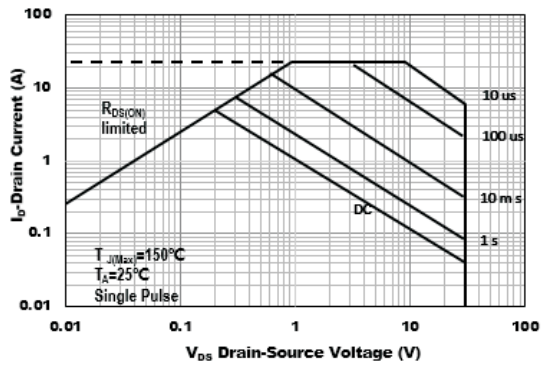


Figure7. Safe Operation Area

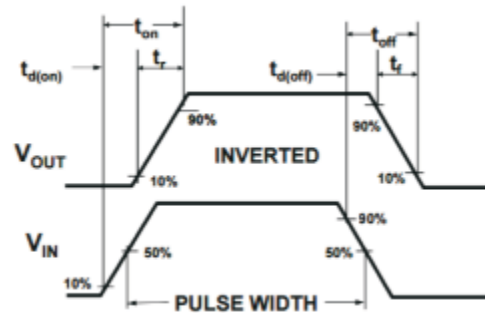
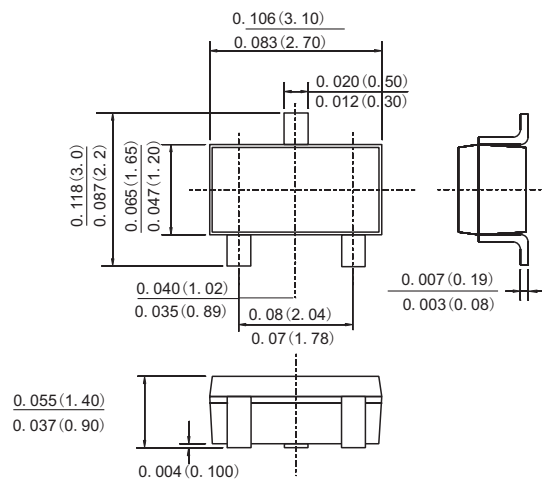


Figure8. Switching wave

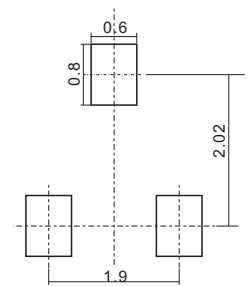
PACKAGE OUTLINE DIMENSIONS

SOT-23



Dimensions in inches and (millimeters)

Suggested Pad Layout



Dimensions in millimeters

RATINGS AND CHARACTERISTIC OF JH3400A

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