

Features

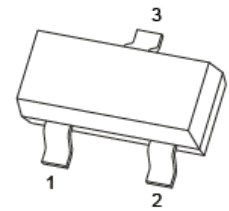
- ◆ -40V,5A
Rdson <85mΩ @VGS = -10V TYP: 65 mΩ Rdson <120mΩ @VGS = -4.5V TYP: 90 mΩ
- ◆ Advanced Trench Technology
- ◆ Lead free product is acquired
- ◆ Interfacing Switching
- ◆ Load Switching
- ◆ Power management

Mechanical Data

- ◆ SOT-23 Small Outline Plastic Package.
- ◆ Epoxy UL: 94V-0.
- ◆ Mounting Position: Any.

SOT-23

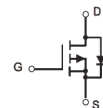
1. GATE
2. SOURCE
3. DRAIN



MARKING



Equivalent Circuit



Maximum Ratings & Thermal Characteristics (TA=25°C unless otherwise specified)

| 参数 Parameters | 符号 Symbol | 数值 Value | 单位 Unit |
|---|------------------|----------|---------|
| Drain-Source Voltage | V _{DS} | -40 | V |
| Gate-Source Voltage | V _{GS} | ±20 | V |
| Continuous Drain Current (Ta =25°C) | I _D | -5 | A |
| Continuous Drain Current (Ta =70°C) | I _D | -3.5 | |
| Pulsed Drain Current | I _{DM} | -20 | |
| Power Dissipation | P _D | 2 | W |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature | T _{stg} | -55-+150 | °C |
| Thermal Resistance From Junction to Ambient | R _{θJA} | 62.5 | °C/W |

Electrical Characteristics (TA=25°C unless otherwise specified)

| 参数 Parameter | 符号 Symbols | 测试条件 Test Condition | 界限 Limits | | | 单位 Unit |
|--|---------------------|--|-----------|------|------|------------|
| | | | Min | Typ | Max | |
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V(BR)DSS | VGS=0V, ID=-250uA | -40 | | | V |
| Gate-Threshold voltage | V _{GS(th)} | VDS=VGS, ID=-250uA | -1 | -1.6 | -2.5 | V |
| Gate-body Leakage | I _{GSS} | VDS=0V, VGS=±20V | | | ±100 | nA |
| Zero Gate Voltage Drain current | I _{DSS} | VDS=-40V, VGS=0V | | | -1 | uA |
| Drain-Source On-Resistance | R _{DS(ON)} | VGS=-10V, ID=-3A | | 65 | 85 | mΩ |
| | | VGS=-4.5V, ID=-2A | | 90 | 120 | |
| Dynamic | | | | | | |
| Input capacitance | C _{iss} | VDS=-20V, VGS=0V, f=1MHz | | 596 | | pF |
| Output capacitance | C _{oss} | | | 90 | | |
| Reverse Transfer capacitance | C _{rss} | | | 70 | | |
| Switching characteristics | | | | | | |
| Total gate charge | Q _g | VDS=-20V, VGS=-10V, ID=-3A | | 14 | | nC |
| Gate-source charge | Q _{gs} | | | 2.9 | | |
| Gate-drain charge | Q _{gd} | | | 3.8 | | |
| Turn-on Time | td(on) | VDD=-20V, ID=-3A,, VGS=-10V, RG=3Ω, | | 9 | | ns |
| Rise time | tr | | | 8 | | |
| Turn-off Time | td(off) | | | 28 | | |
| Fall time | tf | | | 10 | | |
| Drain-source body diode characteristics | | | | | | |
| Diode Forward current | I _S | | | | -4 | A |
| Diode Forward voltage | V _{SD} | I _S =-0.3A, VGS =0V | | | 1.2 | V |

Test Circuit

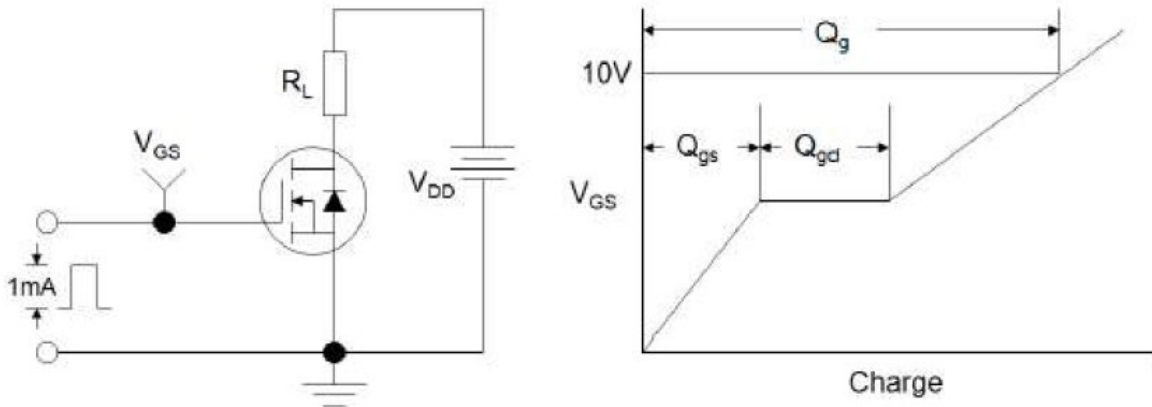


Figure1:Gate Charge Test Circuit & Waveform

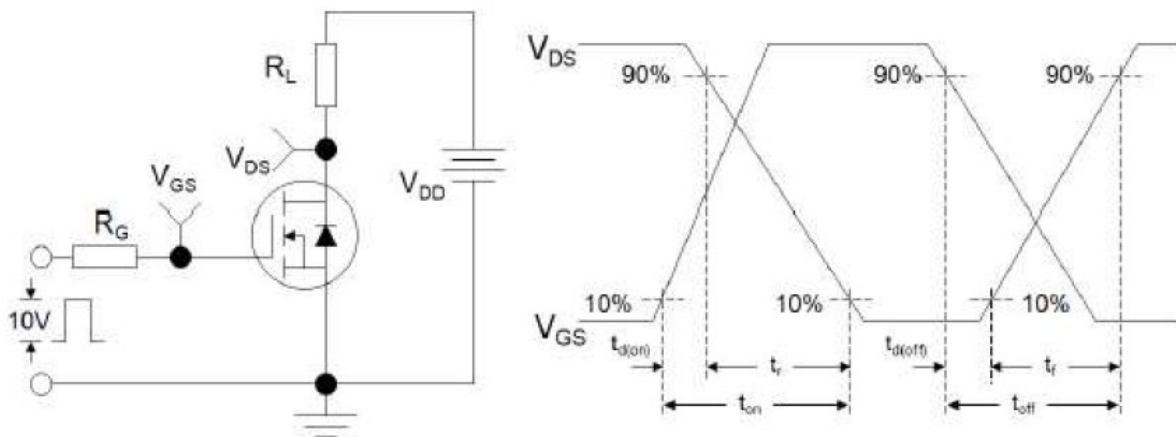


Figure 2: Resistive Switching Test Circuit & Waveforms

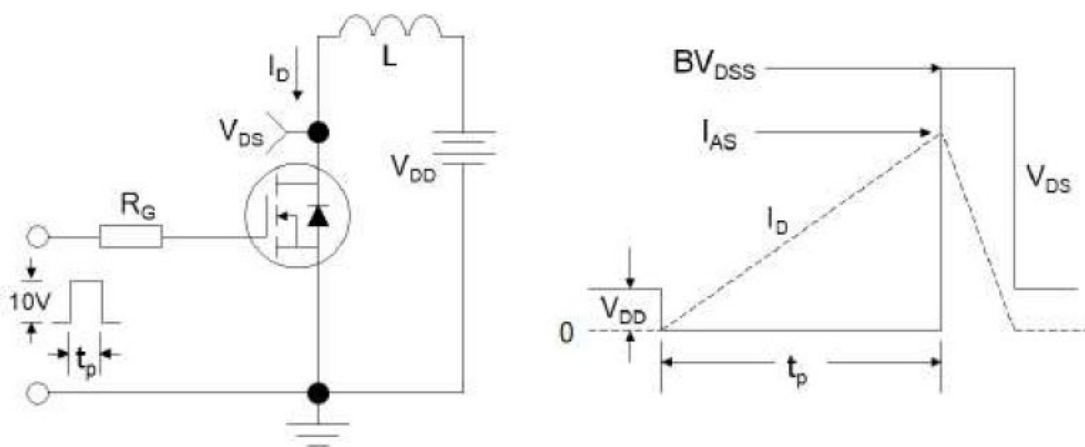


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

Typical Performance Characteristics (TA=25°C unless otherwise Specified)

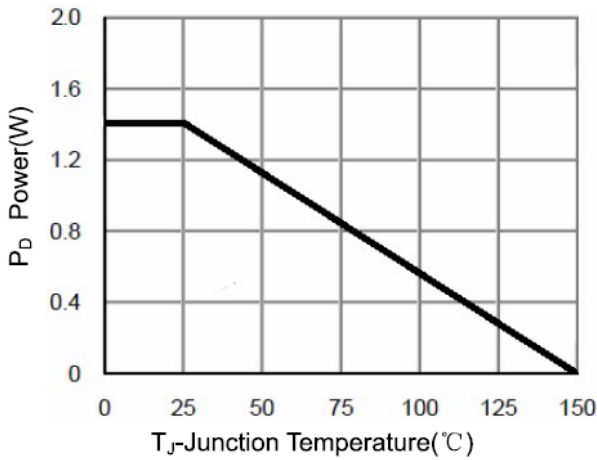


Figure 1 Power Dissipation

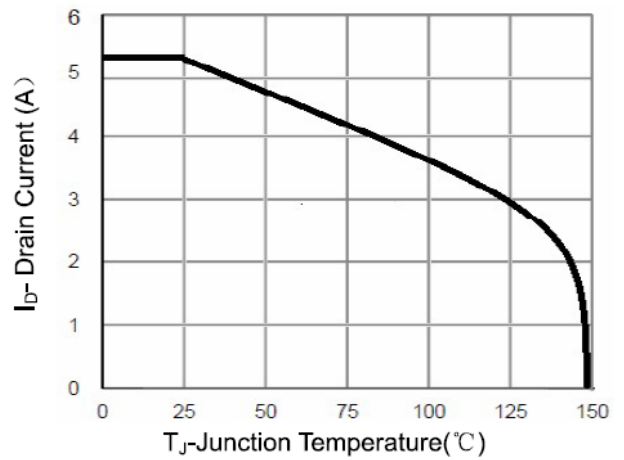


Figure 2 Drain Current

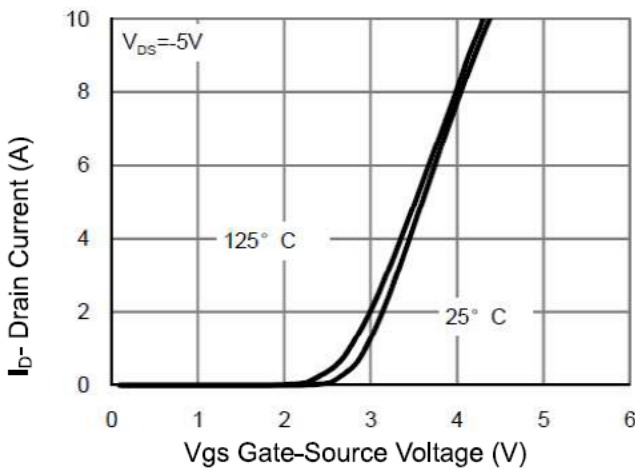
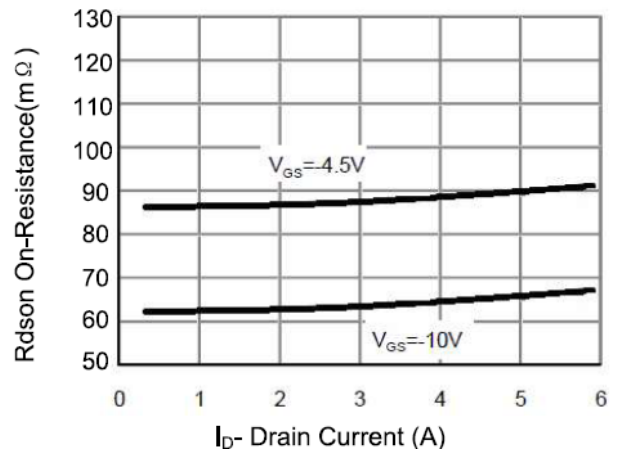
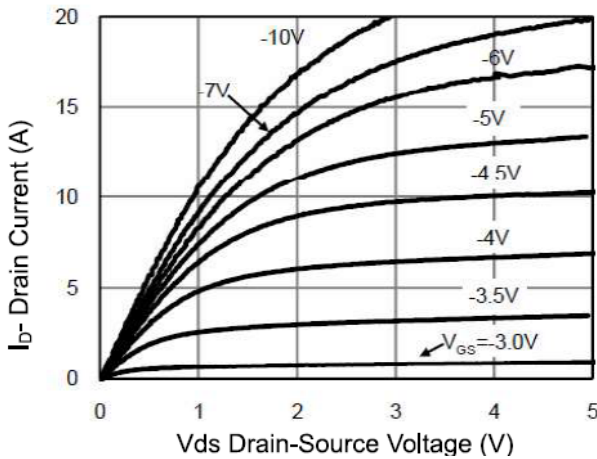


Figure 5 Transfer Characteristics

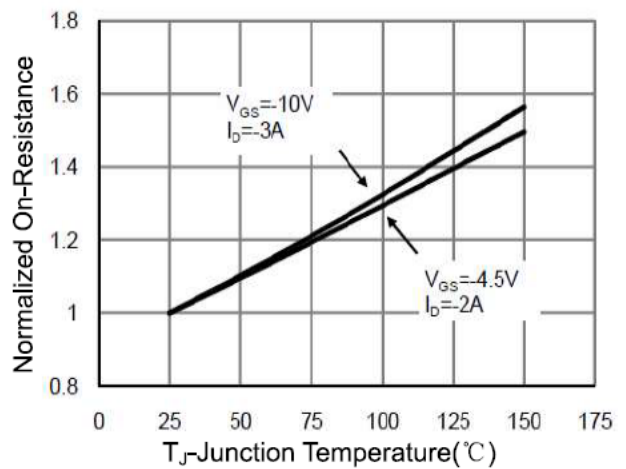


Figure 6 Drain-Source On-Resistance

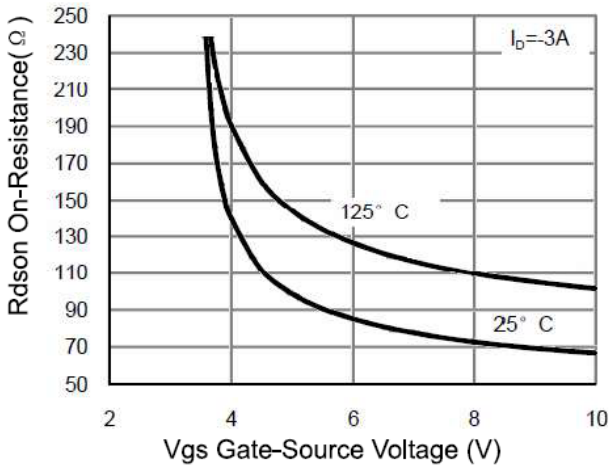


Figure 7 Rdson vs Vgs

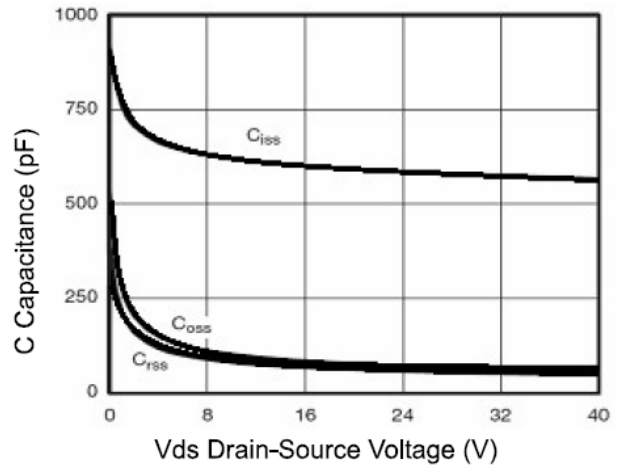


Figure 8 Capacitance vs Vds

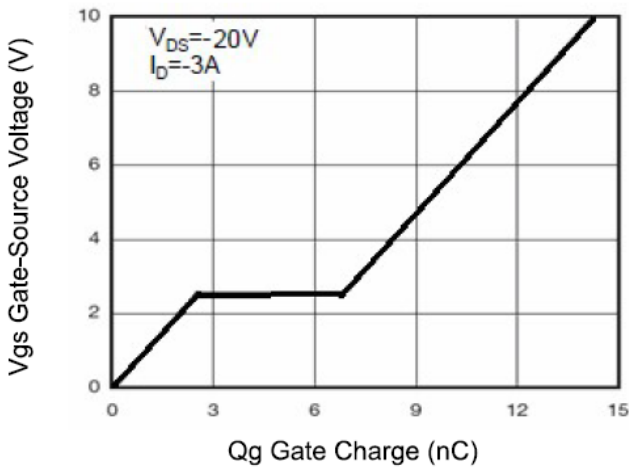


Figure 9 Gate Charge

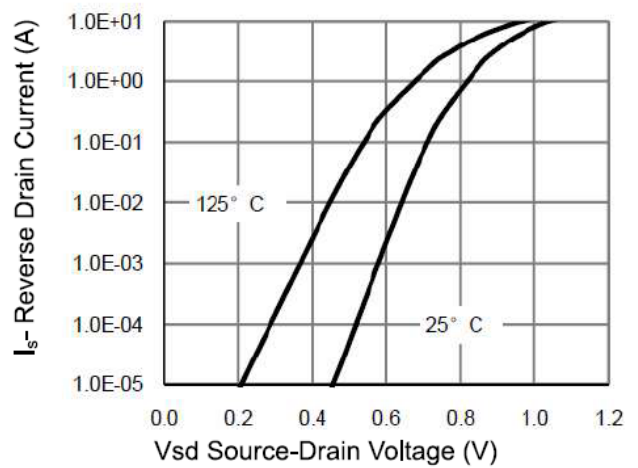


Figure 10 Source-Drain Diode Forward

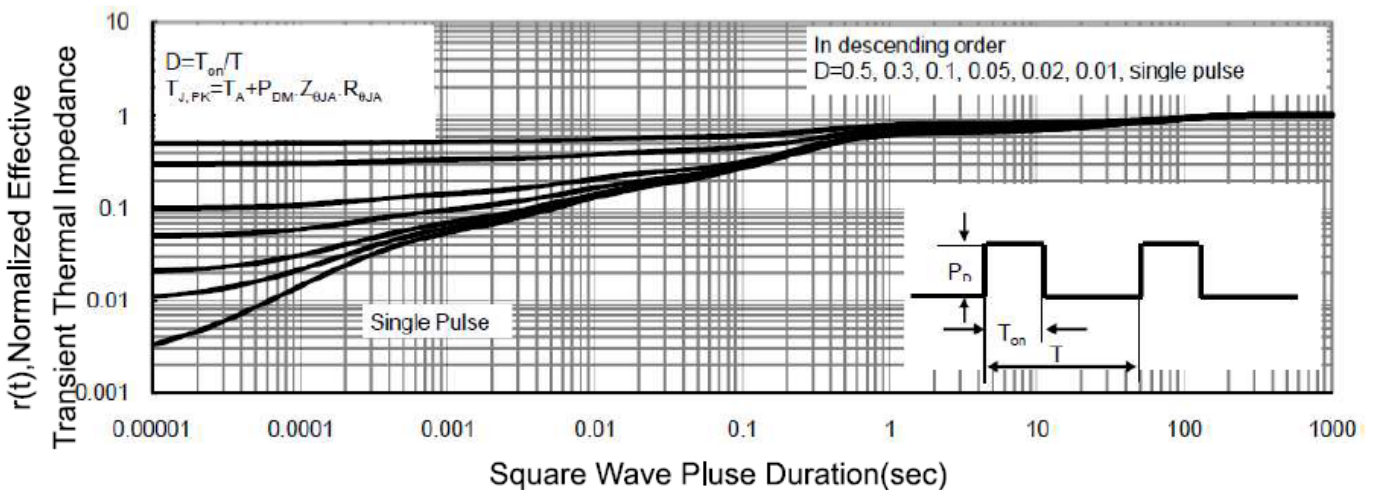
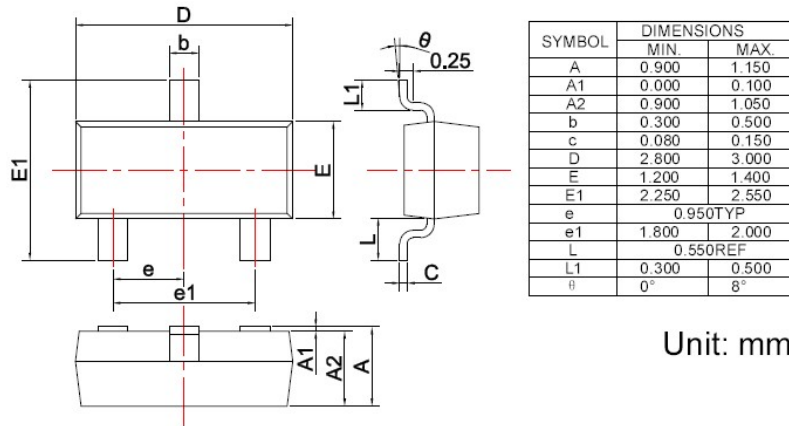
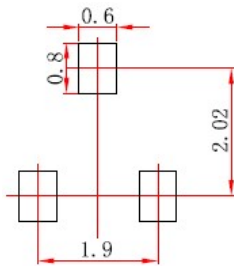


Figure 11 Normalized Maximum Transient Thermal Impedance

SOT-23 Package Outline Drawing



Suggested Land Pattern



Note:

1. Controlling dimension: In millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.