

SOT-23 Plastic-Encapsulate MOSFETS

Features

- $V_{DS}=100V$
- $I_D=0.17A$
- $R_{DS(on)}@V_{GS}=10V < 6\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 10\Omega$
- Trench Power LV MOSFET technology
- Load Switch for Portable Devices.
- DC/DC Converter

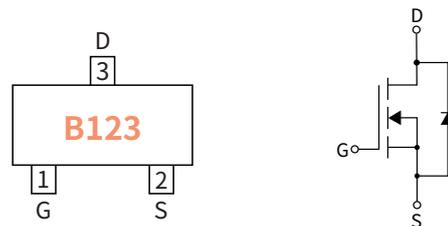
Applications

- Battery protection
- Load switch
- Power management

Mechanical Data

- Case: SOT-23
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Function Diagram



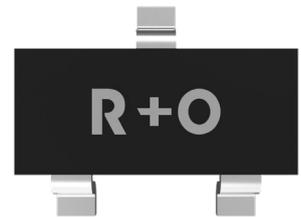
Drain-source Voltage

100 V

Drain Current

0.17 Ampere

SOT-23



Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | UNIT | VALUE |
|---|-----------------|--------|-----------|
| Drain-source Voltage | V_{DS} | V | 100 |
| Gate-source Voltage | V_{GS} | V | ± 20 |
| Drain Current | I_D | A | 0.17 |
| Total Power Dissipation | P_D | W | 0.68 |
| Junction temperature | T_J | °C | -55 ~+150 |
| Storage temperature | T_{stg} | °C | -55 ~+150 |
| Thermal Resistance Junction-to-Ambient @ Steady State | $R_{\theta JA}$ | °C / W | 417 |

Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-23 | R1 | 0.008 | 3000 | 45000 | 180000 | 7" |

● Static Parameter Characteristics (Ta=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | Condition | UNIT | Min | Typ | Max |
|--|--------------|-------------------------------|----------|-----|-----|----------|
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=250\mu A$ | V | 100 | — | — |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=100V, V_{GS}=0V$ | μA | — | — | 0.1 |
| | | $V_{DS}=20V, V_{GS}=0V$ | | — | — | 0.01 |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | nA | — | — | ± 50 |
| Gate Threshold Voltage ⁽¹⁾ | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | V | 0.8 | 1.4 | 2.0 |
| Static Drain-Source On-Resistance ⁽¹⁾ | $R_{DS(on)}$ | $V_{GS}=10V, I_D=0.17A$ | Ω | — | — | 6.0 |
| | | $V_{GS}=4.5V, I_D=0.17A$ | | — | — | 10 |
| Gate resistance | R_g | $V_{DS}=0V, V_{GS}=0, f=1MHz$ | Ω | — | — | 3.6 |
| Forward Transconductance ⁽¹⁾ | g_{FS} | $V_{DS}=10V, I_D=0.17A$ | mS | 80 | — | — |
| Diode Forward Voltage | V_{SD} | $I_S=0.34A, V_{GS}=0V$ | V | — | — | 1.3 |
| Maximum Body-Diode Continuous Current | I_S | — | A | — | — | 0.34 |

● Dynamic Parameters (Ta=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | Condition | UNIT | Min | Typ | Max |
|------------------------------|-----------|---|------|-----|-----|-----|
| Input Capacitance | C_{iss} | $V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$ | pF | — | 22 | 60 |
| Output Capacitance | C_{oss} | | | — | 3.5 | 15 |
| Reverse Transfer Capacitance | C_{rss} | | | — | 2.0 | 6.0 |

● Switching Parameters (Ta=25°C Unless otherwise specified)

| PARAMETER | SYMBOL | Condition | UNIT | Min | Typ | Max |
|---------------------------------------|--------------|--|------|-----|------|------|
| Total Gate Charge | Q_g | $V_{GS}=10V$ $V_{DS}=30V$ $I_D=0.28A$ | nC | — | 1.4 | 2.0 |
| Gate-Source Charge | Q_{gs} | | | — | 0.15 | 0.25 |
| Gate-Drain Charge | Q_{gd} | | | — | 0.2 | 0.4 |
| Turn-on Delay Time ⁽¹⁾⁽²⁾ | $t_{D(on)}$ | $V_{DD}=30V, V_{GS}=10V,$ $I_D=0.28A, R_{GEN}=50\Omega$ | ns | — | — | 8.0 |
| Turn-on Rise Time ⁽¹⁾⁽²⁾ | t_r | | | — | — | 8.0 |
| Turn-off Delay Time ⁽¹⁾⁽²⁾ | $t_{D(off)}$ | | | — | — | 13 |
| Turn-off fall Time ⁽¹⁾⁽²⁾ | t_f | | | — | — | 16 |

Note :

(1)Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

(2)These parameters have no way to verify.

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)

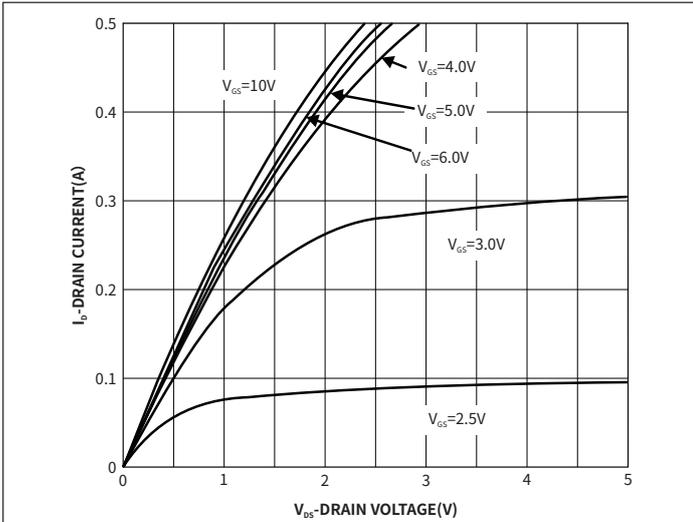


Fig.1 Output Characteristics

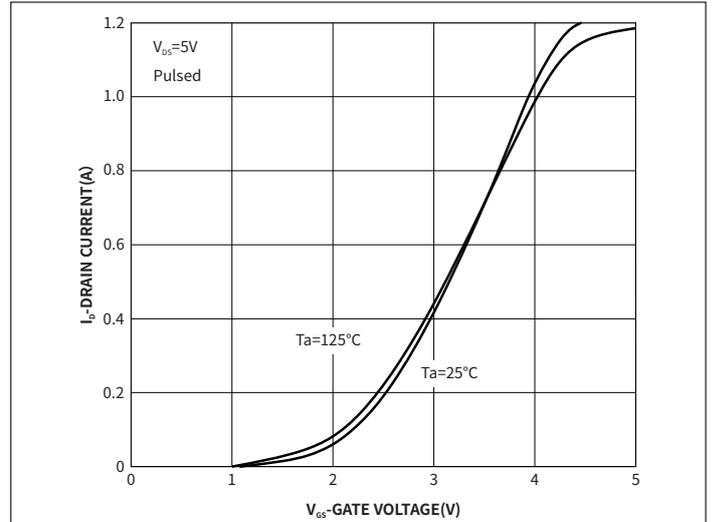


Fig.2 Transfer Characteristics

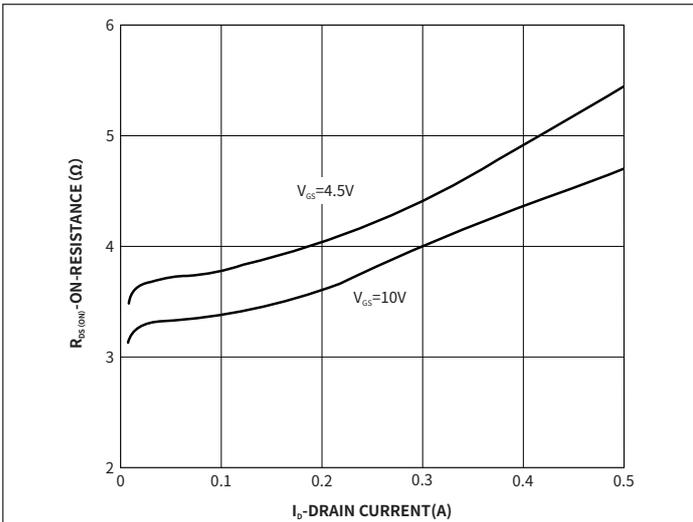


Fig.3 On-Resistance vs. Drain Current and Gate Voltage

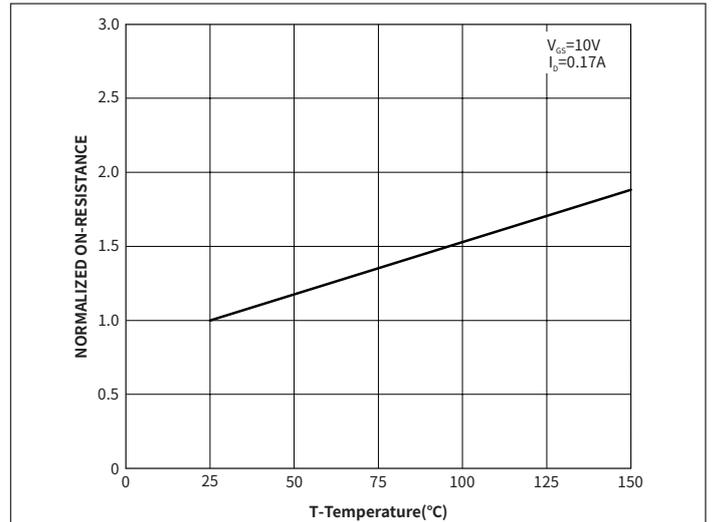


Fig.4 On-Resistance vs. Junction Temperature

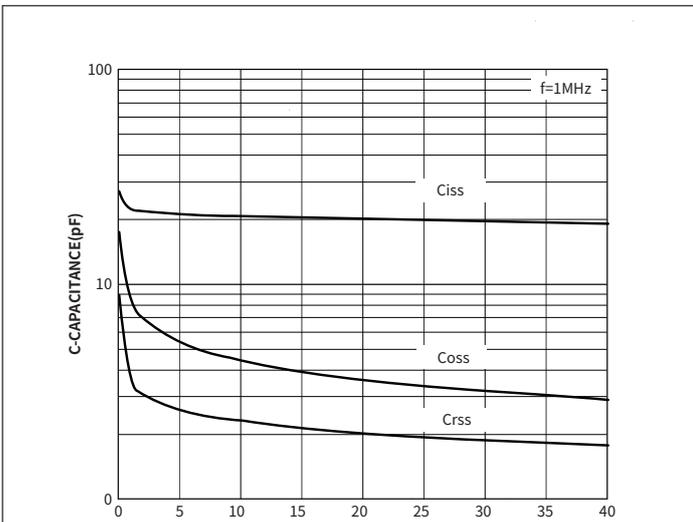


Fig.5 Capacitance Characteristics

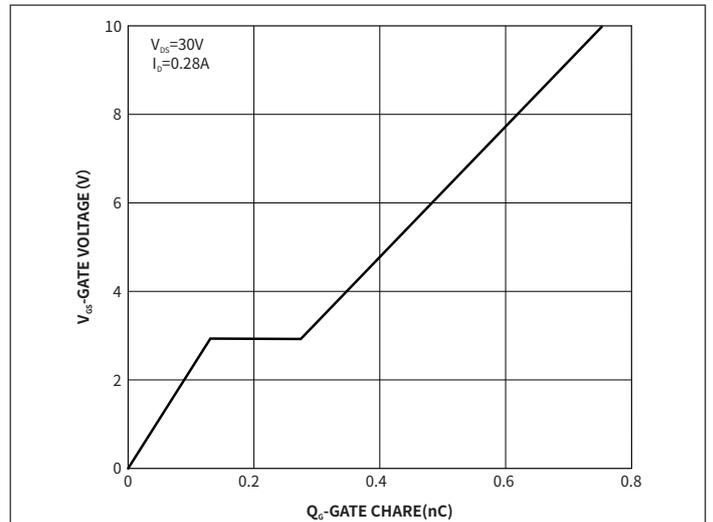
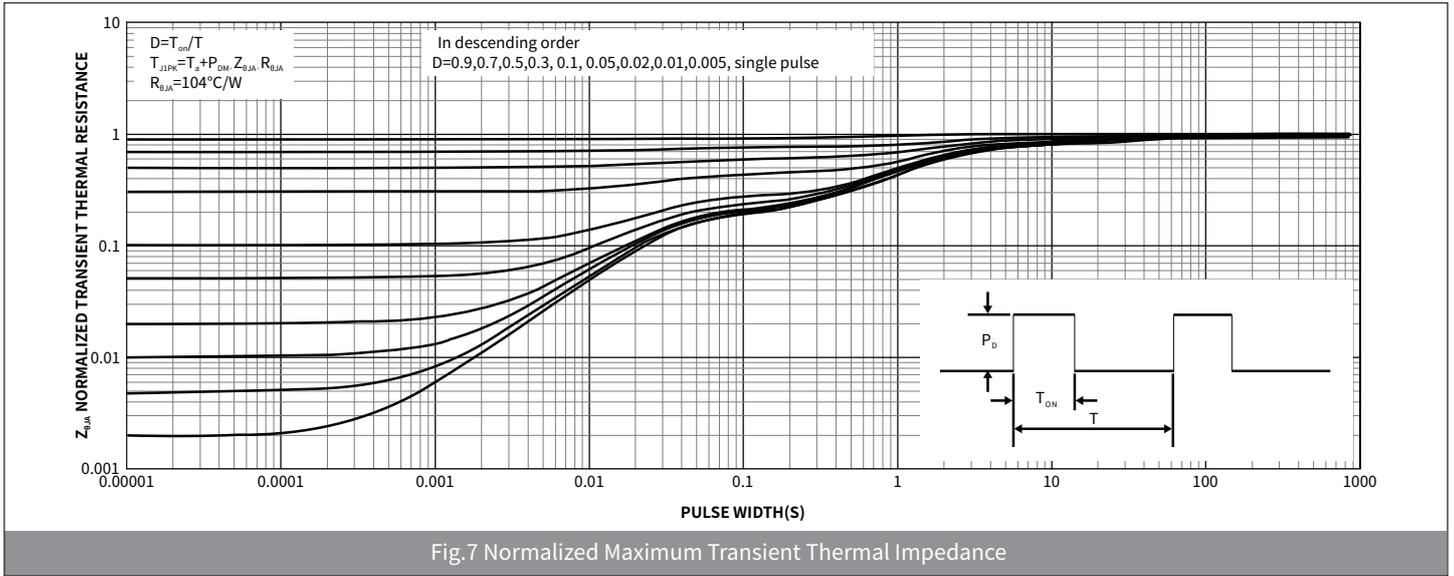
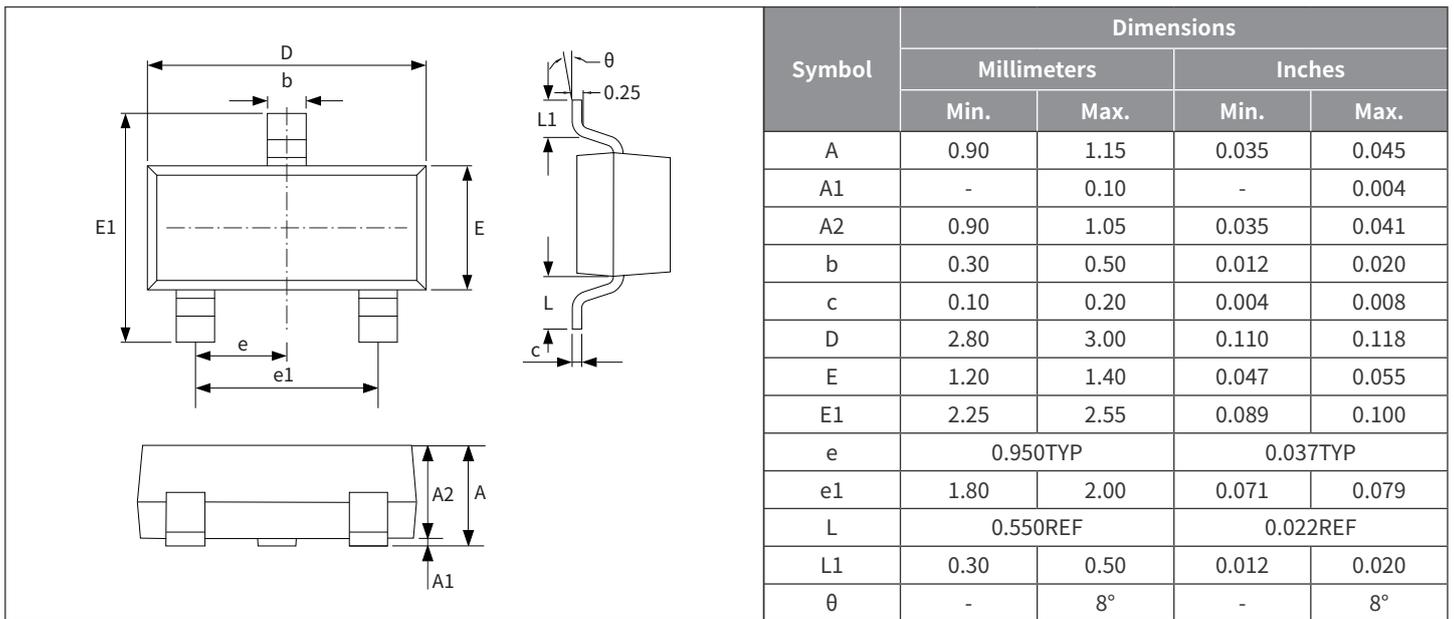


Fig.6 Gate Charge

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Package Outline Dimensions (SOT-23)



● Suggested Pad Layout

