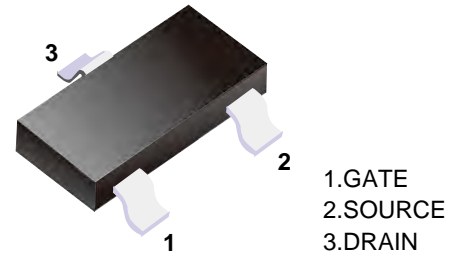
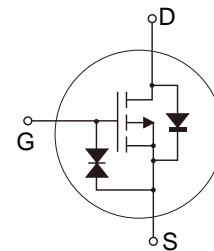


Features

- Energy efficient
- Low threshold voltage
- High-speed switching
- Miniature surface mount package saves board space
- ESD protected(HBM) up to 2KV



■ Simplified outline(SOT-23)



■ Absolute Maximum Ratings (Ta = 25°C)

| Parameter | Symbol | Maximum | Units |
|--|-----------------|-----------------|-------|
| Drain-Source Voltage | $-V_{DS}$ | 50 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | $-I_D$ | 0.13 | A |
| Pulsed Drain Current ^{Note1} @tp < 10μs | $-I_{DM}$ | 0.52 | |
| Power Dissipation | P_D | 225 | mW |
| Junction and Storage Temperature Range | T_J, T_{STG} | 150, -55 to 150 | °C |
| Thermal Characteristics | | | |
| Parameter | Symbol | Typ. | Units |
| Maximum Junction-to-Ambient ^{Note2} | $R_{\theta JA}$ | 556 | °C/W |



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■ Electrical Characteristics (Ta = 25°C)

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Units |
|--|---------------|--|------|------|------|----------|
| Static Parameters | | | | | | |
| Drain-Source Breakdown Voltage | $-BV_{DSS}$ | $-I_D=250\mu A, V_{GS}=0V$ | 50 | -- | -- | V |
| Zero Gate Voltage Drain Current | $-I_{DSS}$ | $-V_{DS}=50V, V_{GS}=0V$ | -- | -- | 1 | μA |
| | | $-V_{DS}=25V, V_{GS}=0V$ | -- | -- | 0.1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 20V$ | -- | 1 | 5 | μA |
| Gate Threshold Voltage ^{Note3} | $-V_{GS(th)}$ | $V_{DS}=V_{GS}, -I_D=250\mu A$ | 0.9 | 1.3 | 2 | V |
| Static Drain-Source On-Resistance ^{Note3} | $R_{DS(on)}$ | $-V_{GS}=10V, -I_D=0.1A$ | -- | 1.7 | 8 | Ω |
| | | $-V_{GS}=5V, -I_D=0.1A$ | -- | 1.9 | 10 | Ω |
| Body Diode Forward Voltage | $-V_{SD}$ | $-I_S=0.13A, V_{GS}=0V$ | -- | -- | 1.2 | V |
| Dynamic Parameters | | | | | | |
| Forward Transconductance ^{Note3} | g_{FS} | $-V_{DS}=25V, -I_D=0.1A$ | 50 | -- | -- | mS |
| Input Capacitance | C_{iss} | $V_{GS}=0V, -V_{DS}=5V, f=1MHz$ | -- | 30 | -- | pF |
| Output Capacitance | C_{oss} | | -- | 10 | -- | pF |
| Reverse Transfer Capacitance | C_{rss} | | -- | 5 | -- | pF |
| Switching Parameters | | | | | | |
| Turn-On DelayTime | $t_{D(on)}$ | $-V_{DD}=15V, R_L=50\Omega, -I_D=2.5A$ | -- | 2.5 | -- | ns |
| Turn-On Rise Time | t_r | | -- | 1 | -- | ns |
| Turn-Off DelayTime | $t_{D(off)}$ | | -- | 16 | -- | ns |
| Turn-Off Fall Time | t_f | | -- | 8 | -- | ns |
| Source -Drain Diode characteristics | | | | | | |
| Diode forward current | $-I_S$ | | -- | -- | 0.13 | A |
| Diode pulsed forward current | $-I_{SM}$ | | -- | -- | 0.52 | A |

Notes: 1. Repetitive rating : Pulse width limited by junction temperature.

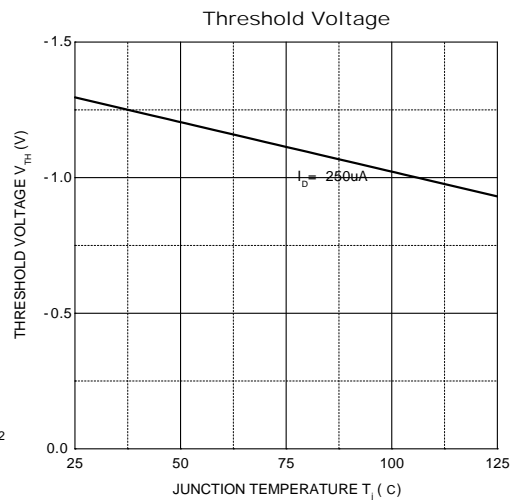
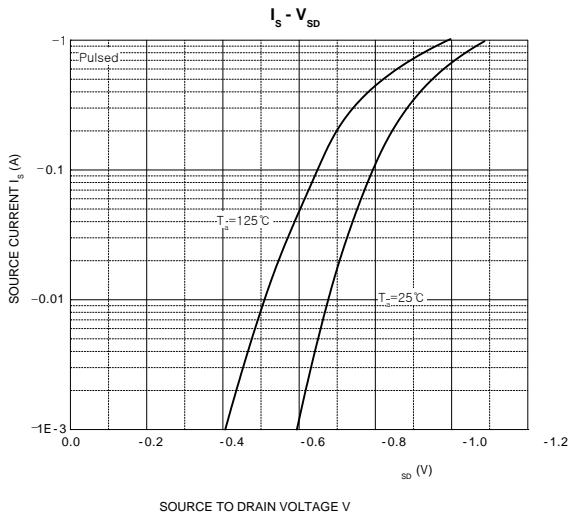
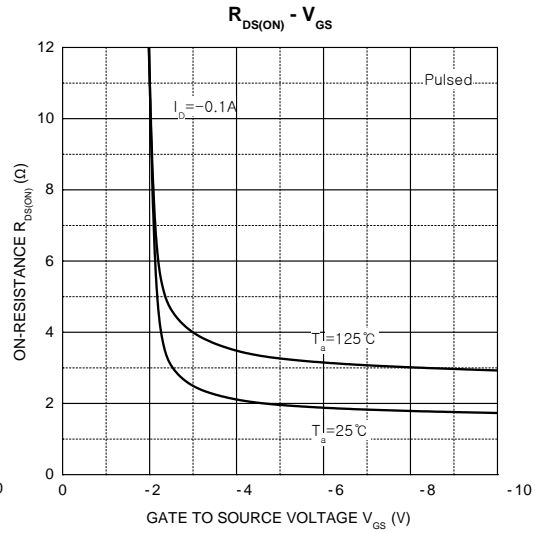
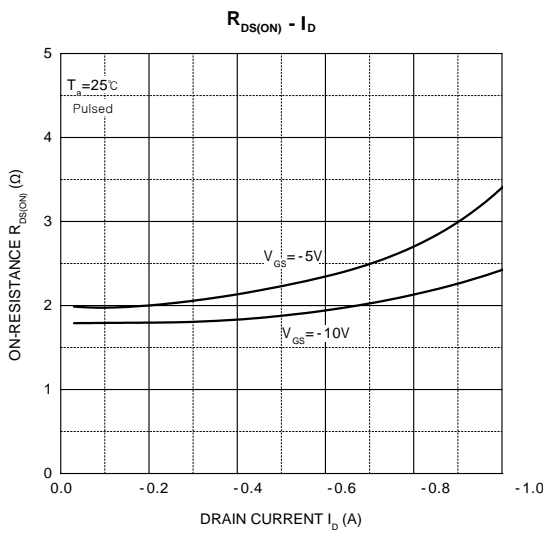
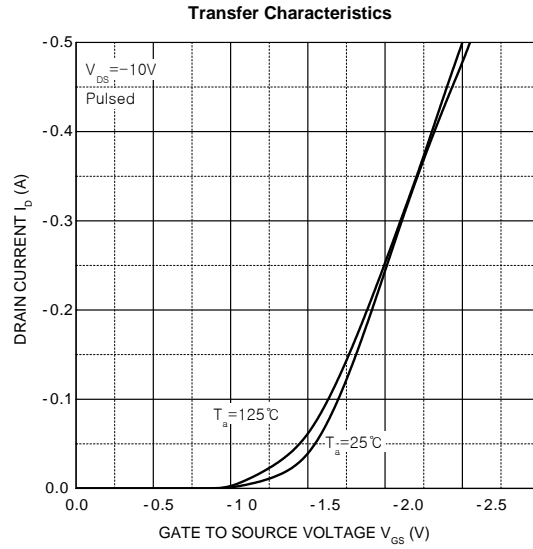
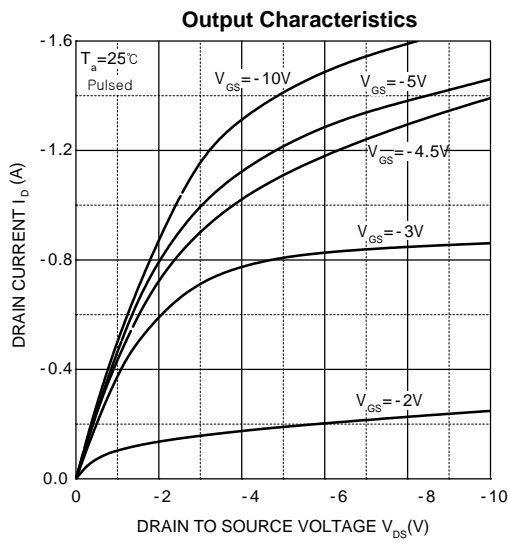
2. Surface mounted on FR4 board , $t_s \leq 10s$.

3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

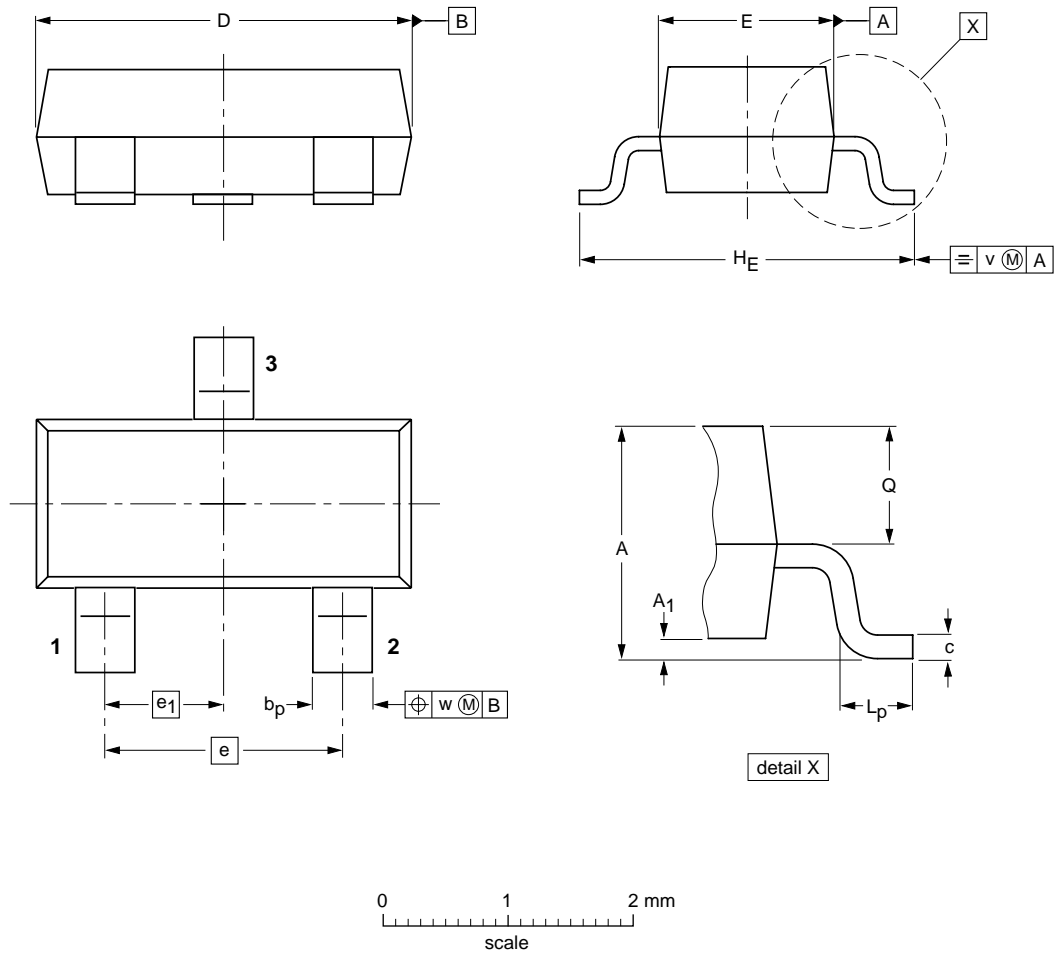


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Typical Performance Characteristics



■ SOT-23



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max. | b _p | c | D | E | e | e ₁ | H _E | L _p | Q | v | w |
|------|------------|------------------------|----------------|--------------|------------|------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm | 1.1 0.9 | 0.1 | 0.48 0.38 | 0.15 0.09 | 3.0 2.8 | 1.4 1.2 | 1.9 | 0.95 | 2.5 2.1 | 0.45 0.15 | 0.55 0.45 | 0.2 | 0.1 |