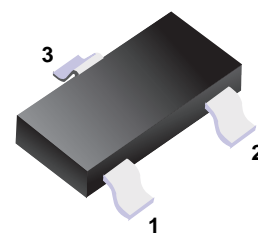
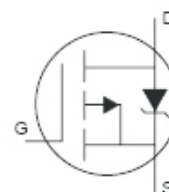


P-Channel Enhancement MOSFET


1. Gate
2. Source
3. Drain

Features

- Ultra low on-resistance.
- P-Channel MOSFET.
- Fast switching.

Simplified outline(SOT-23)

Absolute Maximum Ratings Ta = 25°C

| Parameter | Symbol | Rating | Unit |
|--|-------------------|-----------------|------|
| Drain-Source Voltage | V _{DS} | -12 | V |
| Gate-Source Voltage | V _{GS} | ±8 | |
| Continuous Drain Current V _{GS} =4.5V @ TA=25°C | I _D | -4.3 | A |
| Continuous Drain Current V _{GS} =4.5V @ TA=70°C | | -3.4 | |
| Pulsed Drain Current a | | I _{DM} | |
| Power Dissipation @ TA=25°C | P _D | 1.3 | W |
| Power Dissipation @ TA=70°C | | 0.8 | |
| Single Pulse Avalanche Energy b | E _{AS} | 33 | mJ |
| Thermal Resistance.Junction- to-Ambient | R _{thJA} | 100 | °C/W |
| Linera Derating Factor | | 0.01 | W/°C |
| Junction Temperature | T _J | 150 | °C |
| Junction and Storage Temperature Range | T _{stg} | -55 to 150 | |

Notes:

a.Repetitive Rating :Pulse width limited by maximum junction temperature

b.Starting T_J=25°C, L=3.5mH, R_G=25Ω, I_{AS}=-4.3A

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---------------------------------------|---------------------|--|---------------------------------------|-------|-------|------|
| Drain-Source Breakdown Voltage | V _{DSS} | I _D =-250 μA, V _{GS} =0V | -12 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =-12V, V _{GS} =0V | | | -1 | μA |
| | | V _{DS} =-9.6V, V _{GS} =0V, T _J = 55°C | | | -25 | |
| Gate-Body leakage current | I _{GSS} | V _{DS} =0V, V _{GS} =±8V | | | ±100 | nA |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} I _D =-250 μA | -0.4 | -0.55 | -0.95 | V |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =-4.5V, I _D =-4.3A | | | 50 | mΩ |
| | | V _{GS} =-2.5V, I _D =-2.5A | | | 85 | |
| | | V _{GS} =-1.8V, I _D =-2A | | | 125 | |
| Forward Transconductance | g _{FS} | V _{DS} =-10V, I _D =-4.3A | 8.6 | | | S |
| Input Capacitance | C _{iss} | V _{GS} =0V, V _{DS} =-10V, f=1MHz | | 830 | | pF |
| Output Capacitance | C _{oss} | | | 180 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 125 | | |
| Total Gate Charge | Q _g | V _{GS} =-5.0V, V _{DS} =-10V, I _D =-4.3A | | 10 | 15 | nC |
| Gate Source Charge | Q _{gs} | | | 1.4 | 2.1 | |
| Gate Drain Charge | Q _{gd} | | | 2.6 | 3.9 | |
| Turn-On DelayTime | t _{d(on)} | | | 11 | | |
| Turn-On Rise Time | t _r | I _D =-1.0A, V _{DS} =-6.0V, R _L =6 Ω, R _{GEN} =89 Ω | | 32 | | ns |
| Turn-Off DelayTime | t _{d(off)} | | | 250 | | |
| Turn-Off Fall Time | t _f | | | 210 | | |
| Body Diode Reverse Recovery Time | t _{rr} | | I _F =-1.3A, di/dt=-100A/μs | | 22 | |
| Body Diode Reverse Recovery Charge | Q _{rr} | I _F =-1.3A, di/dt=-100A/μs | | 8 | 12 | Nc |
| Maximum Body-Diode Continuous Current | I _S | | | | 1.3 | A |
| Diode Forward Voltage | V _{SD} | I _S =-1.3A, V _{GS} =0V | | | -1.2 | V |

■ Typical Characteristics

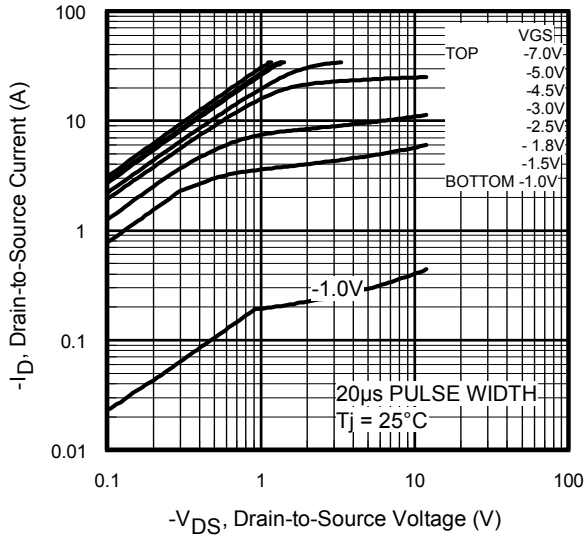


Fig 1. Typical Output Characteristics

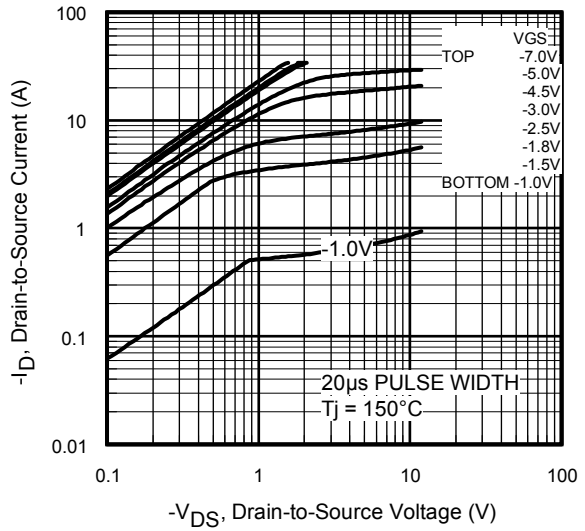


Fig 2. Typical Output Characteristics

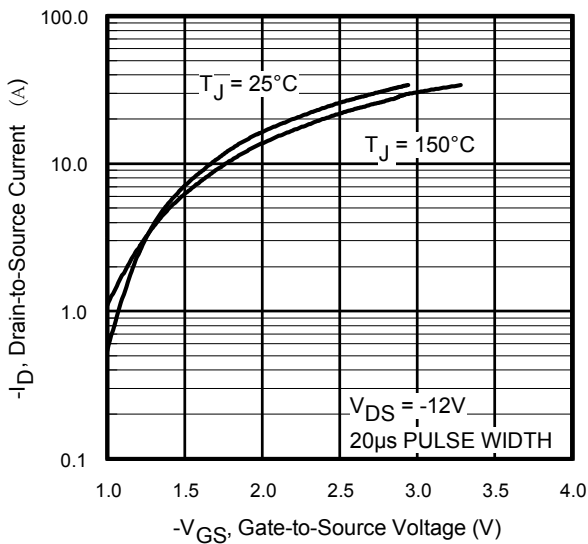


Fig 3. Typical Transfer Characteristics

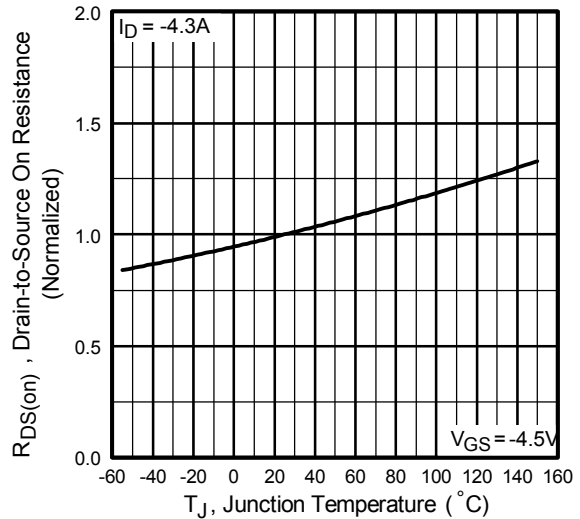


Fig 4. Normalized On-Resistance Vs. Temperature

■ Typical Characteristics

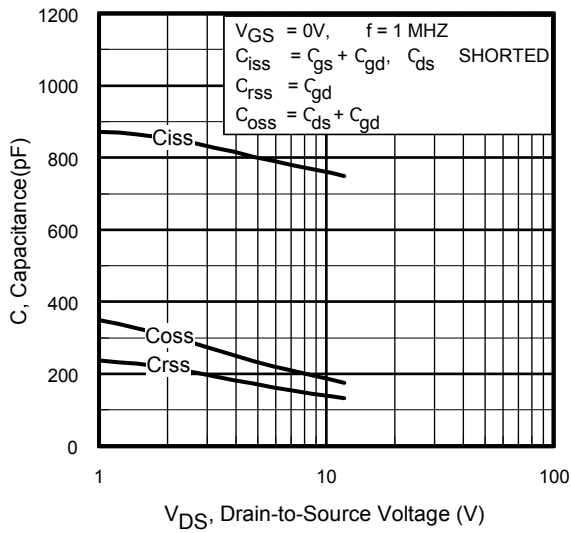


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

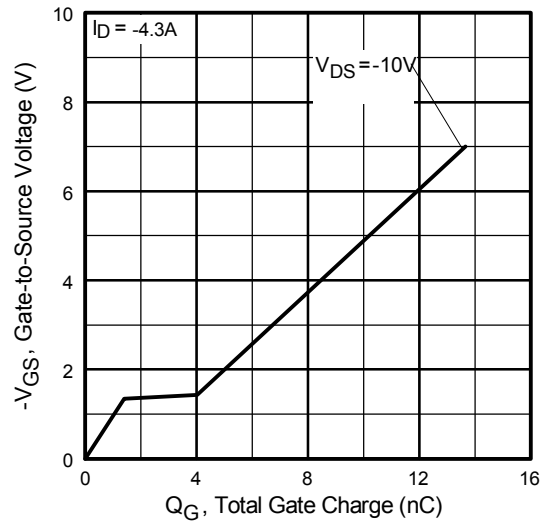


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

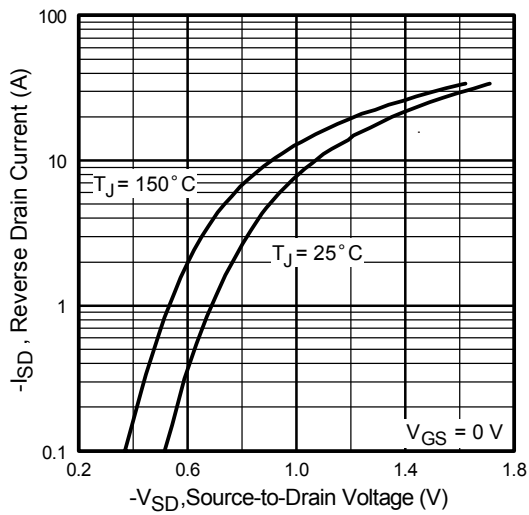


Fig 7. Typical Source-Drain Diode Forward Voltage

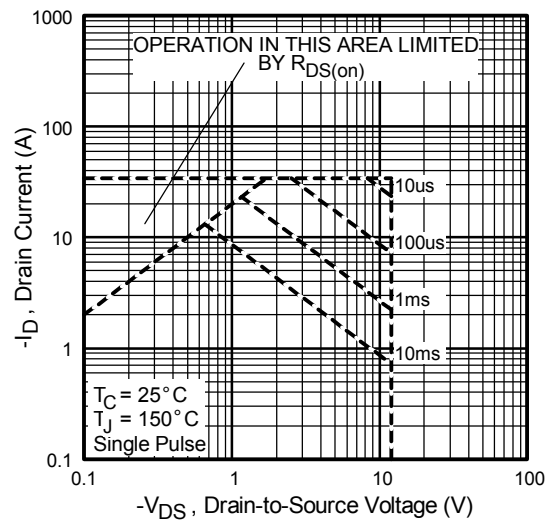
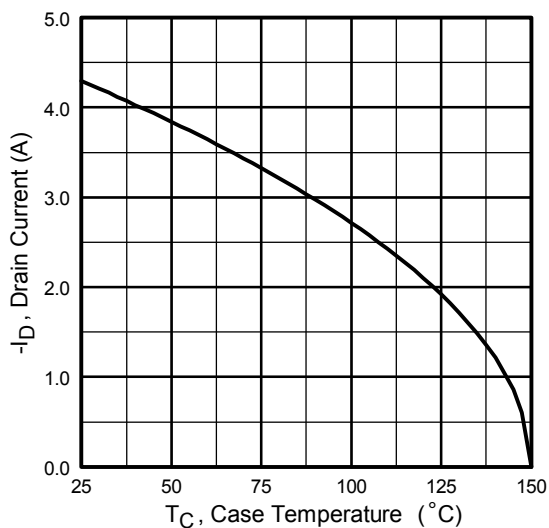
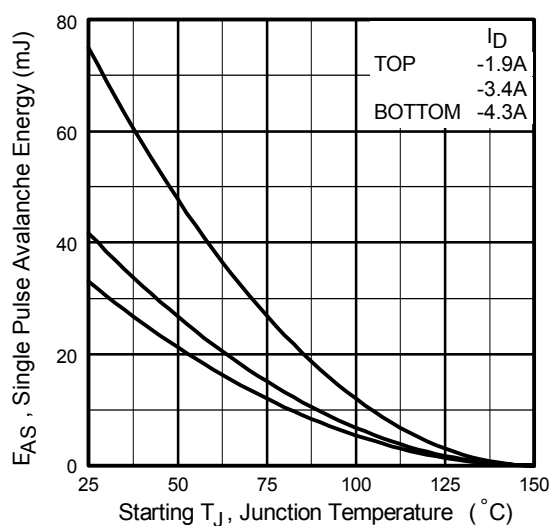
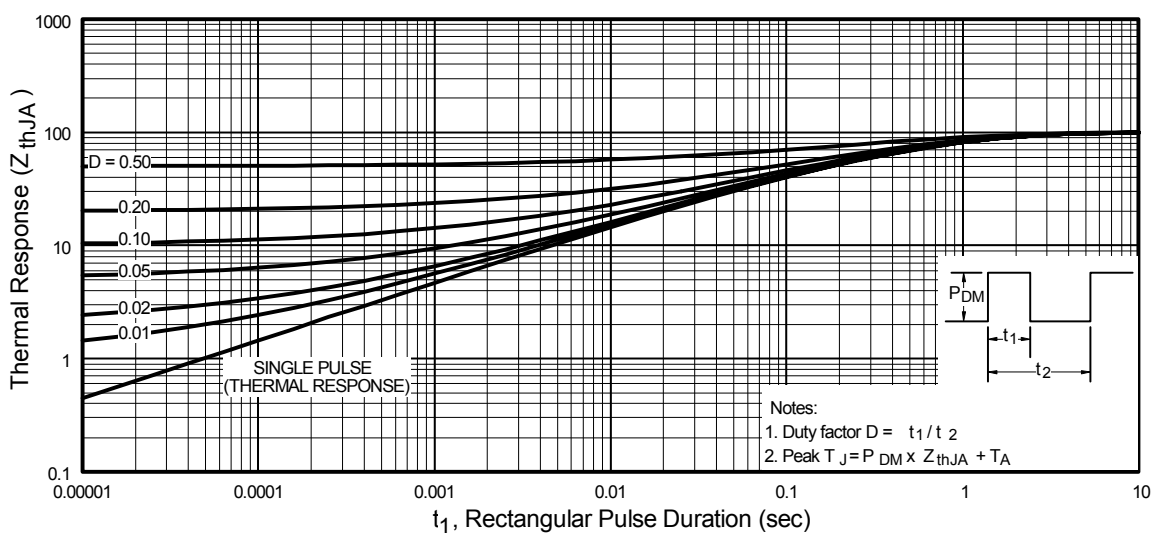


Fig 8. Maximum Safe Operating Area

Typical Characteristics

Fig 9. Maximum Drain Current Vs. Case Temperature

Fig 10. Maximum Avalanche Energy Vs. Drain Current

Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

■ Typical Characteristics

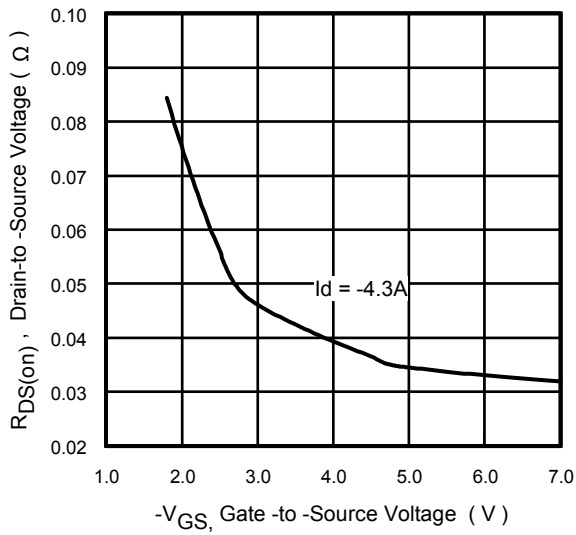


Fig 12. Typical On-Resistance Vs. Gate Voltage

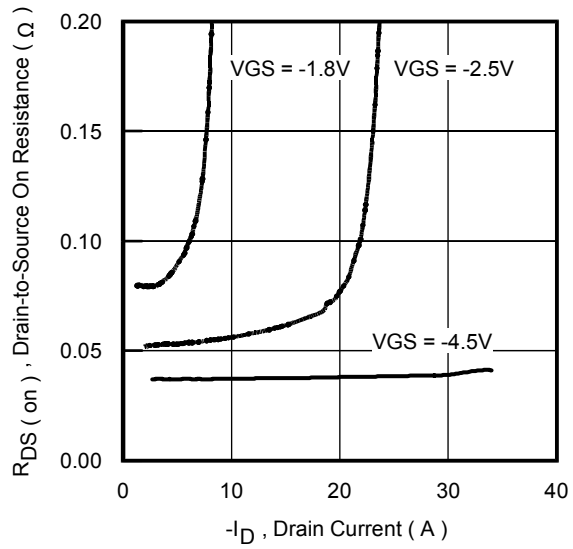


Fig 13. Typical On-Resistance Vs. Drain Current

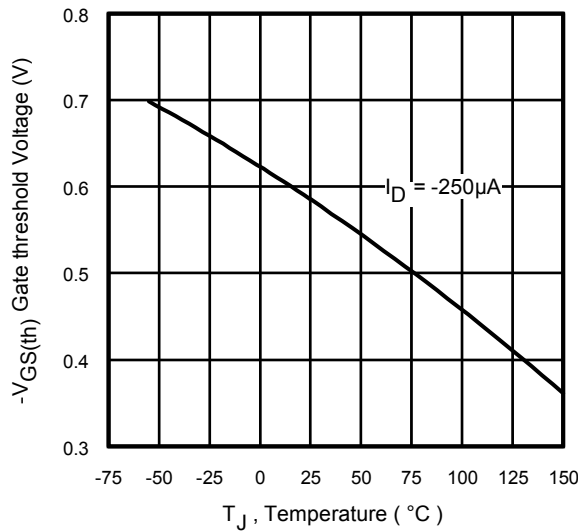
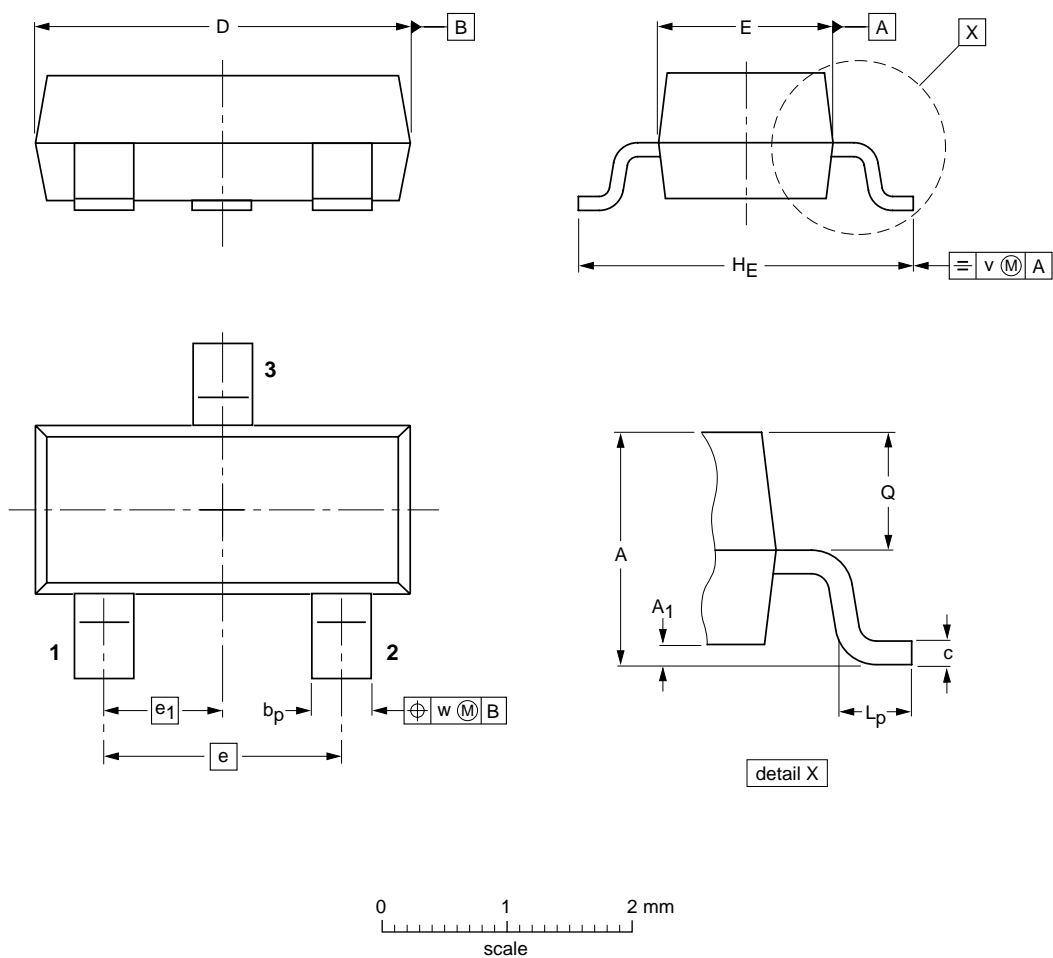


Fig 14. Typical Threshold Voltage Vs. Junction Temperature

■ 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 |