

SOT-23 Plastic-Encapsulate MOSFETS N-Channel 20-V(D-S) MOSFET

| V(BR)DSS | RDS(on)MAX | ID |
|----------|------------|----|
| 20 V | 25mΩ@4.5V | 6A |
| | 35mΩ@2.5V | |

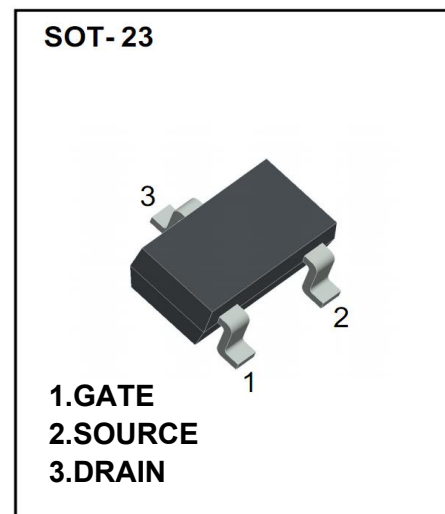
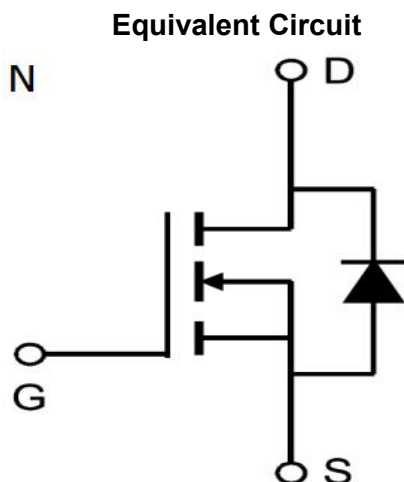
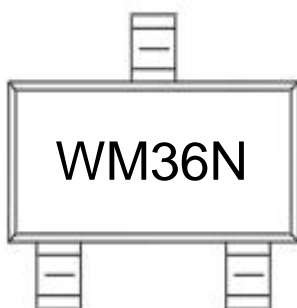
FEATURE

- ※ TrenchFET Power MOSFET

APPLICATION

- ※ Load Switch for Portable Devices
- ※ DC/DC Converter

MARKING



Maximum ratings (Ta=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|--------|----------|------|
| Drain-Source Voltage | VDS | 20 | V |
| Gate-Source Voltage | VGS | ±12 | |
| Continuous Drain Current | ID | 6 | A |
| Continuous Source-Drain Current(Diode Conduction) | IS | 0.6 | |
| Power Dissipation | PD | 1.25 | W |
| Thermal Resistance from Junction to Ambient (t≤5s) | RθJA | 150 | °C/W |
| Operating Junction | TJ | 150 | °C |
| Storage Temperature | TSTG | -55~+150 | °C |

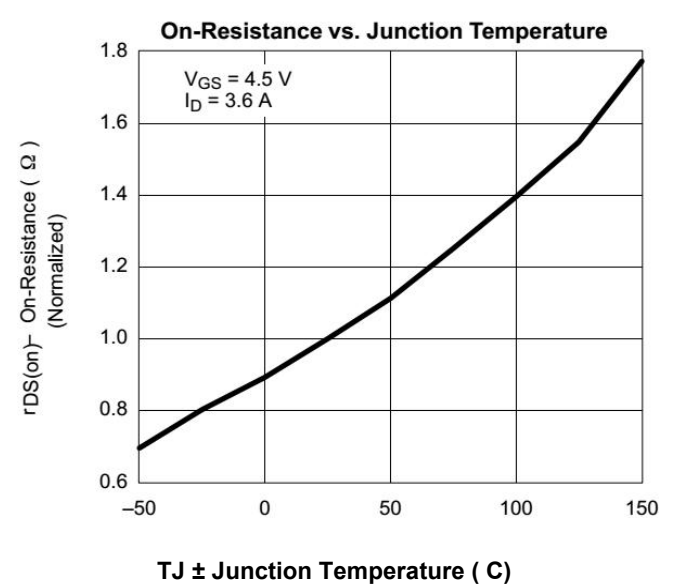
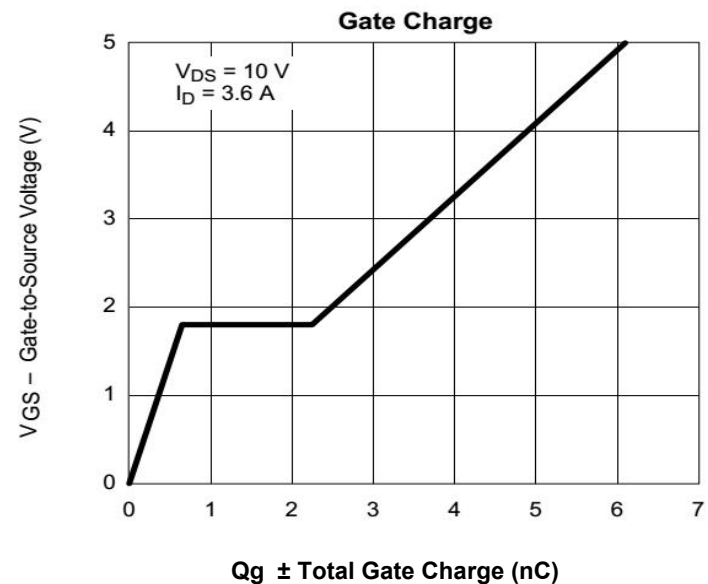
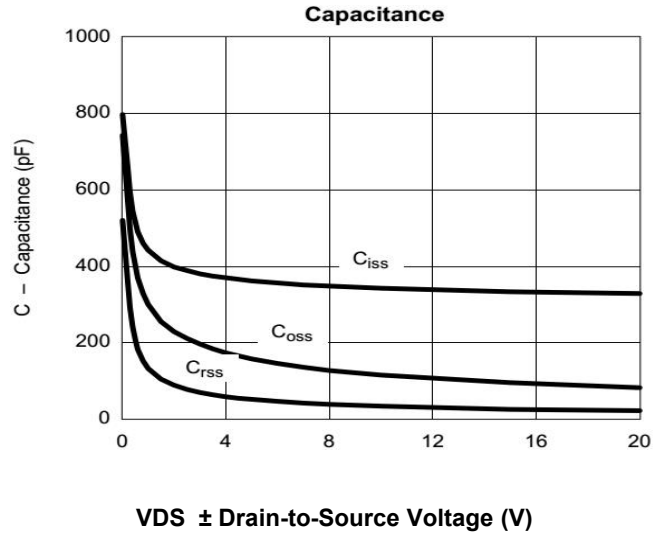
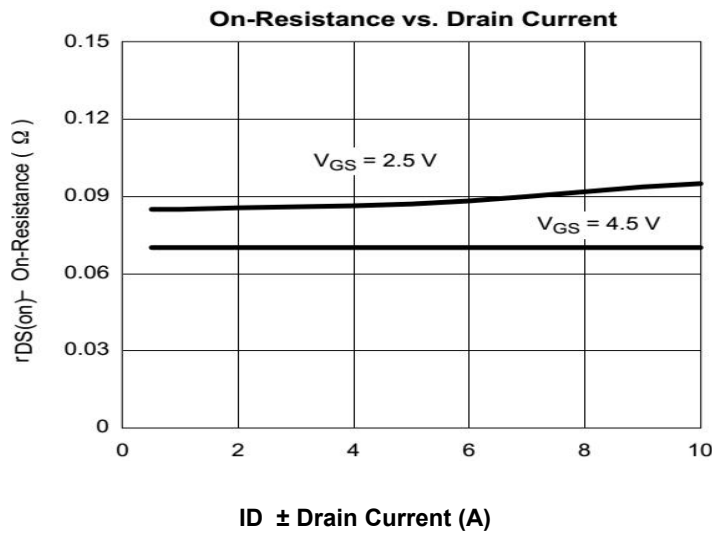
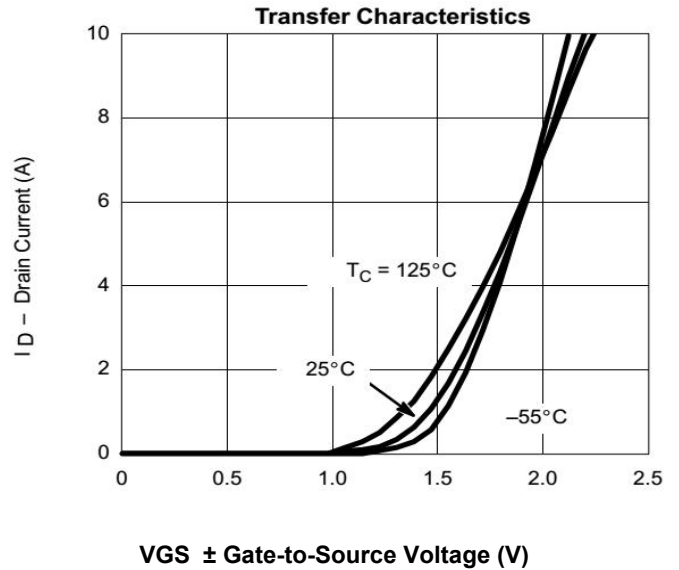
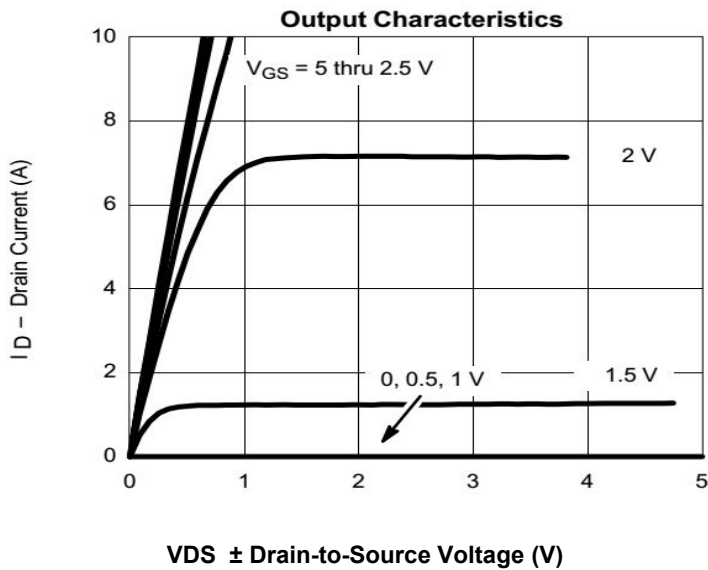
Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---------------------------------|----------|--|------|------|------|------|
| Static | | | | | | |
| Drain-source breakdown voltage | V(BR)DSS | VGS = 0V, ID =250μA | 20 | | | V |
| Gate-threshold voltage | VGS(th) | VDS =VGS, ID =250μA | 0.45 | | 1 | V |
| Gate-body leakage | IGSS | VDS =0V, VGS =±12V | | | ±100 | nA |
| Zero gate voltage drain current | IDSS | VDS =16V, VGS =0V | | | 1 | μA |
| Drain-source on-resistancea | RDS(on) | VGS =4.5V, ID = 6A | | 22 | 25 | mΩ |
| | | VGS =2.5V, ID =4A | | 28 | 35 | mΩ |
| Forward transconductancea | gfs | VDS =5V, ID =6A | | 8 | | S |
| Diode forward voltage | VSD | IS=1A, VGS=0V | | 0.74 | 1.28 | V |
| Dynamic | | | | | | |
| Total gate charge | Qg | VDS =10V, VGS =4.5V, ID =6A | | 7.7 | 10 | nC |
| Gate-source charge | Qgs | | | 0.32 | | nC |
| Gate-drain charge | Qgd | | | 2.1 | | nC |
| Input capacitance b | Ciss | VDS =10V, VGS =0V, f=1MHz | | 574 | | pF |
| Output capacitance b | Coss | | | 70 | | pF |
| Reverse transfer capacitanceb | Crss | | | 60 | | pF |
| Switchingb | | | | | | |
| Turn-on delay time | td(on) | VDD=10V RL=5.5Ω, ID ≈3.6A, VGEN=4.5V,Rg=6Ω | | 78.7 | | ns |
| Rise time | tr | | | 128 | | ns |
| Turn-off delay time | td(off) | | | 453 | | ns |
| Fall time | tf | | | 80.9 | | ns |

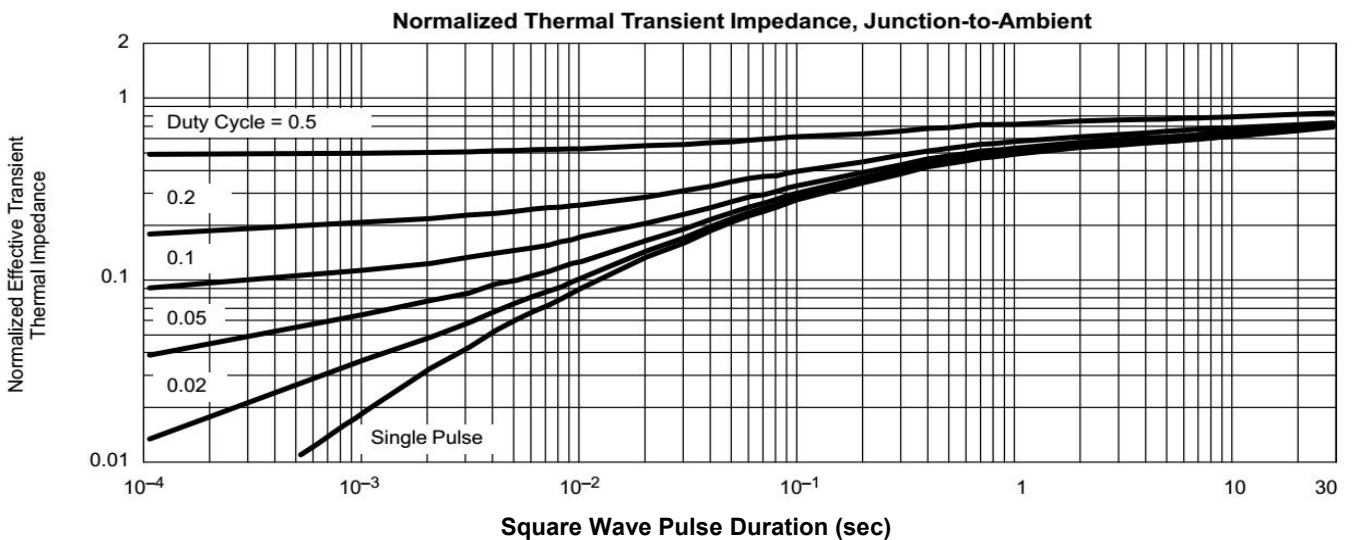
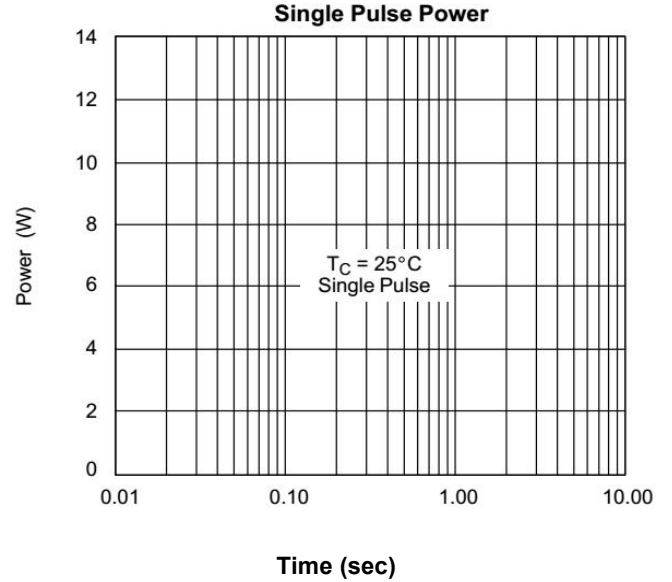
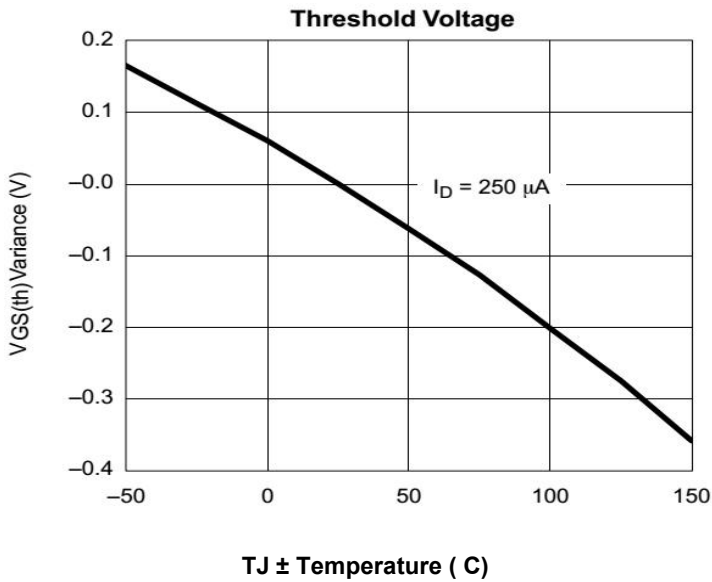
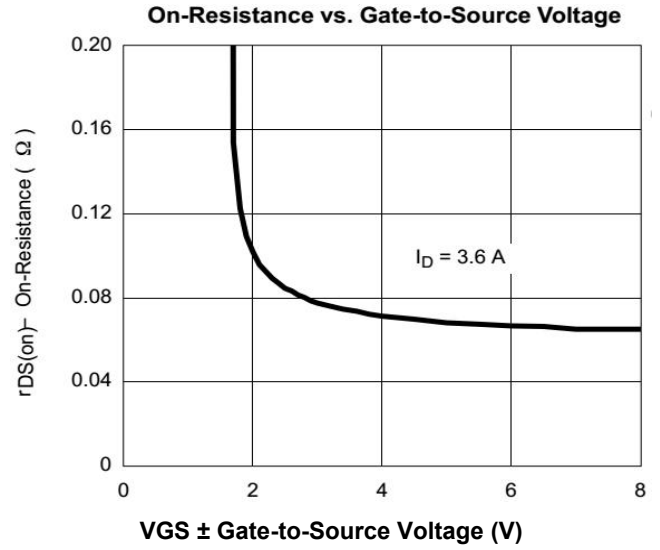
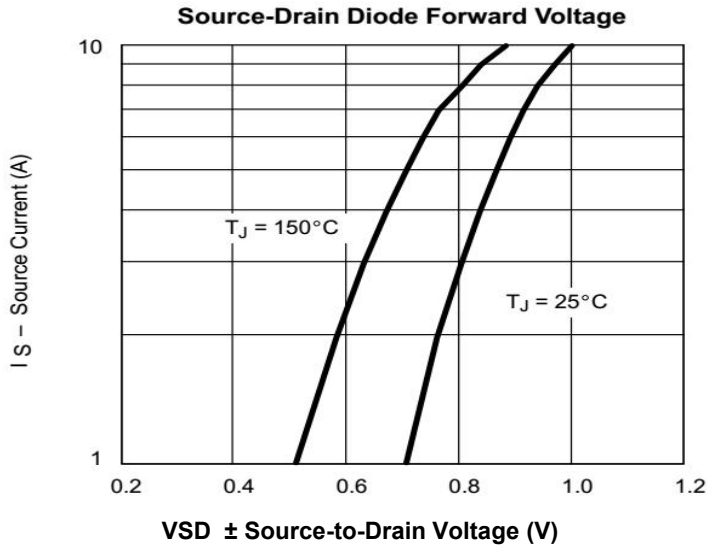
Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

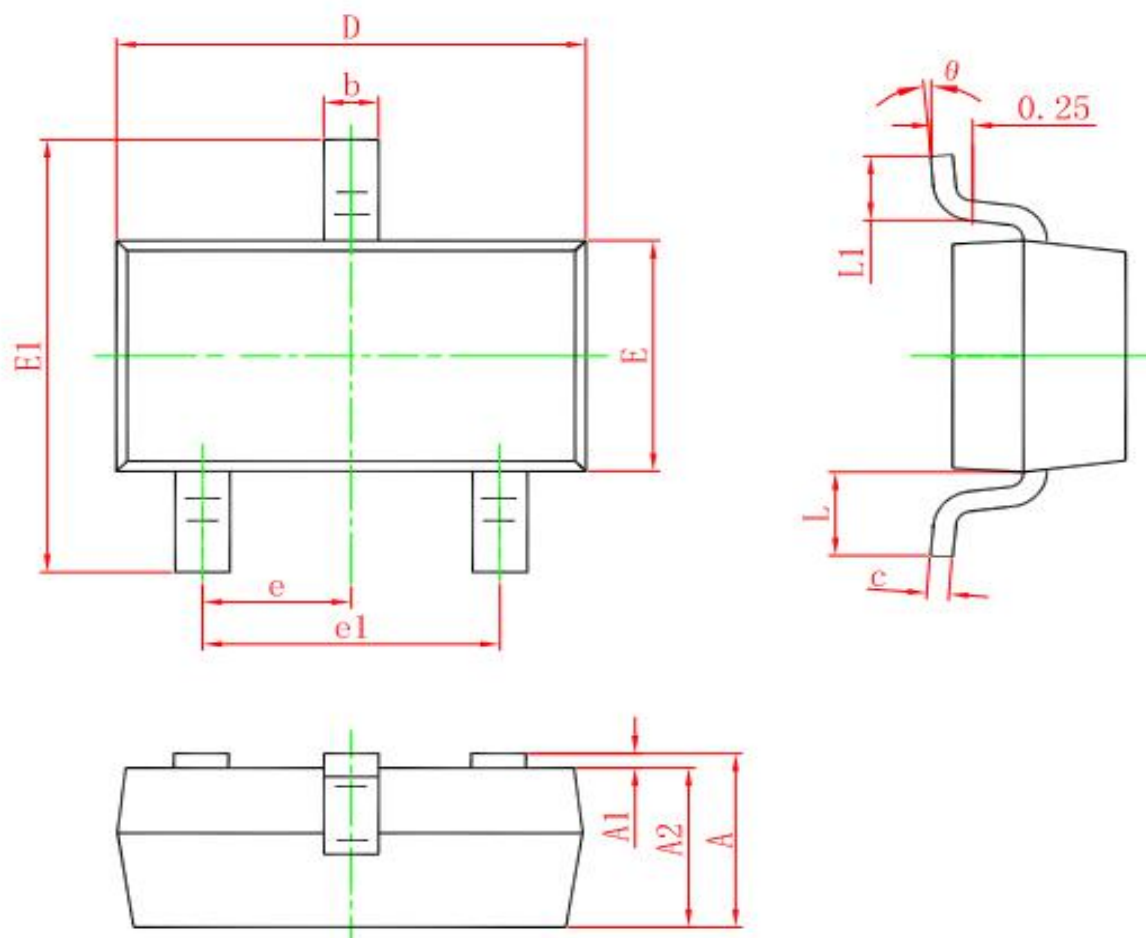
TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



SOT-23 PACKAGE OUTLINE DIMENSIONS



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP. | | 0.037 TYP. | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF. | | 0.022 REF. | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |