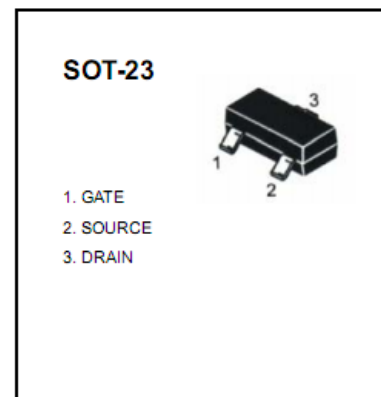
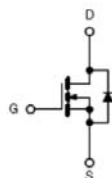


## SOT-23 Plastic-Encapsulate Transistors

MOSFET(N-Channel)

### FEATURES

TrenchFET Power MOSFET



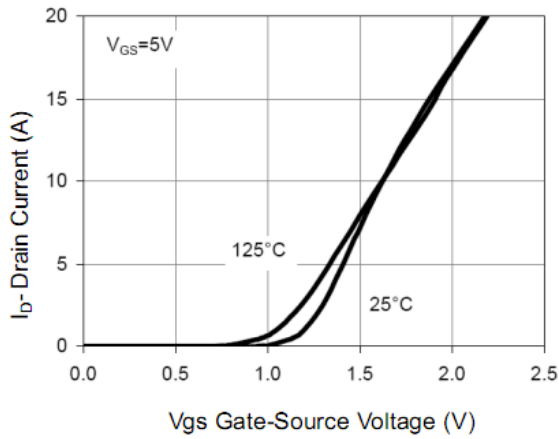
### MAXIMUM RATINGS (TA=25°C unless otherwise noted)

| Symbol           | Parameter            | Value   | Units |
|------------------|----------------------|---------|-------|
| V <sub>DS</sub>  | Drain-Source voltage | 20      | V     |
| V <sub>GS</sub>  | Gate-Source voltage  | ±10     | V     |
| I <sub>D</sub>   | Drain current        | 2.9     | A     |
| P <sub>D</sub>   | Power Dissipation    | 1       | W     |
| T <sub>j</sub>   | Junction Temperature | 150     | °C    |
| T <sub>stg</sub> | Storage Temperature  | -55-150 | °C    |

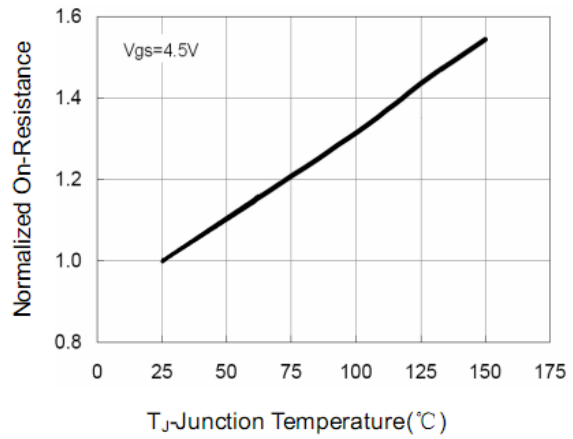
### ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C unless otherwise specified)

| Parameter                          | Symbol               | Test conditions   | MIN | TYP  | MAX  | UNIT |
|------------------------------------|----------------------|---|-----|------|------|------|
| Drain-Source Breakdown Voltage     | V <sub>(BR)DSS</sub> | V <sub>GS</sub> =0V, I <sub>D</sub> =250uA  | 20  |      |      | V    |
| Gate-Threshold Voltage             | V <sub>th(GS)</sub>  | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 uA                               | 0.5 | 0.75 | 1.2  | V    |
| Gate-body Leakage                  | I <sub>GSS</sub>     | V <sub>DS</sub> =0V, V <sub>GS</sub> =±10V  |     |      | ±100 | nA   |
| Zero Gate Voltage Drain Current    | I <sub>DSS</sub>     | V <sub>DS</sub> =20V, V <sub>GS</sub> =0V   |     |      | 1    | uA   |
| Drain-Source On-Resistance         | r <sub>DS(ON)</sub>  | V <sub>GS</sub> =2.5V, I <sub>D</sub> =2.5A   |     | 37   | 59   | mΩ   |
|                                    |                      | V <sub>GS</sub> =4.5V, I <sub>D</sub> =2.9A   |     | 30   | 45   | mΩ   |
| Forward Trans conductance          | g <sub>fs</sub>      | V <sub>DS</sub> =5V, I <sub>D</sub> =2.9A   |     | 9.5  |      | s    |
| Dynamic Characteristics            |                      |   |     |      |      |      |
| Input Capacitance                  | C <sub>iss</sub>     | V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz                                       |     | 300  |      | pF   |
| Output Capacitance                 | C <sub>oss</sub>     |   |     | 120  |      |      |
| Reverse Transfer Capacitance       | C <sub>rss</sub>     |   |     | 80   |      |      |
| Switching Capacitance              |                      |   |     |      |      |      |
| Turn-on Delay Time                 | t <sub>d(on)</sub>   | V <sub>DD</sub> =10V, I <sub>D</sub> =2.9A, V <sub>GS</sub> =4.5V, R <sub>GEN</sub> =6Ω |     | 10   | 15   | nS   |
| Turn-on Rise Time                  | t <sub>r</sub>       |   |     | 50   | 85   | nS   |
| Turn-off Delay Time                | t <sub>d(off)</sub>  |   |     | 17   | 45   | nS   |
| Turn-off Fall Time                 | t <sub>f</sub>       |   |     | 10   | 20   | nS   |
| Total Gate Charge                  | Q <sub>g</sub>       | V <sub>DS</sub> =10V, I <sub>D</sub> =2.9A, V <sub>GS</sub> =4.5V,                      |     | 4.0  | 10   | nC   |
| Gate-Source Charge                 | Q <sub>gs</sub>      |   |     | 0.65 |      | nC   |
| Gate-Drain Charge                  | Q <sub>gd</sub>      |   |     | 1.2  |      | nC   |
| Drain-Source Diode Characteristics |                      |   |     |      |      |      |
| Diode Forward Voltage              | V <sub>SD</sub>      | V <sub>GS</sub> =0V, I <sub>S</sub> =2.9A   |     | 0.75 | 1.2  | V    |
| Diode Forward Current              | I <sub>S</sub>       |   |     |      | 2.9  | A    |

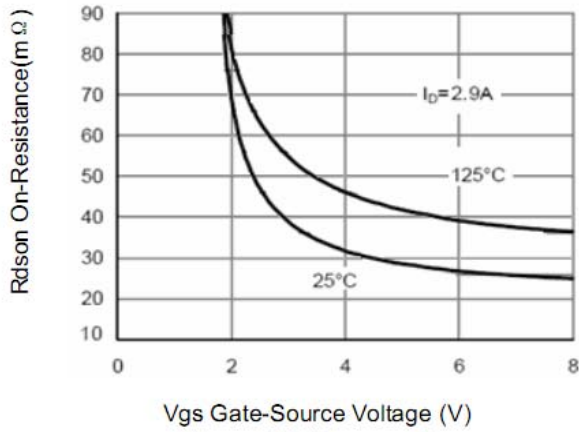
## Typical Characteristics



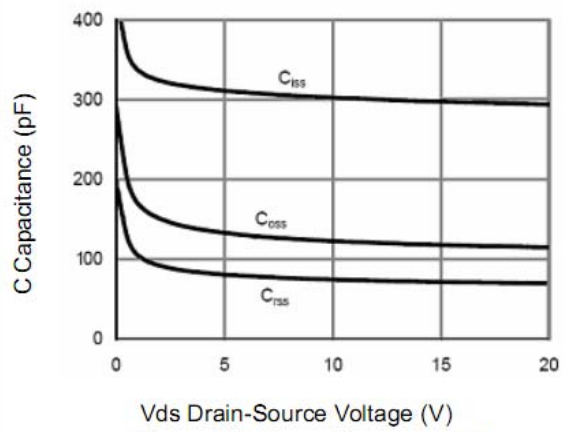
**Figure 7 Transfer Characteristics**



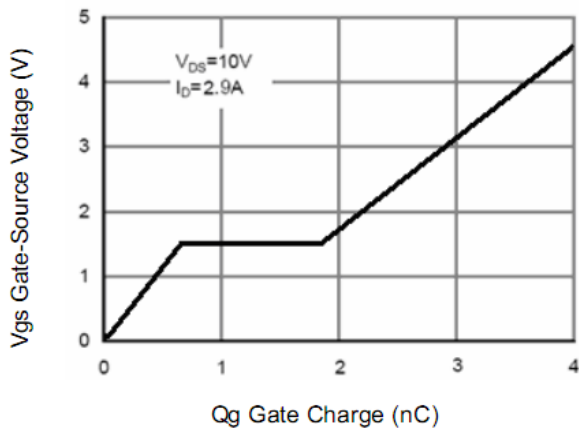
**Figure 8 Drain-Source On-Resistance**



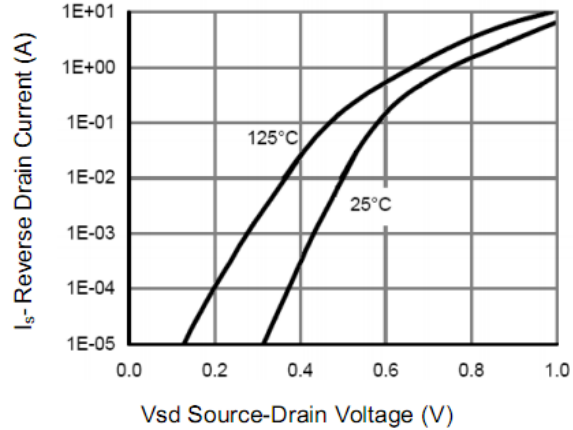
**Figure 9 Rdson vs Vgs**



**Figure 10 Capacitance vs Vds**



**Figure 11 Gate Charge**



**Figure 12 Source- Drain Diode Forward**

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