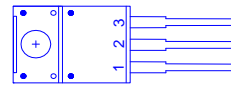
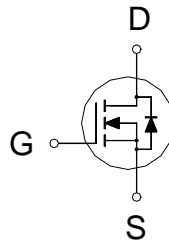




PRODUCT SUMMARY

| | | |
|---------------|--------------|-------|
| $V_{(BR)DSS}$ | $R_{DS(ON)}$ | I_D |
| 700V | 250mΩ | 15A |



1. GATE
2. DRAIN
3. SOURCE

ABSOLUTE MAXIMUM RATINGS($T_A=25\text{ °C}$ Unless Otherwise Noted)

| PARAMETERS/TEST CONDITIONS | SYMBOL | LIMITS | UNITS |
|------------------------------------------------|----------------|-----------------------|-------|
| Drain-Source Voltage | V_{DS} | 700 | V |
| Gate-Source Voltage | V_{GS} | ±30 | V |
| Continuous Drain Current ² | I_D | $T_C = 25\text{ °C}$ | 15 |
| | | $T_C = 100\text{ °C}$ | 9 |
| Pulsed Drain Current ¹ | I_{DM} | 40 | A |
| Avalanche Current ³ | I_{AS} | 3 | A |
| Avalanche Energy ³ | E_{AS} | 180 | mJ |
| Power Dissipation | P_D | $T_C = 25\text{ °C}$ | 44.6 |
| | | $T_C = 100\text{ °C}$ | 17.8 |
| Operating Junction & Storage Temperature Range | T_j, T_{stg} | -55 to 150 | °C |

THERMAL RESISTANCE RATINGS

| THERMAL RESISTANCE | SYMBOL | TYPICAL | MAXIMUM | UNITS |
|---------------------|-----------------|---------|---------|--------|
| Junction-to-Case | $R_{\theta Jc}$ | | 2.8 | °C / W |
| Junction-to-Ambient | $R_{\theta JA}$ | | 62.5 | °C / W |

¹Pulse width limited by maximum junction temperature.

²Ensure that the channel temperature does not exceed 150°C.

³ $V_{DD} = 50V$, $L = 40mH$, starting $T_J = 25\text{ °C}$.

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ °C}$, Unless Otherwise Noted)

| PARAMETER | SYMBOL | TEST CONDITIONS | LIMITS | | | UNIT |
|--------------------------------|---------------|---------------------------------------------------|--------|-----|------|------|
| | | | MIN | TYP | MAX | |
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 700 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 2 | 3.4 | 4 | |
| Gate-Body Leakage | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 30V$ | | | ±100 | nA |
| Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 700V, V_{GS} = 0V, T_C = 25\text{ °C}$ | | | 1 | μA |
| | | $V_{DS} = 560V, V_{GS} = 0V, T_C = 100\text{ °C}$ | | | 100 | |

| | | | | | |
|---------------------------------------------------------------------------------------|--------------|---------------------------------------------|------|-----|-----------|
| Drain-Source On-State Resistance ¹ | $R_{DS(ON)}$ | $V_{GS} = 10V, I_D = 7.5A$ | 188 | 250 | $m\Omega$ |
| Forward Transconductance ¹ | g_{fs} | $V_{DS} = 10V, I_D = 7.5A$ | 16 | | S |
| DYNAMIC | | | | | |
| Input Capacitance | C_{iss} | $V_{GS} = 0V, V_{DS} = 100V, f = 250KHz$ | 1523 | | pF |
| Output Capacitance | C_{oss} | | 70 | | |
| Reverse Transfer Capacitance | C_{rss} | | 6.6 | | |
| Effective Output Capacitance ⁴ | $C_{o(er)}$ | $V_{GS} = 0V, V_{DS} = 0 \text{ to } 480V$ | 56 | | |
| Total Gate Charge ² | Q_g | $V_{DD} = 480V, I_D = 7.5A, V_{GS} = 10V$ | 43 | | nC |
| Gate-Source Charge ² | Q_{gs} | | 7.8 | | |
| Gate-Drain Charge ² | Q_{gd} | | 16.6 | | |
| Turn-On Delay Time ² | $t_{d(on)}$ | $V_{DD} = 300V, I_D = 7.5A, R_G = 25\Omega$ | 36 | | nS |
| Rise Time ² | t_r | | 55 | | |
| Turn-Off Delay Time ² | $t_{d(off)}$ | | 142 | | |
| Fall Time ² | t_f | | 50 | | |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$) | | | | | |
| Continuous Current ³ | I_S | | | 15 | A |
| Forward Voltage ¹ | V_{SD} | $I_F = 7.5A, V_{GS} = 0V$ | | 1 | V |
| Reverse Recovery Time | t_{rr} | $I_F = 7.5A, di_F/dt = 100A / \mu S$ | 277 | | nS |
| Reverse Recovery Charge | Q_{rr} | | 3 | | uC |

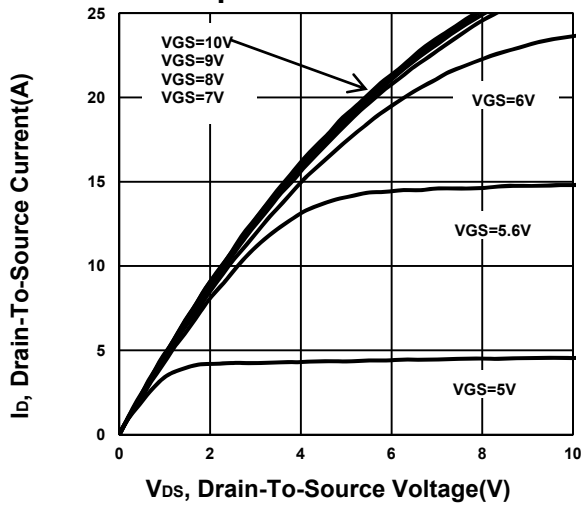
¹Pulse test : Pulse Width $\leq 380 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

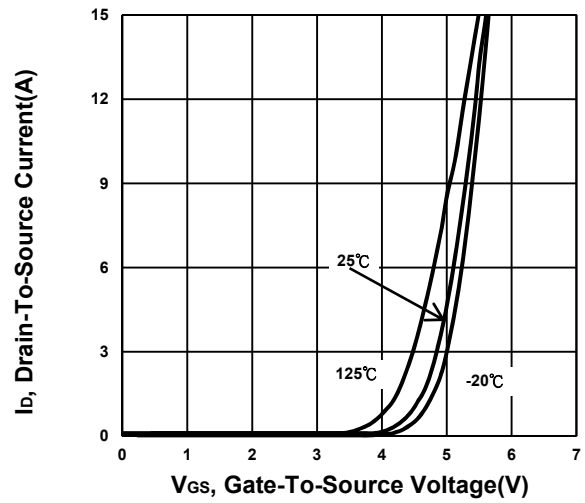
³Pulse width limited by maximum junction temperature.

⁴ $C_{o(er)}$ is a fixed capacitance that gives the same stored energy as C_{oss} while V_{DS} is rising from 0 to 80% $V_{(BR)DSS}$.

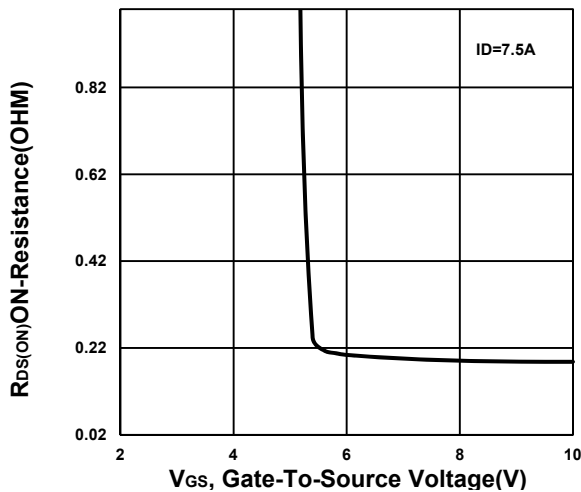
Output Characteristics



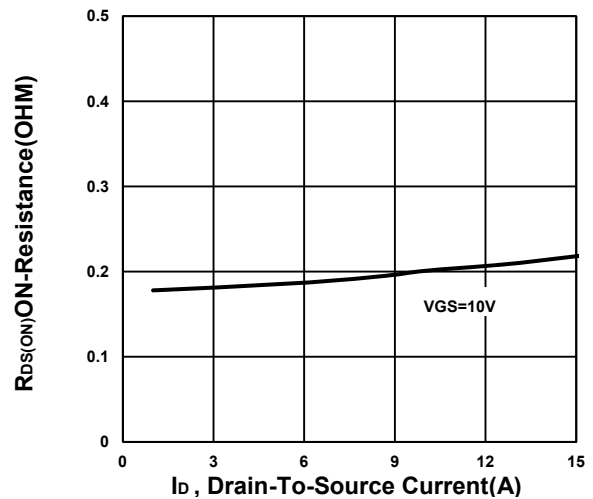
Transfer Characteristics



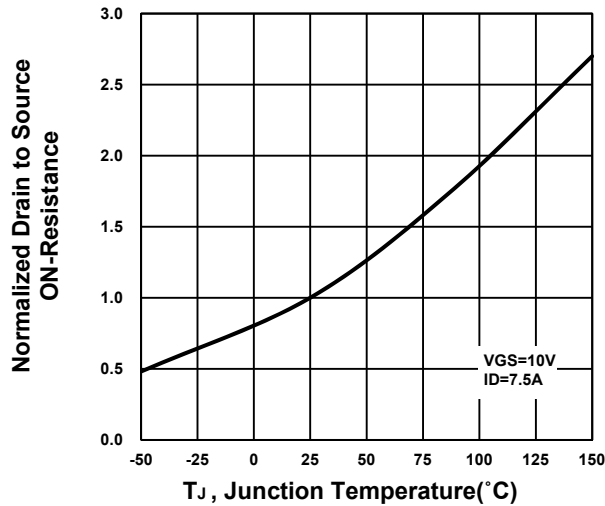
On-Resistance VS Gate-To-Source



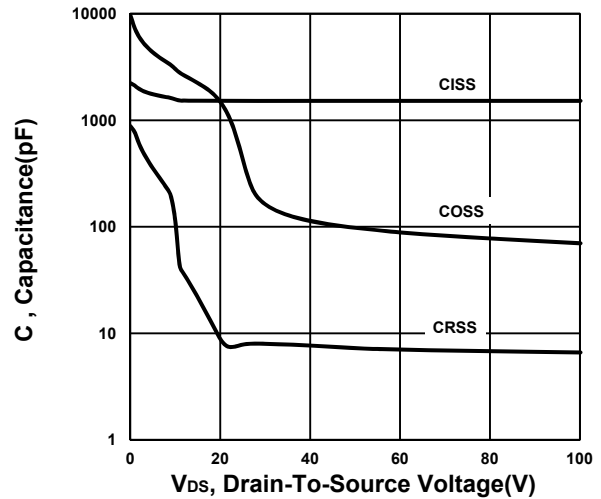
On-Resistance VS Drain Current



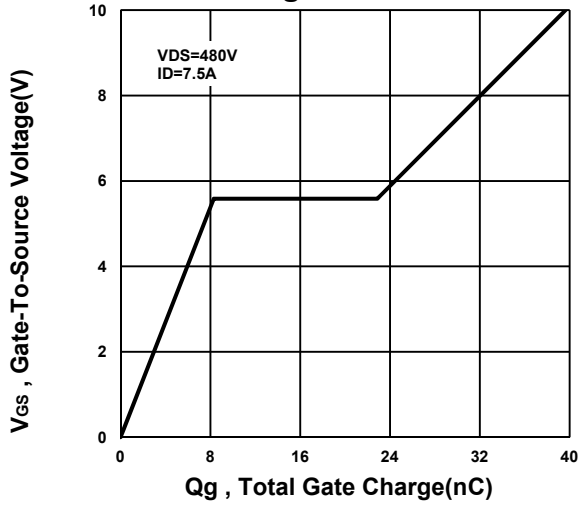
On-Resistance VS Temperature



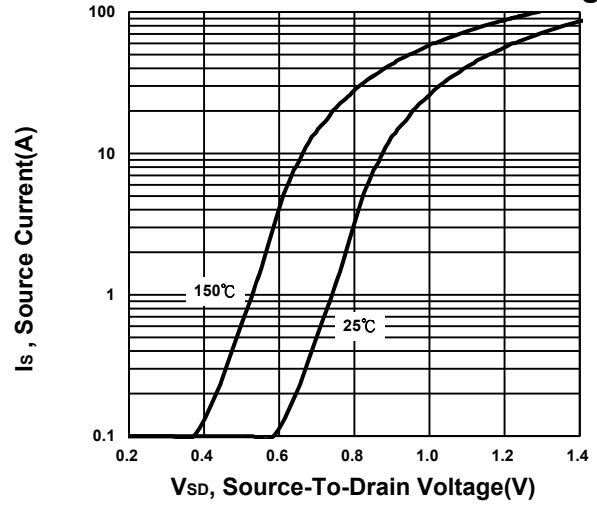
Capacitance Characteristic



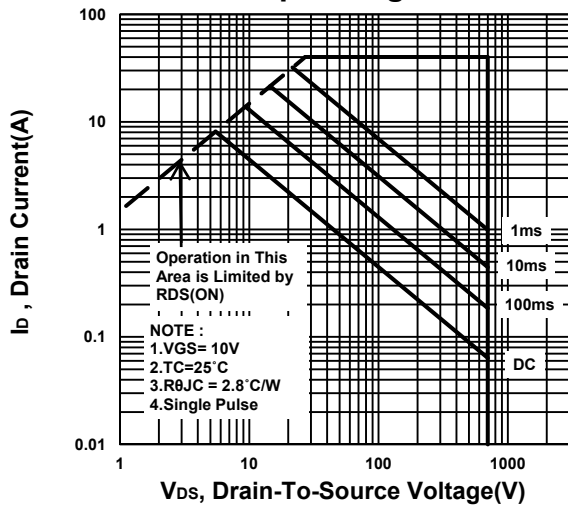
Gate charge Characteristics



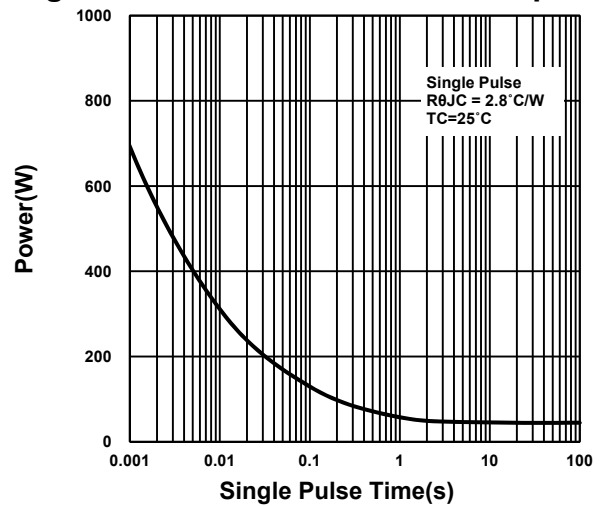
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

