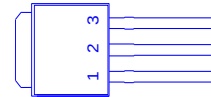
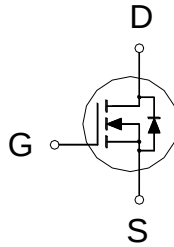




**PRODUCT SUMMARY**

|               |                |       |
|---------------|----------------|-------|
| $V_{(BR)DSS}$ | $R_{DS(ON)}$   | $I_D$ |
| 650V          | $10.6\ \Omega$ | 1A    |



1. GATE
2. DRAIN
3. SOURCE

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

| PARAMETERS/TEST CONDITIONS                     |                             | SYMBOL         | LIMITS     | UNITS            |
|------------------------------------------------|-----------------------------|----------------|------------|------------------|
| Drain-Source Voltage                           |                             | $V_{DS}$       | 650        | V                |
| Gate-Source Voltage                            |                             | $V_{GS}$       | $\pm 30$   | V                |
| Continuous Drain Current <sup>2</sup>          | $T_C = 25\ ^\circ\text{C}$  | $I_D$          | 1          | A                |
|                                                | $T_C = 100\ ^\circ\text{C}$ |                | 0.7        |                  |
| Pulsed Drain Current <sup>1, 2</sup>           |                             | $I_{DM}$       | 1.8        |                  |
| Avalanche Current <sup>3</sup>                 |                             | $I_{AS}$       | 0.5        |                  |
| Avalanche Energy <sup>3</sup>                  |                             | $E_{AS}$       | 1.25       | mJ               |
| Power Dissipation                              | $T_C = 25\ ^\circ\text{C}$  | $P_D$          | 37         | W                |
|                                                | $T_C = 100\ ^\circ\text{C}$ |                | 15         |                  |
| Operating Junction & Storage Temperature Range |                             | $T_J, T_{stg}$ | -55 to 150 | $^\circ\text{C}$ |

**THERMAL RESISTANCE RATINGS**

| THERMAL RESISTANCE  | SYMBOL          | TYPICAL | MAXIMUM | UNITS                       |
|---------------------|-----------------|---------|---------|-----------------------------|
| Junction-to-Case    | $R_{\theta JC}$ |         | 3.4     | $^\circ\text{C} / \text{W}$ |
| Junction-to-Ambient | $R_{\theta JA}$ |         | 62.5    |                             |

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Limited only by maximum temperature allowed

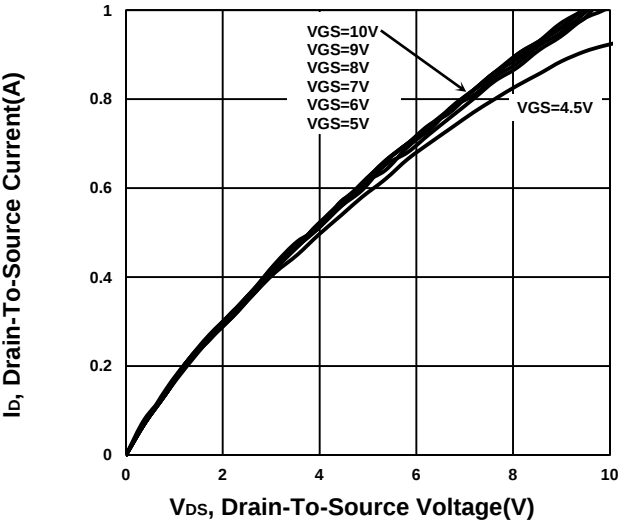
<sup>3</sup> $V_{DD} = 50\text{V}$ ,  $L = 10\text{mH}$ , starting  $T_J = 25^\circ\text{C}$

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

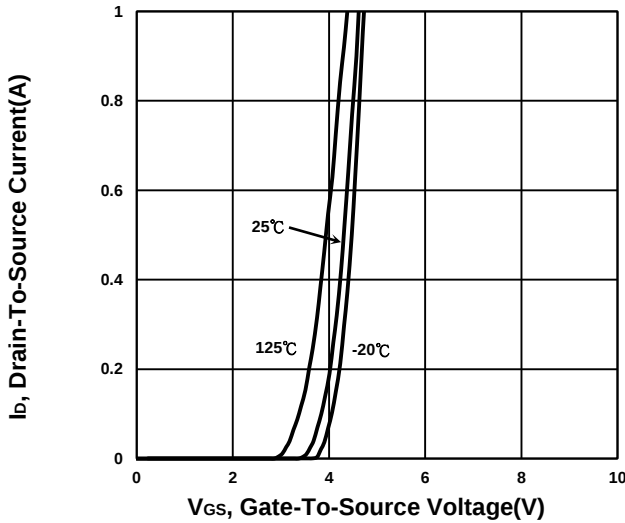
| PARAMETER                                                                      | SYMBOL        | TEST CONDITIONS                                          | LIMITS |      |           | UNIT     |
|--------------------------------------------------------------------------------|---------------|----------------------------------------------------------|--------|------|-----------|----------|
|                                                                                |               |                                                          | MIN    | TYP  | MAX       |          |
| STATIC                                                                         |               |                                                          |        |      |           |          |
| Drain-Source Breakdown Voltage                                                 | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                            | 650    |      |           | V        |
| Gate Threshold Voltage                                                         | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu A$                        | 2      | 3.1  | 4         |          |
| Gate-Body Leakage                                                              | $I_{GSS}$     | $V_{DS} = 0V, V_{GS} = \pm 30V$                          |        |      | $\pm 100$ | nA       |
| Gate Voltage Drain Current                                                     | $I_{DSS}$     | $V_{DS} = 650V, V_{GS} = 0V, T_C = 25\text{ }^{\circ}C$  |        |      | 1         | $\mu A$  |
|                                                                                |               | $V_{DS} = 520V, V_{GS} = 0V, T_C = 100\text{ }^{\circ}C$ |        |      | 10        |          |
| Drain-Source On-State Resistance <sup>1</sup>                                  | $R_{DS(ON)}$  | $V_{GS} = 10V, I_D = 0.5A$                               |        | 8.5  | 10.6      | $\Omega$ |
| Forward Transconductance <sup>1</sup>                                          | $g_{fs}$      | $V_{DS} = 15V, I_D = 0.5A$                               |        | 2    |           | S        |
| DYNAMIC                                                                        |               |                                                          |        |      |           |          |
| Input Capacitance                                                              | $C_{iss}$     | $V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$                    |        | 161  |           | pF       |
| Output Capacitance                                                             | $C_{oss}$     |                                                          |        | 33   |           |          |
| Reverse Transfer Capacitance                                                   | $C_{rss}$     |                                                          |        | 10   |           |          |
| Total Gate Charge <sup>2</sup>                                                 | $Q_g$         | $V_{DD} = 520V, I_D = 1A, V_{GS} = 10V$                  |        | 3.4  |           | nC       |
| Gate-Source Charge <sup>2</sup>                                                | $Q_{gs}$      |                                                          |        | 0.7  |           |          |
| Gate-Drain Charge <sup>2</sup>                                                 | $Q_{gd}$      |                                                          |        | 0.8  |           |          |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ( $T_J = 25\text{ }^{\circ}C$ ) |               |                                                          |        |      |           |          |
| Continuous Current <sup>3</sup>                                                | $I_S$         |                                                          |        |      | 1         | A        |
| Forward Voltage <sup>1</sup>                                                   | $V_{SD}$      | $I_F = 1A, V_{GS} = 0V$                                  |        |      | 1         | V        |
| Reverse Recovery Time                                                          | $t_{rr}$      | $I_F = 1A, di_F/dt = 100A / \mu S$                       |        | 253  |           | nS       |
| Reverse Recovery Charge                                                        | $Q_{rr}$      |                                                          |        | 0.64 |           | uC       |

<sup>1</sup>Pulse test : Pulse Width  $\leq 300\text{ }\mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .<sup>2</sup>Independent of operating temperature.<sup>3</sup>Pulse width limited by maximum junction temperature.

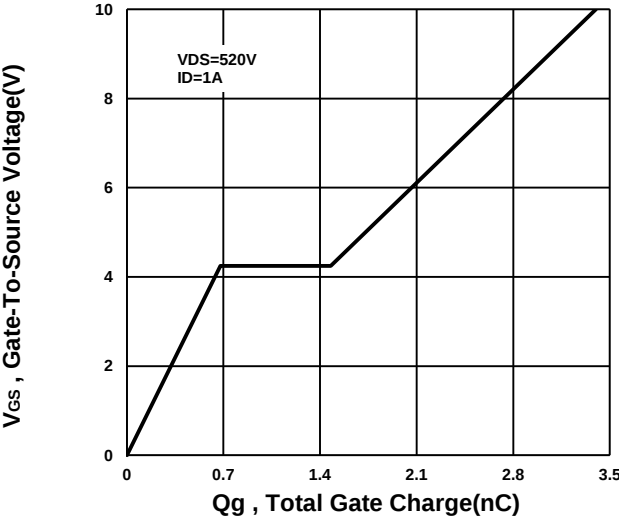
Output Characteristics



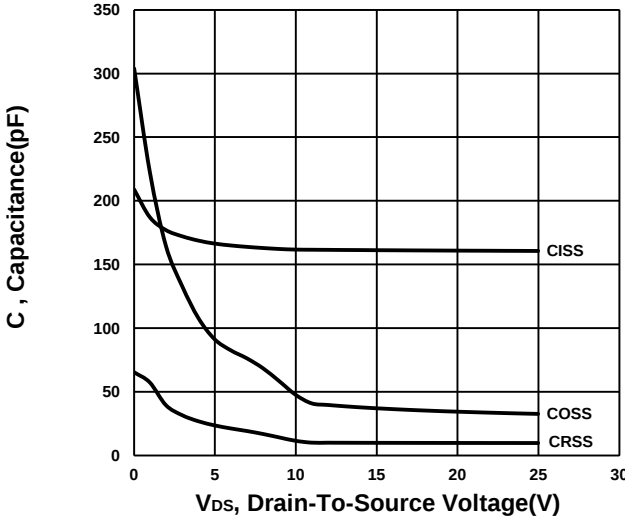
Transfer Characteristics



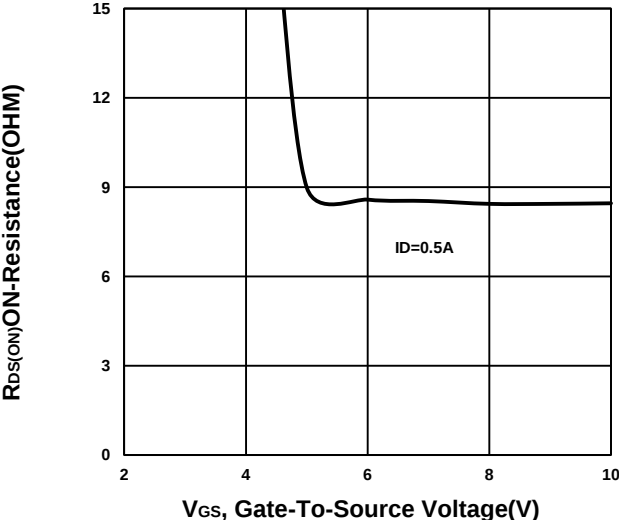
Gate charge Characteristics



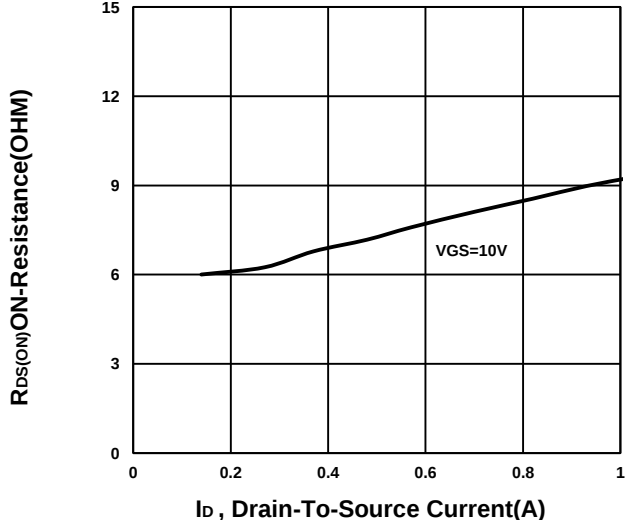
Capacitance Characteristic



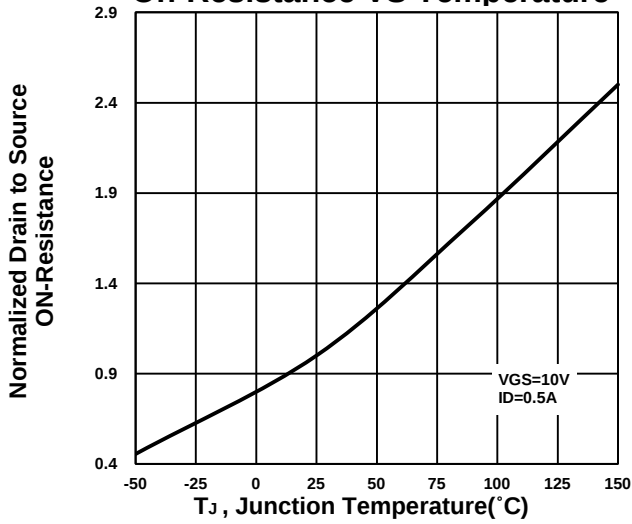
On-Resistance VS Gate-To-Source



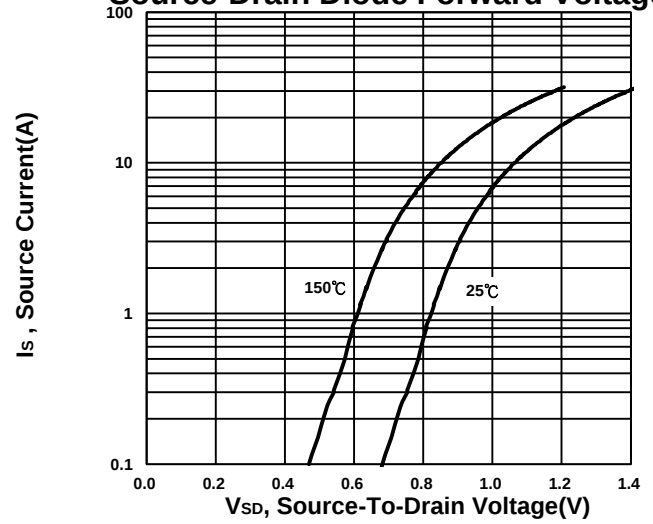
On-Resistance VS Drain Current



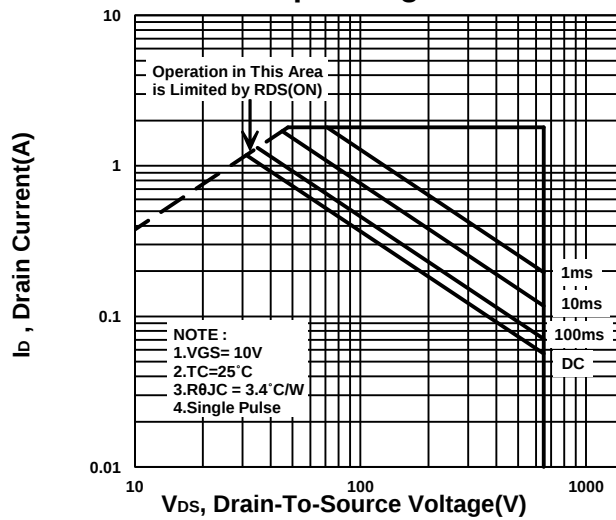
On-Resistance VS Temperature



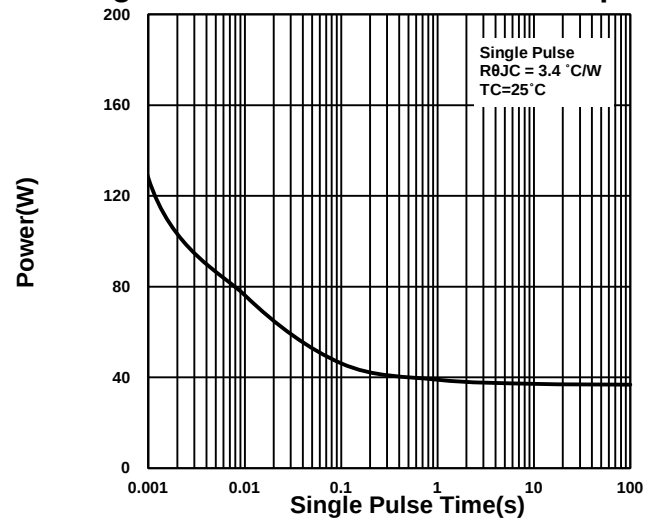
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

