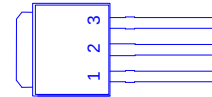
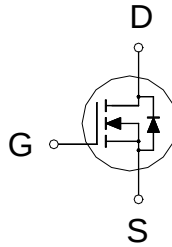




## PRODUCT SUMMARY

|               |                |       |
|---------------|----------------|-------|
| $V_{(BR)DSS}$ | $R_{DS(ON)}$   | $I_D$ |
| 600V          | $4.85\ \Omega$ | 2A    |



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                           |                             | $V_{DS}$       | 600        | V                |
| Gate-Source Voltage                            |                             | $V_{GS}$       | $\pm 30$   | V                |
| Continuous Drain Current <sup>2</sup>          | $T_C = 25\ ^\circ\text{C}$  | $I_D$          | 2          | A                |
|                                                | $T_C = 100\ ^\circ\text{C}$ |                | 1.3        |                  |
| Pulsed Drain Current <sup>1, 2</sup>           |                             | $I_{DM}$       | 8          |                  |
| Avalanche Current <sup>3</sup>                 |                             | $I_{AS}$       | 2          |                  |
| Avalanche Energy <sup>3</sup>                  |                             | $E_{AS}$       | 20         | mJ               |
| Power Dissipation                              | $T_C = 25\ ^\circ\text{C}$  | $P_D$          | 46         | W                |
|                                                | $T_C = 100\ ^\circ\text{C}$ |                | 18         |                  |
| 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    | $R_{\theta JC}$ |         | 2.7     | $^\circ\text{C} / \text{W}$ |
| 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  $T_J = 25\ ^\circ\text{C}$

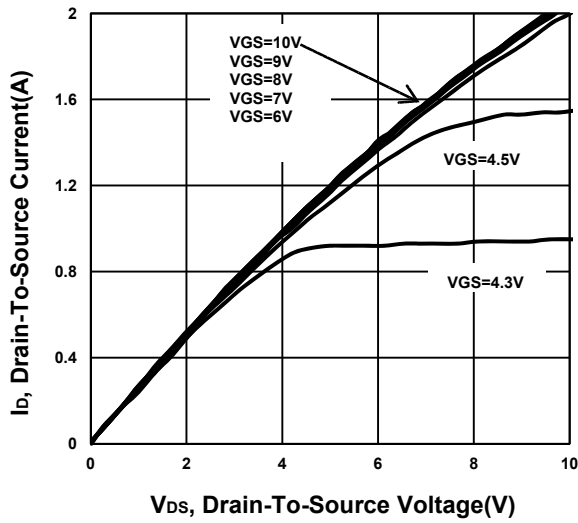
ELECTRICAL CHARACTERISTICS ( $T_J = 25\ ^\circ\text{C}$ , Unless Otherwise Noted)

| PARAMETER                      | SYMBOL        | TEST CONDITIONS                                          | LIMITS |     |           | UNIT    |
|--------------------------------|---------------|----------------------------------------------------------|--------|-----|-----------|---------|
|                                |               |                                                          | MIN    | TYP | MAX       |         |
| STATIC                         |               |                                                          |        |     |           |         |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                            | 600    |     |           | 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     | $I_{DSS}$     | $V_{DS} = 600V, V_{GS} = 0V, T_C = 25\text{ }^{\circ}C$  |        |     | 1         | $\mu A$ |
|                                |               | $V_{DS} = 480V, V_{GS} = 0V, T_C = 100\text{ }^{\circ}C$ |        |     | 10        |         |

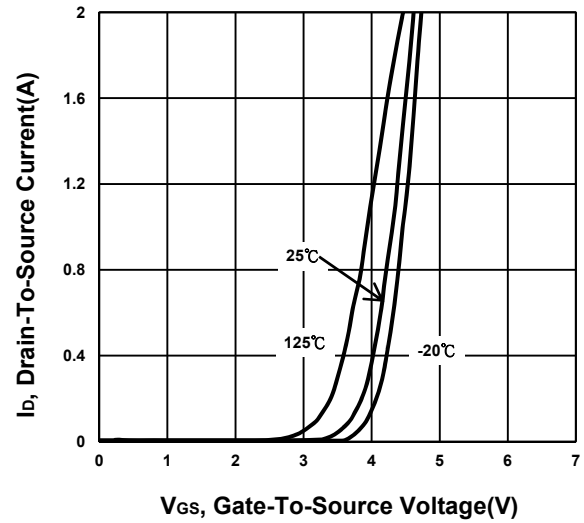
|                                                                         |                     |                                                                                               |  |     |      |    |
|-------------------------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------|--|-----|------|----|
| Drain-Source On-State Resistance <sup>1</sup>                           | R <sub>DS(ON)</sub> | V <sub>GS</sub> = 10V, I <sub>D</sub> = 1A                                                    |  | 3.9 | 4.85 | Ω  |
| Forward Transconductance <sup>1</sup>                                   | g <sub>fs</sub>     | V <sub>DS</sub> = 15V, I <sub>D</sub> = 1A                                                    |  | 2   |      | S  |
| DYNAMIC                                                                 |                     |                                                                                               |  |     |      |    |
| Input Capacitance                                                       | C <sub>iss</sub>    | V <sub>GS</sub> = 0V, V <sub>DS</sub> = 25V, f = 1MHz                                         |  | 281 |      | pF |
| Output Capacitance                                                      | C <sub>oss</sub>    |                                                                                               |  | 37  |      |    |
| Reverse Transfer Capacitance                                            | C <sub>rss</sub>    |                                                                                               |  | 7   |      |    |
| Total Gate Charge <sup>2</sup>                                          | Q <sub>g</sub>      | V <sub>DD</sub> = 480V, I <sub>D</sub> = 2A, V <sub>GS</sub> = 10V                            |  | 8   |      | nC |
| Gate-Source Charge <sup>2</sup>                                         | Q <sub>gs</sub>     |                                                                                               |  | 1.2 |      |    |
| Gate-Drain Charge <sup>2</sup>                                          | Q <sub>gd</sub>     |                                                                                               |  | 3.3 |      |    |
| Turn-On Delay Time <sup>2</sup>                                         | t <sub>d(on)</sub>  | V <sub>GS</sub> = 10V , V <sub>DD</sub> = 300V,<br>I <sub>D</sub> = 2A, R <sub>G</sub> = 25 Ω |  | 28  |      | nS |
| Rise Time <sup>2</sup>                                                  | t <sub>r</sub>      |                                                                                               |  | 60  |      |    |
| Turn-Off Delay Time <sup>2</sup>                                        | t <sub>d(off)</sub> |                                                                                               |  | 58  |      |    |
| Fall Time <sup>2</sup>                                                  | t <sub>f</sub>      |                                                                                               |  | 66  |      |    |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T <sub>J</sub> = 25 °C) |                     |                                                                                               |  |     |      |    |
| Continuous Current <sup>3</sup>                                         | I <sub>S</sub>      |                                                                                               |  |     | 2    | A  |
| Forward Voltage <sup>1</sup>                                            | V <sub>SD</sub>     | I <sub>F</sub> = 2A, V <sub>GS</sub> = 0V                                                     |  |     | 1    | V  |
| Reverse Recovery Time                                                   | t <sub>rr</sub>     | I <sub>F</sub> = 2A, dI <sub>F</sub> /dt = 100A / μS                                          |  | 279 |      | nS |
| Reverse Recovery Charge                                                 | Q <sub>rr</sub>     |                                                                                               |  | 1.1 |      | uC |

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

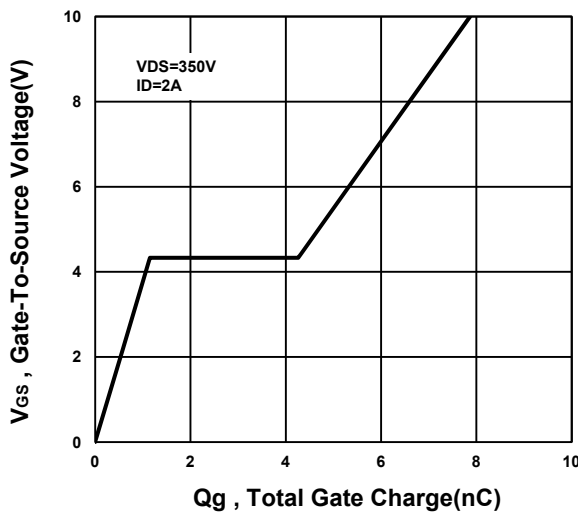
**Output Characteristics**



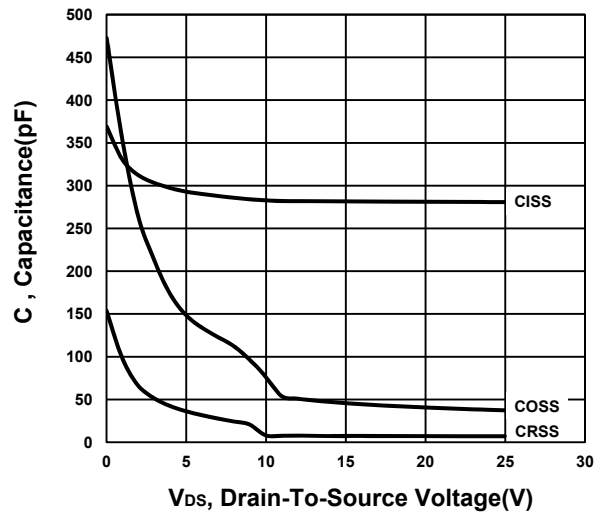
**Transfer Characteristics**



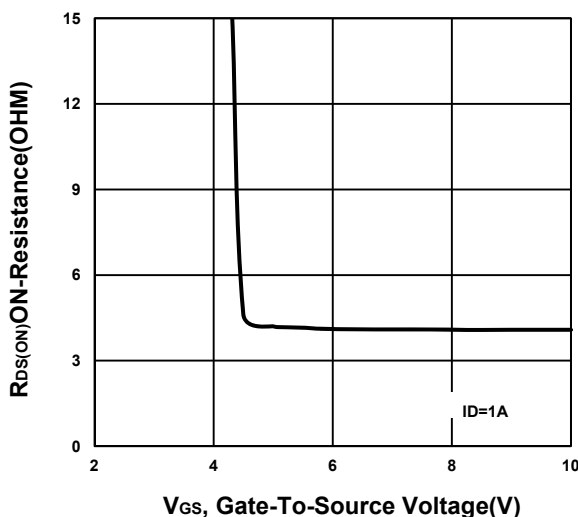
**Gate charge Characteristics**



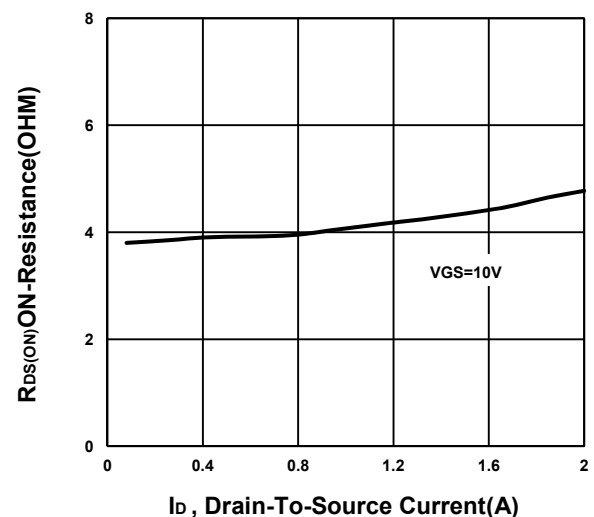
**Capacitance Characteristic**



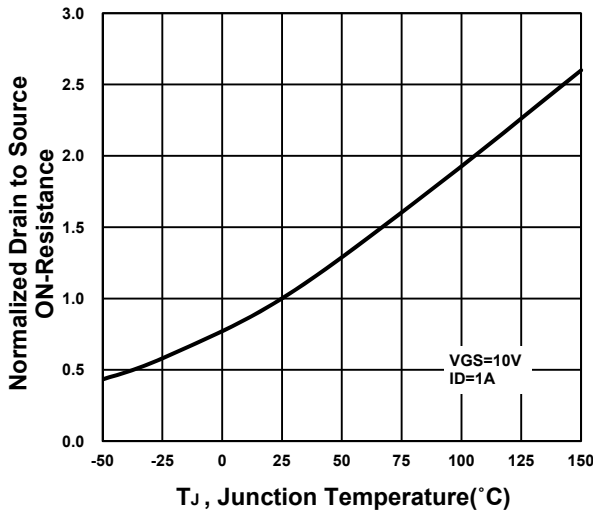
**On-Resistance VS Gate-To-Source**



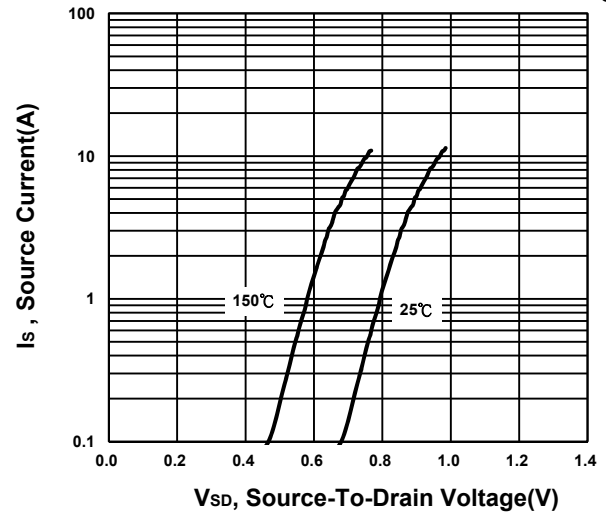
**On-Resistance VS Drain Current**



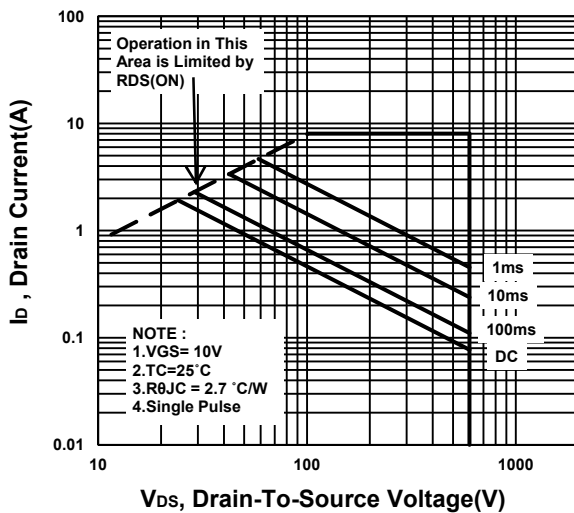
**On-Resistance VS Temperature**



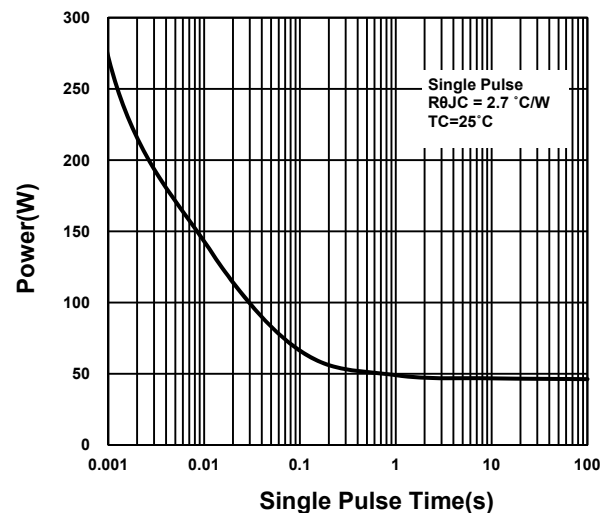
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

