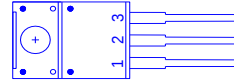
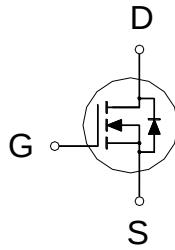


## PRODUCT SUMMARY

|               |              |       |
|---------------|--------------|-------|
| $V_{(BR)DSS}$ | $R_{DS(ON)}$ | $I_D$ |
| 150V          | 15m $\Omega$ | 35A   |



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                 |                           | $V_{DS}$       | 150        | V                |
| Gate-Source Voltage                  |                           | $V_{GS}$       | $\pm 20$   | V                |
| Continuous Drain Current             | $T_C = 25^\circ\text{C}$  | $I_D$          | 35         | A                |
|                                      | $T_C = 100^\circ\text{C}$ |                | 22         |                  |
| Pulsed Drain Current <sup>1</sup>    |                           | $I_{DM}$       | 123        |                  |
| Avalanche Current                    |                           | $I_{AS}$       | 18         |                  |
| Avalanche Energy                     | $L = 1\text{mH}$          | $E_{AS}$       | 162        | mJ               |
|                                      |                           |                |            |                  |
| Power Dissipation                    | $T_C = 25^\circ\text{C}$  | $P_D$          | 40         | W                |
|                                      | $T_C = 100^\circ\text{C}$ |                | 16         |                  |
| 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-Ambient | $R_{\theta JA}$ |         | 62.5    | $^\circ\text{C} / \text{W}$ |
| Junction-to-Case    | $R_{\theta JC}$ |         | 3.1     |                             |

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

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

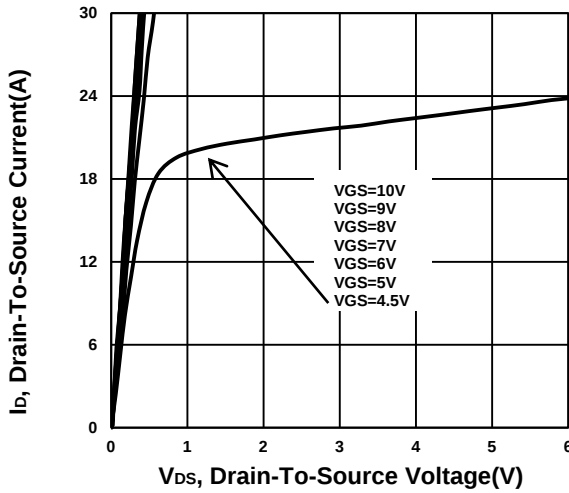
| PARAMETER                                     | SYMBOL        | TEST CONDITIONS                                | LIMITS |     |           | UNIT      |
|-----------------------------------------------|---------------|------------------------------------------------|--------|-----|-----------|-----------|
|                                               |               |                                                | MIN    | TYP | MAX       |           |
| STATIC                                        |               |                                                |        |     |           |           |
| Drain-Source Breakdown Voltage                | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                  | 150    |     |           | V         |
| Gate Threshold Voltage                        | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu A$              | 2      | 2.9 | 4         |           |
| Gate-Body Leakage                             | $I_{GSS}$     | $V_{DS} = 0V, V_{GS} = \pm 20V$                |        |     | $\pm 100$ | nA        |
| Zero Gate Voltage Drain Current               | $I_{DSS}$     | $V_{DS} = 150V, V_{GS} = 0V$                   |        |     | 1         | $\mu A$   |
|                                               |               | $V_{DS} = 120V, V_{GS} = 0V, T_J = 55^\circ C$ |        |     | 10        |           |
| Drain-Source On-State Resistance <sup>1</sup> | $R_{DS(ON)}$  | $V_{GS} = 10V, I_D = 20A$                      |        | 11  | 15        | $m\Omega$ |

|                                                                          |                     |                                                                                              |  |      |     |    |
|--------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------------|--|------|-----|----|
| Forward Transconductance <sup>1</sup>                                    | g <sub>fs</sub>     | V <sub>DS</sub> = 5V, I <sub>D</sub> = 20A                                                   |  | 53   |     | S  |
| DYNAMIC                                                                  |                     |                                                                                              |  |      |     |    |
| Input Capacitance                                                        | C <sub>iss</sub>    | V <sub>GS</sub> = 0V, V <sub>DS</sub> = 75V, f = 1MHz                                        |  | 2593 |     | pF |
| Output Capacitance                                                       | C <sub>oss</sub>    |                                                                                              |  | 244  |     |    |
| Reverse Transfer Capacitance                                             | C <sub>rss</sub>    |                                                                                              |  | 7.6  |     |    |
| Total Gate Charge <sup>2</sup>                                           | Q <sub>g</sub>      | V <sub>GS</sub> = 10V , V <sub>DS</sub> = 75V<br>I <sub>D</sub> = 20A                        |  | 38   |     | nC |
| Gate-Source Charge <sup>2</sup>                                          | Q <sub>gs</sub>     |                                                                                              |  | 11   |     |    |
| Gate-Drain Charge <sup>2</sup>                                           | Q <sub>gd</sub>     |                                                                                              |  | 9.1  |     |    |
| Turn-On Delay Time <sup>2</sup>                                          | t <sub>d(on)</sub>  | V <sub>DS</sub> = 75V ,<br>I <sub>D</sub> ≅ 20A, V <sub>GS</sub> = 10V, R <sub>GEN</sub> =6Ω |  | 16   |     | nS |
| Rise Time <sup>2</sup>                                                   | t <sub>r</sub>      |                                                                                              |  | 47   |     |    |
| Turn-Off Delay Time <sup>2</sup>                                         | t <sub>d(off)</sub> |                                                                                              |  | 34   |     |    |
| Fall Time <sup>2</sup>                                                   | t <sub>f</sub>      |                                                                                              |  | 58   |     |    |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T <sub>J</sub> = 25 ° C) |                     |                                                                                              |  |      |     |    |
| Continuous Current                                                       | I <sub>S</sub>      |                                                                                              |  |      | 33  | A  |
| Forward Voltage <sup>1</sup>                                             | V <sub>SD</sub>     | I <sub>F</sub> = 20A, V <sub>GS</sub> = 0V                                                   |  |      | 1.2 | V  |
| Diode Reverse Recovery Time                                              | t <sub>rr</sub>     | I <sub>F</sub> = 20A, dI/dt=100A/μs                                                          |  | 87   |     | nS |
| Diode Reverse Recovery Charge                                            | Q <sub>rr</sub>     |                                                                                              |  | 164  |     | nC |

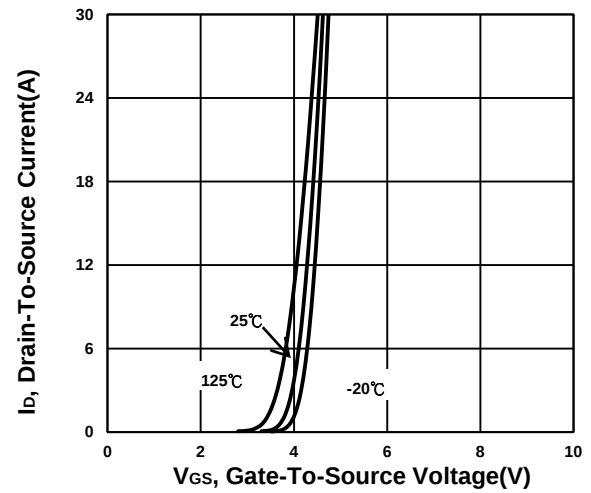
<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu sec$ , Duty Cycle  $\leq 2\%$ .

<sup>2</sup>Independent of operating temperature.

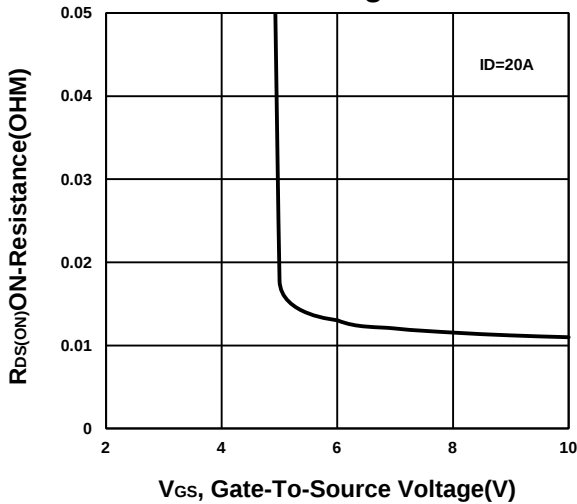
**Output Characteristics**



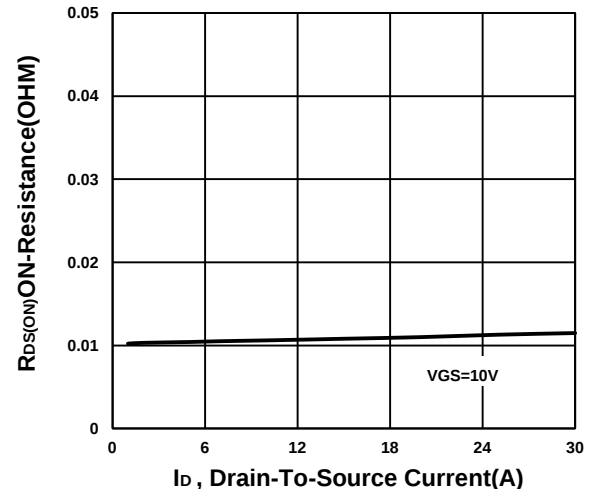
**Transfer Characteristics**



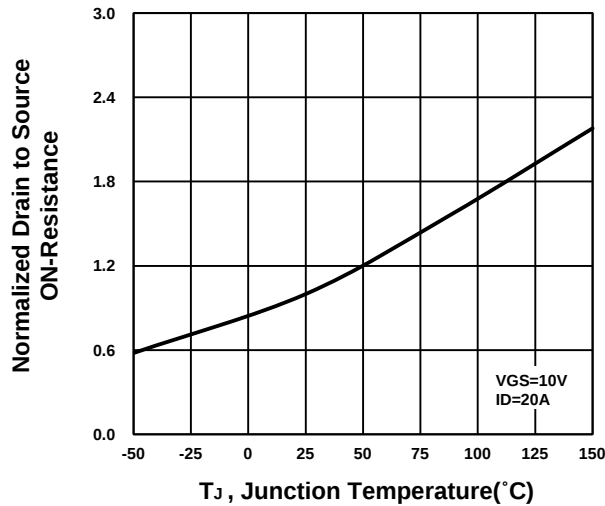
**On-Resistance VS Gate-To-Source Voltage**



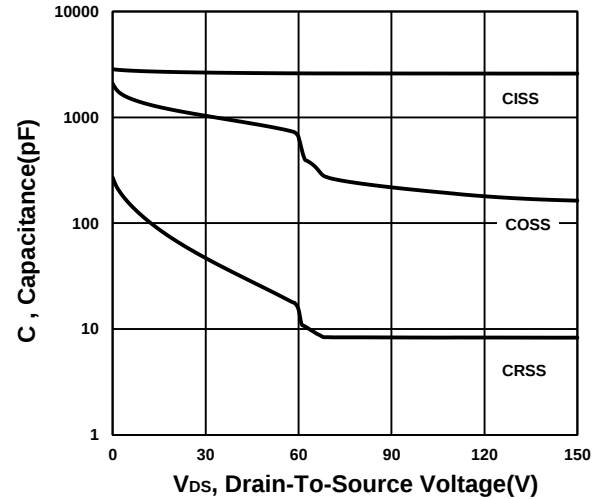
**On-Resistance VS Drain Current**



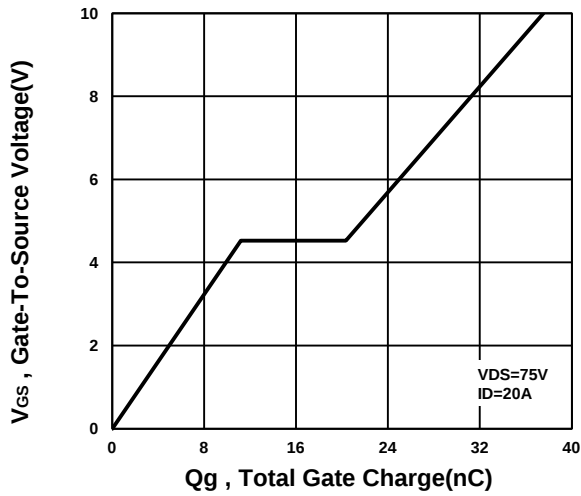
**On-Resistance VS Temperature**



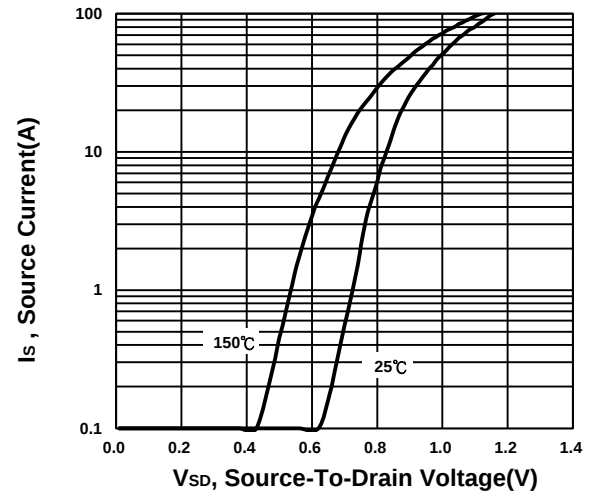
**Capacitance Characteristic**



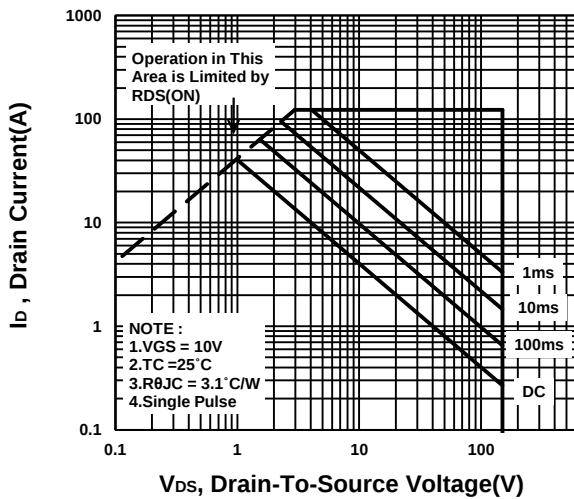
**Gate charge Characteristics**



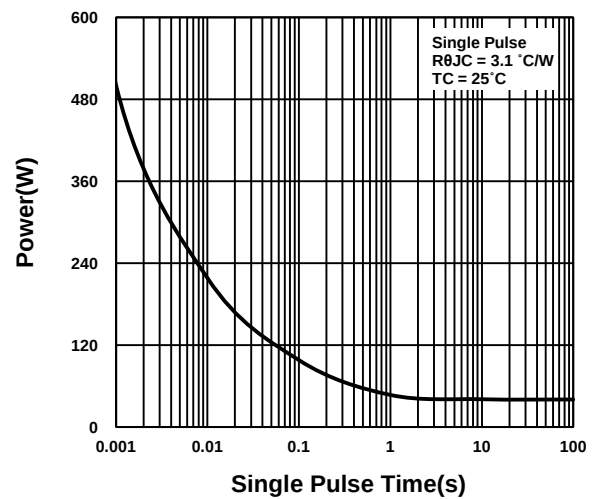
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

