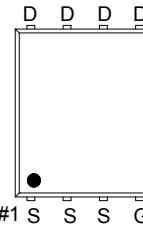
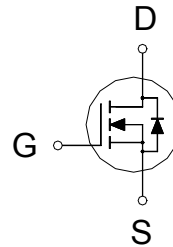


**PRODUCT SUMMARY**

|               |                |         |
|---------------|----------------|---------|
| $V_{(BR)DSS}$ | $R_{DS(ON)}$   | $I_D^4$ |
| 30V           | 0.99m $\Omega$ | 229A    |



G. GATE  
D. DRAIN  
S. SOURCE

100% UIS Tested  
100% Rg Tested

**Features**

- Pb-Free, Halogen Free and RoHS compliant.
- Low  $R_{DS(on)}$  to Minimize Conduction Losses.
- Ohmic Region Good  $R_{DS(on)}$  Ratio.
- Optimized Gate Charge to Minimize Switching Losses.

**Applications**

- Protection Circuits Applications.
- Computer for DC to DC Converters Applications.

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

| PARAMETERS/TEST CONDITIONS                     |                                   | SYMBOL         | LIMITS     | UNITS            |
|--|-----------------------------------|----------------|------------|------------------|
| Drain-Source Voltage                           |                                   | $V_{DS}$       | 30         | V                |
| Gate-Source Voltage                            |                                   | $V_{GS}$       | $\pm 20$   | V                |
| Continuous Drain Current <sup>4</sup>          | $T_C = 25\text{ }^\circ\text{C}$  | $I_D$          | 228        | A                |
|  | $T_C = 100\text{ }^\circ\text{C}$ |                | 145        |                  |
| Pulsed Drain Current <sup>1</sup>              |                                   | $I_{DM}$       | 350        |                  |
| Continuous Drain Current                       | $T_A = 25\text{ }^\circ\text{C}$  | $I_D$          | 50         |                  |
|  | $T_A = 70\text{ }^\circ\text{C}$  |                | 40         |                  |
| Avalanche Current                              |                                   | $I_{AS}$       | 86         |                  |
| Avalanche Energy                               | $L = 0.1\text{mH}$                | $E_{AS}$       | 369.8      | mJ               |
| Power Dissipation                              | $T_C = 25\text{ }^\circ\text{C}$  | $P_D$          | 104        | W                |
|  | $T_C = 100\text{ }^\circ\text{C}$ |                | 41         |                  |
| Power Dissipation <sup>3</sup>                 | $T_A = 25\text{ }^\circ\text{C}$  | $P_D$          | 5          | W                |
|  | $T_A = 70\text{ }^\circ\text{C}$  |                | 3.2        |                  |
| 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-Ambient <sup>2</sup> | $t \leq 10s$ | $R_{\theta JA}$ |         | 25      | °C / W |
| Junction-to-Ambient <sup>2</sup> | Steady-State | $R_{\theta JA}$ |         | 40      |        |
| Junction-to-Case                 | Steady-State | $R_{\theta JC}$ |         | 1.2     |        |

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

<sup>2</sup>The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ C$ .

<sup>3</sup>The Power dissipation is based on  $R_{\theta JA}$   $t \leq 10s$  value.

<sup>4</sup>The maximum current rating is package limited.

**ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)**

| PARAMETER                                     | SYMBOL        | TEST CONDITIONS                               | LIMITS   |      |      | UNIT |    |
|---|---------------|---|--|------|------|------|----|
|   |               |   | MIN  | TYP  | MAX  |      |    |
| <b>STATIC</b>                                 |               |   |  |      |      |      |    |
| Drain-Source Breakdown Voltage                | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                 | 30   |      |      | V    |    |
| Gate Threshold Voltage                        | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu A$             | 1.35   | 1.8  | 2.35 | V    |    |
| Gate-Body Leakage                             | $I_{GSS}$     | $V_{DS} = 0V, V_{GS} = \pm 20V$               |  |      | ±100 | nA   |    |
| Zero Gate Voltage Drain Current               | $I_{DSS}$     | $V_{DS} = 24V, V_{GS} = 0V$                   |  |      | 1    | μA   |    |
|   |               | $V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$ |  |      | 10   |      |    |
| Drain-Source On-State Resistance <sup>1</sup> | $R_{DS(on)}$  | $V_{GS} = 4.5V, I_D = 20A$                    |  | 1.2  | 1.5  | mΩ   |    |
|   |               | $V_{GS} = 10V, I_D = 20A$                     |  | 0.85 | 0.99 |      |    |
| Forward Transconductance <sup>1</sup>         | $g_{fs}$      | $V_{DS} = 5V, I_D = 20A$                      |  | 123  |      | S    |    |
| <b>DYNAMIC</b>                                |               |   |  |      |      |      |    |
| Input Capacitance                             | $C_{iss}$     | $V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$         |  | 6151 |      | pF   |    |
| Output Capacitance                            | $C_{oss}$     |   |  | 1052 |      |      |    |
| Reverse Transfer Capacitance                  | $C_{rss}$     |   |  | 693  |      |      |    |
| Gate Resistance                               | $R_g$         | $V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$          |  | 1.7  |      | Ω    |    |
| Total Gate Charge <sup>2</sup>                | $Q_g$         | $V_{DS} = 15V, V_{GS} = 10V, I_D = 20A$       | $V_{GS} = 10V$   | 128  |      | nC   |    |
|   |               |   | $V_{GS} = 4.5V$  | 65   |      |      |    |
| Gate-Source Charge <sup>2</sup>               | $Q_{gs}$      |   | 19.7   |      |      |      |    |
| Gate-Drain Charge <sup>2</sup>                | $Q_{gd}$      |   | 24   |      |      |      |    |
| Turn-On Delay Time <sup>2</sup>               | $t_{d(on)}$   |   | $V_{DS} = 15V, I_D \cong 20A, V_{GS} = 10V, R_{GEN} = 6\Omega$ |      | 27   |      | nS |
| Rise Time <sup>2</sup>                        | $t_r$         |   |  |      | 49   |      |    |
| Turn-Off Delay Time <sup>2</sup>              | $t_{d(off)}$  |   |  |      | 171  |      |    |
| Fall Time <sup>2</sup>                        | $t_f$         |   |  | 90   |      |      |    |

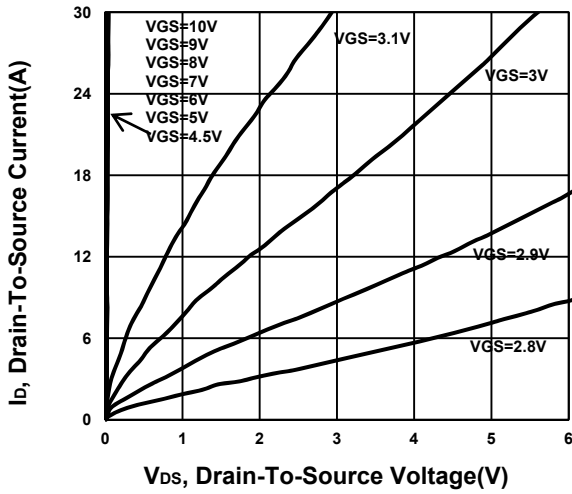
**SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)**

|                              |                 |   |  |     |    |
|------------------------------|-----------------|---|--|-----|----|
| Continuous Current           | I <sub>S</sub>  |   |  | 104 | A  |
| Forward Voltage <sup>1</sup> | V <sub>SD</sub> | I <sub>F</sub> = 20A, V <sub>GS</sub> = 0V            |  | 1   | V  |
| Reverse Recovery Time        | t <sub>rr</sub> | I <sub>F</sub> = 20A, di <sub>F</sub> /dt = 100A / μS |  | 46  | nS |
| Reverse Recovery Charge      | Q <sub>rr</sub> |   |  | 36  | nC |

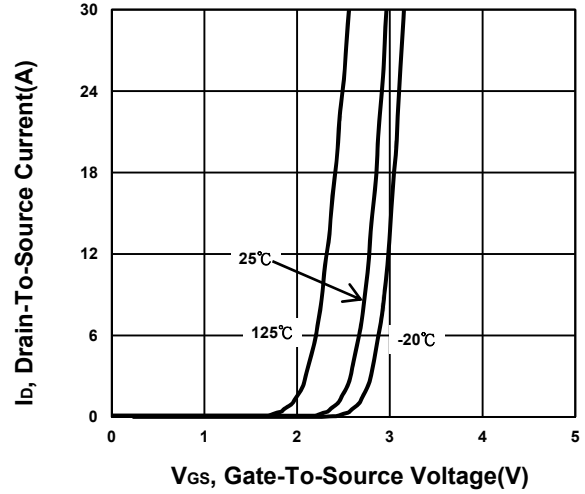
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

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

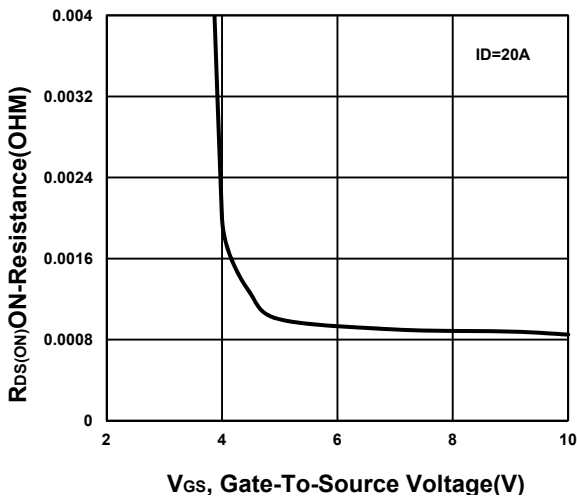
**Output Characteristics**



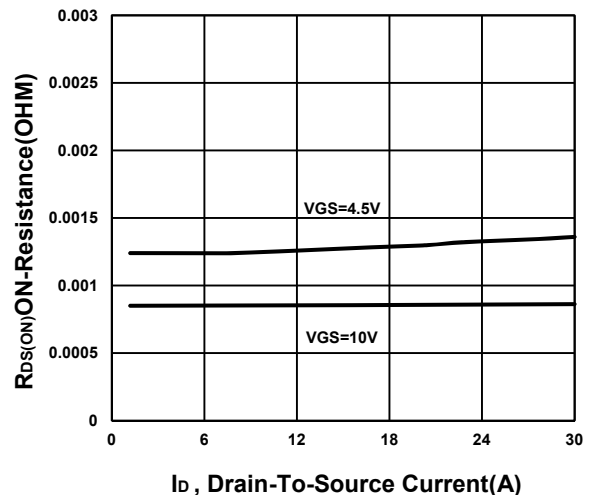
**Transfer Characteristics**



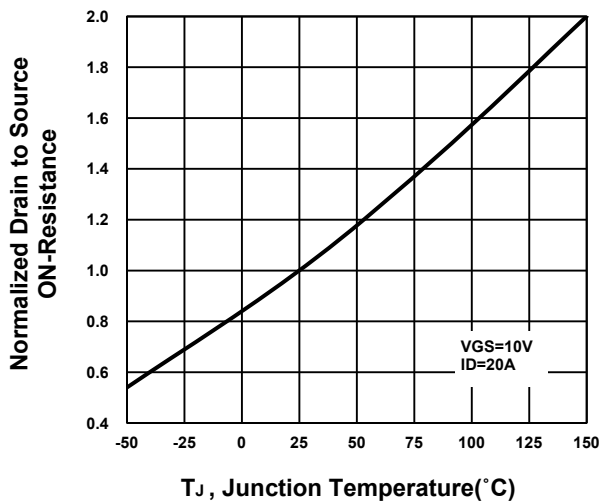
**On-Resistance VS Gate-To-Source**



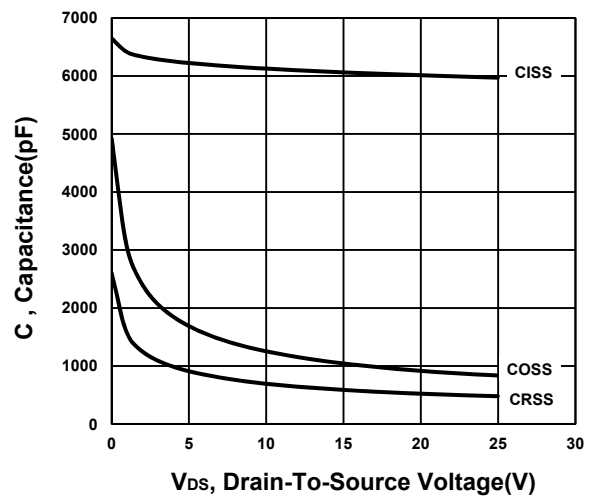
**On-Resistance VS Drain Current**



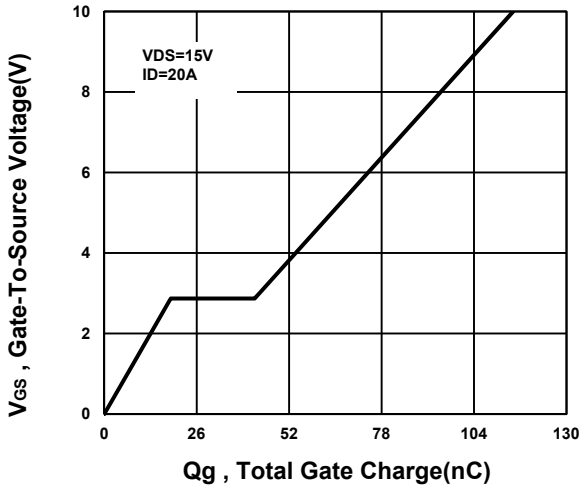
**On-Resistance VS Temperature**



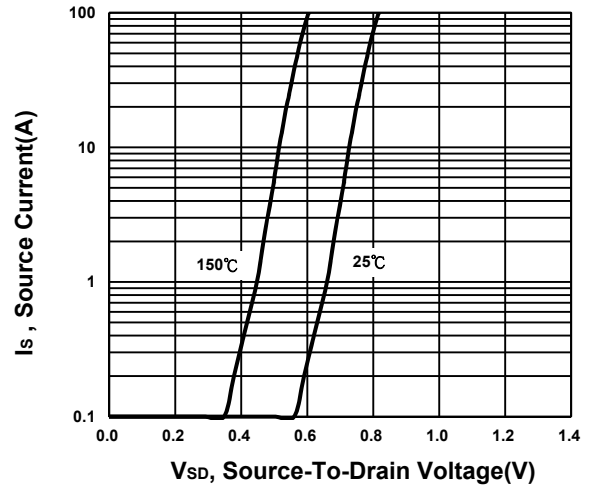
**Capacitance Characteristic**



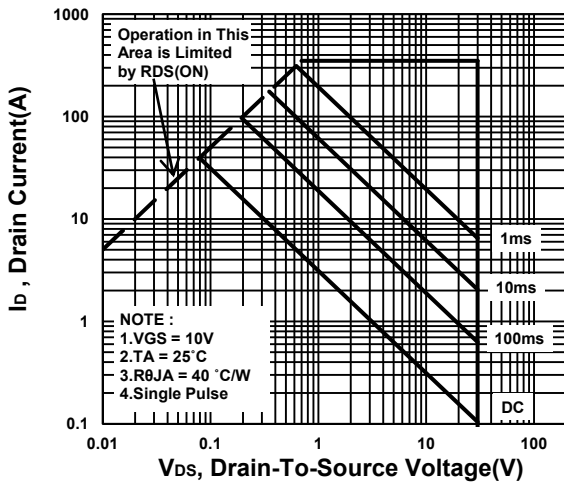
**Gate charge Characteristics**



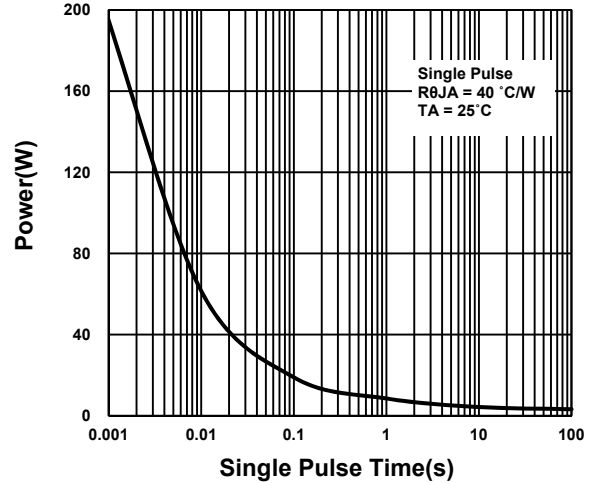
**Source-Drain Diode Forward Voltage**



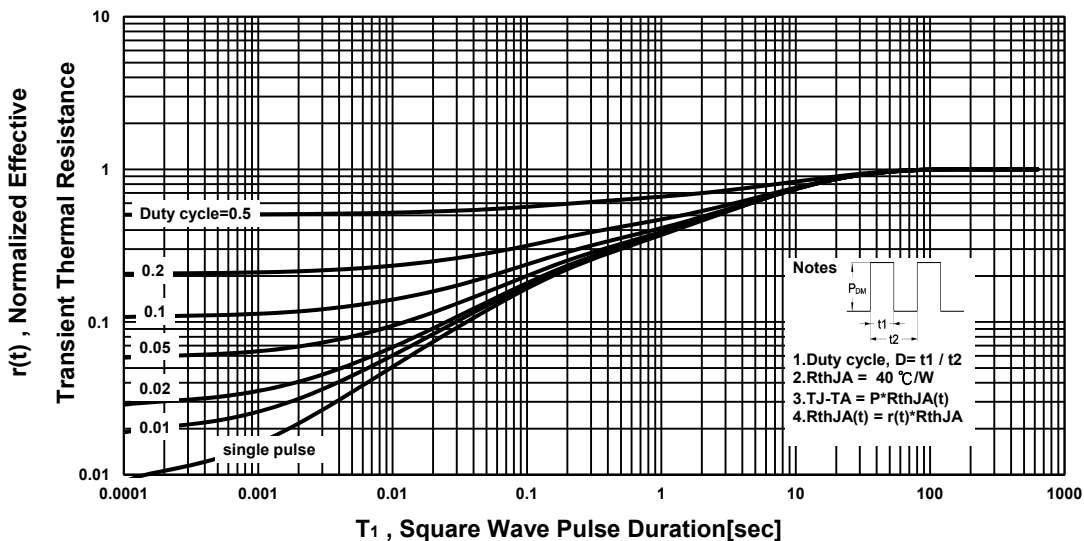
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**



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