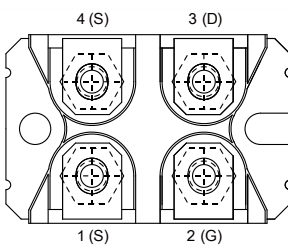
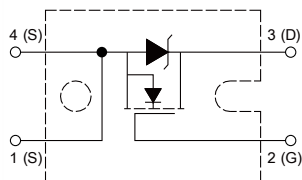


## N-Channel Enhancement Mode MOSFET

### Product Information

| $V_{DS}$                                                                                                                                                                                                                                                                                                                                                          | $I_D$ | $R_{DS(ON), max}$      | Lead Assignment                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 200 V                                                                                                                                                                                                                                                                                                                                                             | 270 A | 6.8 mΩ @ $V_{GS}=10$ V |                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Features</b> <ul style="list-style-type: none"> <li>♦ Modules-MOSFET</li> <li>♦ Reduced switching and conduction losses</li> <li>♦ Maximum 175 °C junction temperature</li> </ul> <b>Applications</b> <ul style="list-style-type: none"> <li>♦ DC/DC conversions</li> <li>♦ Motor drives switch</li> <li>♦ DC/AC inverter</li> <li>♦ Power supplies</li> </ul> |       |                        |   <p>Top View<br/>SOT-227</p> <p>G: Gate<br/>D: Drain<br/>S: Source</p> <p><b>100%<br/>Avalanche Tested</b></p>  |

### Package and Ordering Information

| Part number | Package | Packaging                                | Quantity (pcs) | Reel size | Tape width |
|-------------|---------|------------------------------------------|----------------|-----------|------------|
| KJ06N20T7   | SOT-227 | <input type="checkbox"/> Tape & Reel     | N/A            | N/A       | N/A        |
|             |         | <input checked="" type="checkbox"/> Tube | 10             | N/A       | N/A        |

### Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

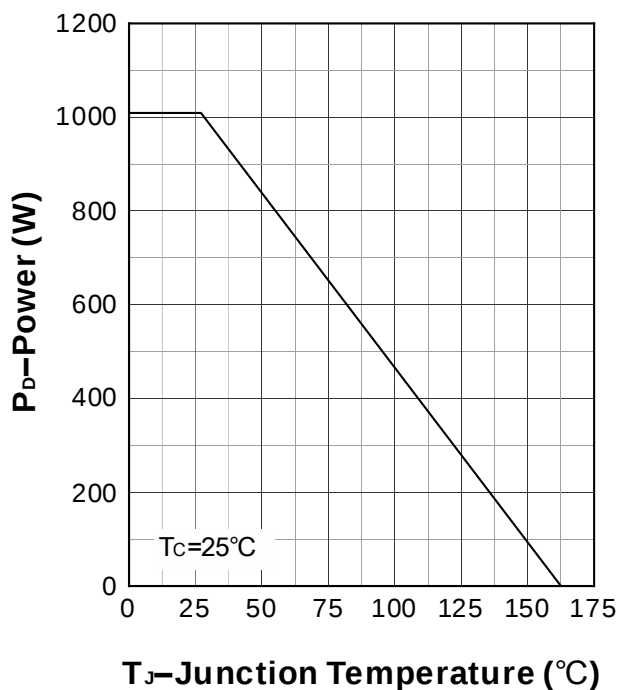
| Parameter                                        | Symbol         | Conditions                             | Values  | Unit |
|--------------------------------------------------|----------------|----------------------------------------|---------|------|
| Drain-Source Voltage                             | $V_{DS}$       | $T_C=25^{\circ}\text{C}$               | 200     | V    |
| Gate-Source Voltage                              | $V_{GS}$       | $T_C=25^{\circ}\text{C}$               | ±20     | V    |
| Drain Current (DC)                               | $I_D$          | $T_C=25^{\circ}\text{C}, V_{GS}=10$ V  | 270     | A    |
|                                                  |                | $T_C=100^{\circ}\text{C}, V_{GS}=10$ V | 190     | A    |
| Drain Current (Pulsed)                           | $I_{DM}$       | $T_C=25^{\circ}\text{C}, V_{GS}=10$ V  | 810     | A    |
| Drain Power Dissipation                          | $P_D$          | $T_C=25^{\circ}\text{C}$               | 1090    | W    |
| Single Pulsed Avalanche Energy                   | $E_{AS}$       | $V_{DD}=50$ V, $L=1$ mH                | 5       | J    |
| Operating Junction and Storage Temperature Range | $T_J, T_{stg}$ |                                        | -55–175 | °C   |
| Thermal Resistance, Junction to Case             | $R_{thJC}$     |                                        | 0.15    | °C/W |

## Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

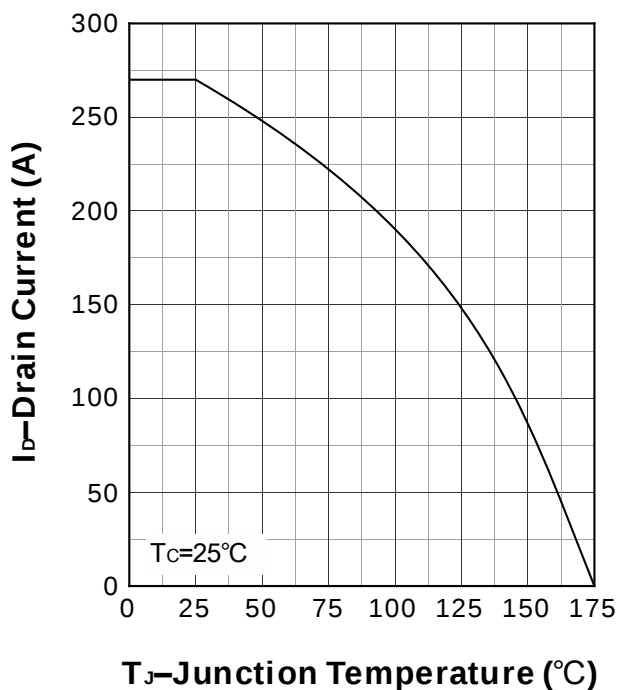
| Parameter                        | Symbol               | Conditions                                                                                 | Min | Typ   | Max  | Unit |
|----------------------------------|----------------------|--------------------------------------------------------------------------------------------|-----|-------|------|------|
| Static Characteristics           |                      |                                                                                            |     |       |      |      |
| Drain-Source Breakdown Voltage   | V <sub>(BR)DSS</sub> | V <sub>GS</sub> =0 V, I <sub>DS</sub> =250 μA                                              | 200 | -     | -    | V    |
| Gate Threshold Voltage           | V <sub>GS(th)</sub>  | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250 μA                                 | 3   | -     | 5    | V    |
| Zero Gate Voltage Source Current | I <sub>DSS</sub>     | V <sub>GS</sub> =0 V, V <sub>DS</sub> =200 V, T <sub>C</sub> =25°C                         | -   | -     | 1    | μA   |
| Gate Leakage Current             | I <sub>GSS</sub>     | V <sub>DS</sub> =0 V, V <sub>GS</sub> =±20 V                                               | -   | -     | ±100 | nA   |
| Drain-Source On-State Resistance | R <sub>DS(ON)</sub>  | V <sub>GS</sub> =10 V, I <sub>D</sub> =50 A, T <sub>C</sub> =25°C                          | -   | 5.8   | 6.8  | mΩ   |
| Dynamic Characteristics          |                      |                                                                                            |     |       |      |      |
| Input Capacitance                | C <sub>iss</sub>     | V <sub>DS</sub> =100 V, V <sub>GS</sub> =0 V, Frequency=1 MHz                              | -   | 21400 | -    | pF   |
| Output Capacitance               | C <sub>oss</sub>     |                                                                                            | -   | 1800  | -    |      |
| Reverse Transfer Capacitance     | C <sub>rss</sub>     |                                                                                            | -   | 840   | -    |      |
| Turn-on Delay Time               | t <sub>d(on)</sub>   | V <sub>DS</sub> =100 V, V <sub>GS</sub> =10 V, R <sub>G</sub> =3.9 Ω, I <sub>D</sub> =50 A | -   | 88    | -    | ns   |
| Turn-on Rise Time                | t <sub>r</sub>       |                                                                                            | -   | 330   | -    |      |
| Turn-off Delay Time              | t <sub>d(off)</sub>  |                                                                                            | -   | 245   | -    |      |
| Turn-off Fall Time               | t <sub>f</sub>       |                                                                                            | -   | 175   | -    |      |
| Total Gate Charge                | Q <sub>g</sub>       | V <sub>DS</sub> =100 V, V <sub>GS</sub> =10 V, I <sub>DS</sub> =50 A                       | -   | 525   | -    | nC   |
| Gate-Source Charge               | Q <sub>gs</sub>      |                                                                                            | -   | 155   | -    |      |
| Gate-Drain Charge                | Q <sub>gd</sub>      |                                                                                            | -   | 175   | -    |      |
| Body Diode Characteristics       |                      |                                                                                            |     |       |      |      |
| Diode Forward Voltage            | V <sub>SD</sub>      | V <sub>GS</sub> =0 V, I <sub>SD</sub> =50 A                                                | -   | -     | 1.3  | V    |

## Typical Characteristics

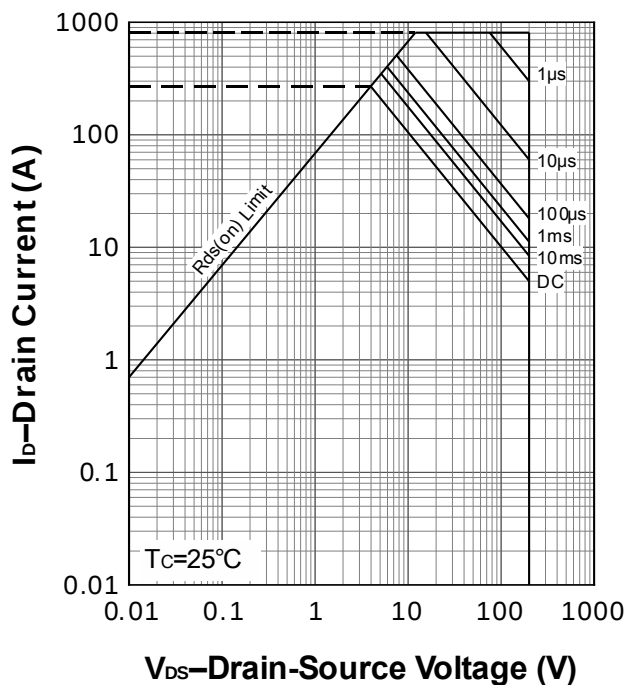
**Power Capability**



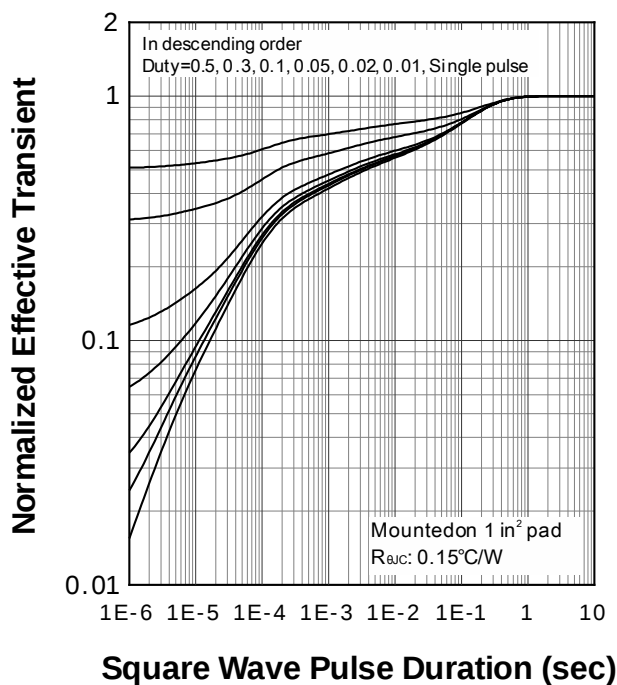
**Current Capability**



**Safe Operating Area**

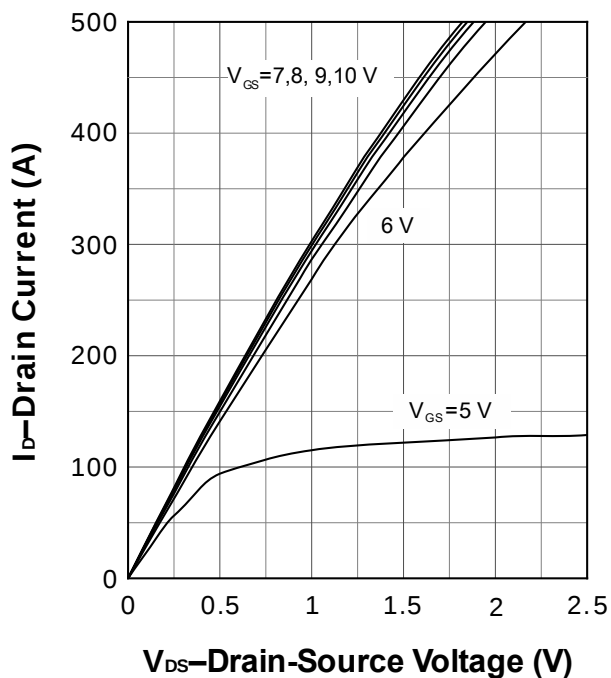


**Transient Thermal Impedance**

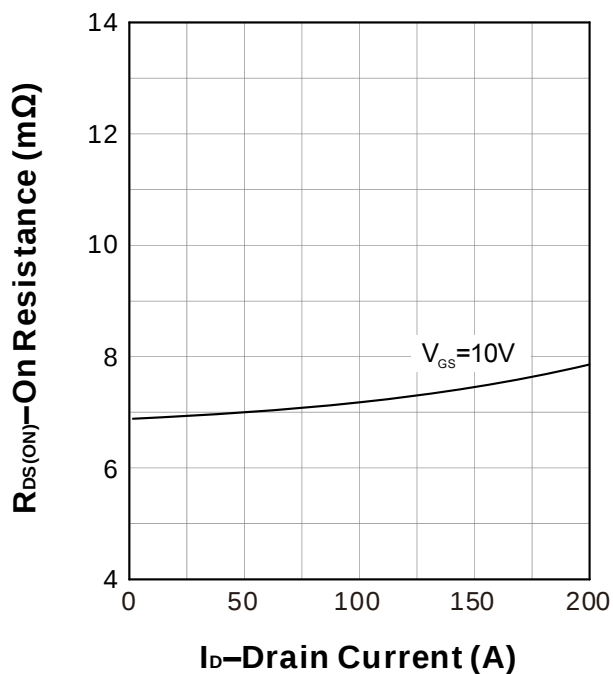


Typical Characteristics (cont.)

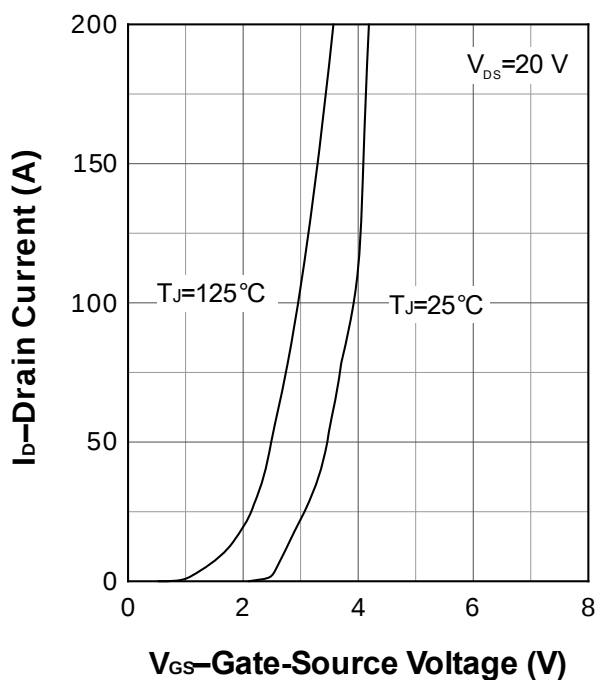
Output Characteristics



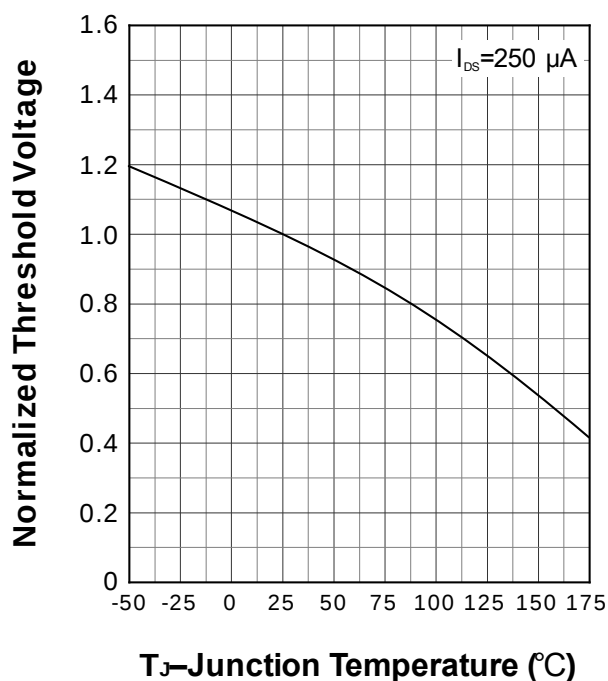
On Resistance



Transfer Characteristics

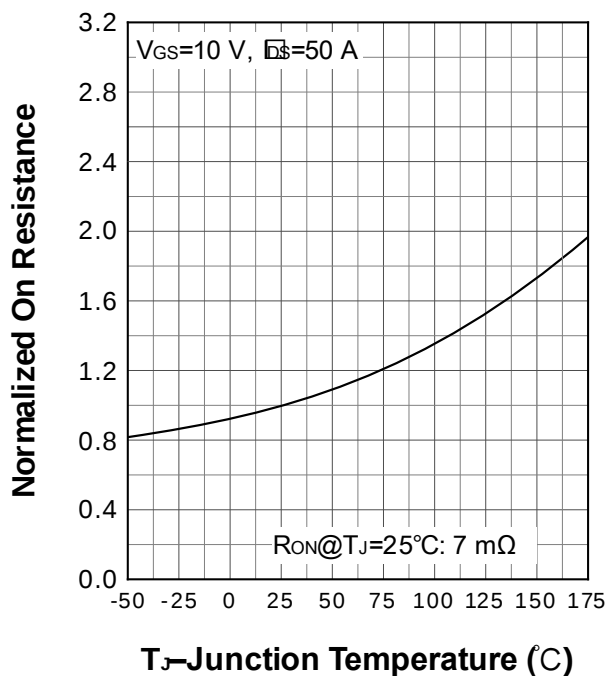


Normalized Threshold Voltage

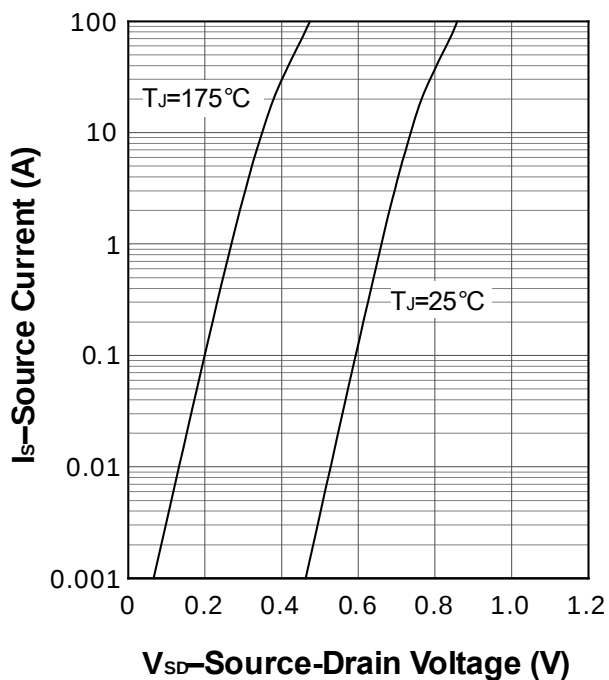


Typical Characteristics (cont.)

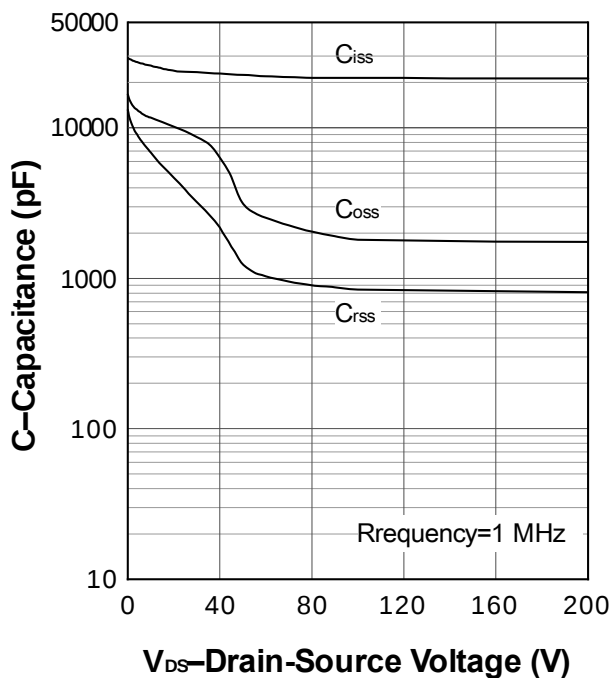
Normalized On Resistance



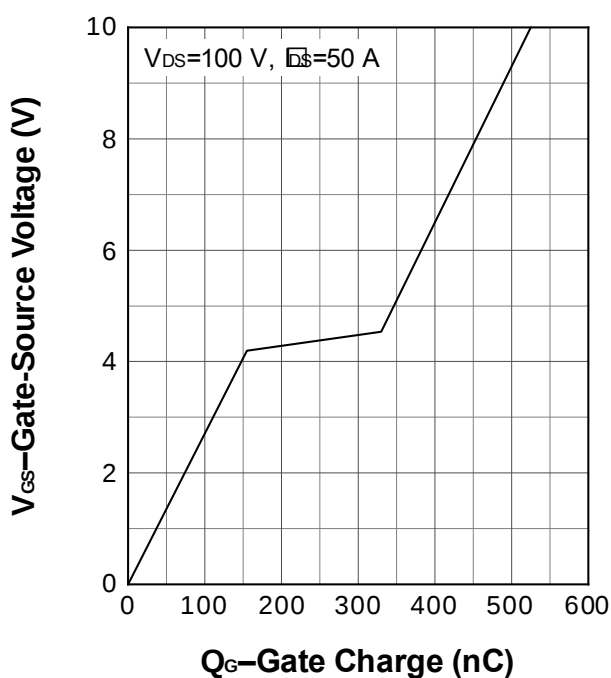
Diode Forward Current



Capacitance



Gate Charge



## Package Dimensions

SOT-227 package

