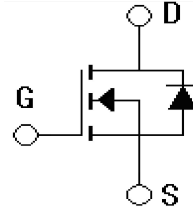
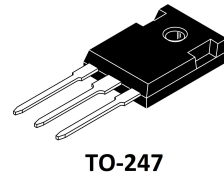


## Features

- $V_{DS}=200V, I_D=100A$   
 $R_{DS(on)}=23m\Omega @ V_{GS}=10V$
- High density cell design for ultra low  $R_{dson}$
- Low gate charge
- Improved  $dv/dt$  capability
- RoHS product



## Applications

- Power Management for Inverter Systems

## Absolute Ratings ( $T_c=25^\circ C$ )

| Parameter                               | Symbol                                      | Limit    | Unit       |
|-----------------------------------------|---------------------------------------------|----------|------------|
| Drain-Source Voltage                    | $V_{DSS}$                                   | 200      | V          |
| Gate-Source Voltage                     | $V_{GSS}$                                   | $\pm 20$ | V          |
| Drain Current-continuous                | $I_D$                                       | 100      | A          |
| Drain Current-pulse                     | $I_{DM}$                                    | 400      | A          |
| Single Pulsed Avalanche Energy          | $E_{AS}$                                    | 833      | mJ         |
| Maximum Power Dissipation               | PD<br>$T_C=25^\circ C$<br>$T_C=100^\circ C$ | 375      | W          |
|                                         |                                             | 187.5    |            |
| Operating and Storage Temperature Range | $T_J, T_{STG}$                              | -55~+150 | $^\circ C$ |

## Electrical Characteristics( $T_{CASE}=25^\circ C$ unless otherwise specified)

| Parameter                         | Symbol       | Tests conditions              | Min | Typ | Max       | Units      |
|-----------------------------------|--------------|-------------------------------|-----|-----|-----------|------------|
| Drain-Source Voltage              | $BV_{DSS}$   | $I_D=250\mu A, V_{GS}=0V$     | 200 | -   | -         | V          |
| Zero Gate Voltage Drain Current   | $I_{DSS}$    | $V_{DS}=V_{DSS}, V_{GS}=0V$   | -   | -   | 1         | $\mu A$    |
| Gate-Body Leakage Current         | $I_{GSS}$    | $V_{GS}=\pm 20V, V_{DS}=0V$   | -   | -   | $\pm 100$ | nA         |
| <b>On-Characteristics</b>         |              |                               |     |     |           |            |
| Gate Threshold Voltage            | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 2.0 | 3.0 | 4.0       | V          |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}=10V, I_D=50A$         | -   | 23  | 25        | m $\Omega$ |

| Dynamic Characteristics      |           |                                   |   |      |   |    |
|------------------------------|-----------|-----------------------------------|---|------|---|----|
| Input capacitance            | $C_{iss}$ | $V_{DS}=25V, V_{GS}=0V, f=1.0MHz$ | - | 5871 | - | pF |
| Output capacitance           | $C_{oss}$ |                                   | - | 392  | - | pF |
| Reverse transfer capacitance | $C_{rss}$ |                                   | - | 165  | - | pF |

**Electrical Characteristics**( $T_{CASE}=25^{\circ}C$  unless otherwise specified)

| Parameter                                              | Symbol              | Tests conditions                                                                          | Min | Typ  | Max | Units |
|--------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------|-----|------|-----|-------|
| Switching-Characteristics                              |                     |                                                                                           |     |      |     |       |
| Turn-On delay time                                     | t <sub>d(on)</sub>  | V <sub>DS</sub> =100V, I <sub>D</sub> =50A,<br>V <sub>GS</sub> =10V<br>R <sub>G</sub> =4Ω | -   | 29   | -   | ns    |
| Turn-On rise time                                      | t <sub>r</sub>      |                                                                                           | -   | 45   | -   | ns    |
| Turn-Off delay time                                    | t <sub>d(Off)</sub> |                                                                                           | -   | 22   | -   | ns    |
| Turn-Off rise time                                     | t <sub>f</sub>      |                                                                                           | -   | 41   | -   | ns    |
| Total Gate Charge                                      | Q <sub>g</sub>      | V <sub>DS</sub> =100V, I <sub>D</sub> =50A,<br>V <sub>GS</sub> =10V                       | -   | 130  | -   | nC    |
| Gate-Source charge                                     | Q <sub>gs</sub>     |                                                                                           | -   | 22   | -   | nC    |
| Gate-Drain charge                                      | Q <sub>gd</sub>     |                                                                                           | -   | 38   | -   | nC    |
| Drain-Source Diode Characteristics and Maximum Ratings |                     |                                                                                           |     |      |     |       |
| Maximum Continuous Drain-Source Diode Forward Curret   | V <sub>SD</sub>     | V <sub>GS</sub> =0V, I <sub>S</sub> =50A                                                  |     | 0.85 | 1.2 | V     |
| Diode Forward Current                                  | I <sub>S</sub>      | TC=25°C                                                                                   | -   | -    | 100 | A     |
| Reverse recovery time                                  | T <sub>rr</sub>     | I <sub>S</sub> =50A,                                                                      | -   | 80   |     | nS    |
| Reverse recovery charge                                | Q <sub>rr</sub>     | dI/dT=100A/μS                                                                             | -   | 160  |     | nC    |

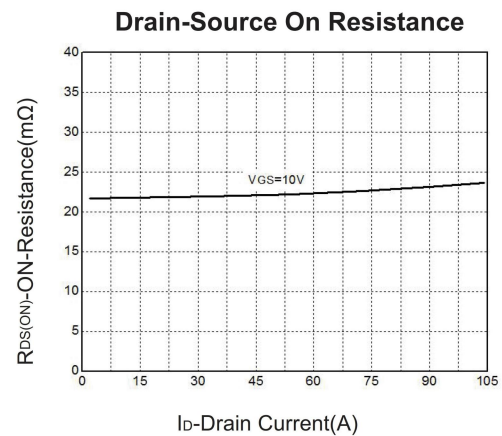
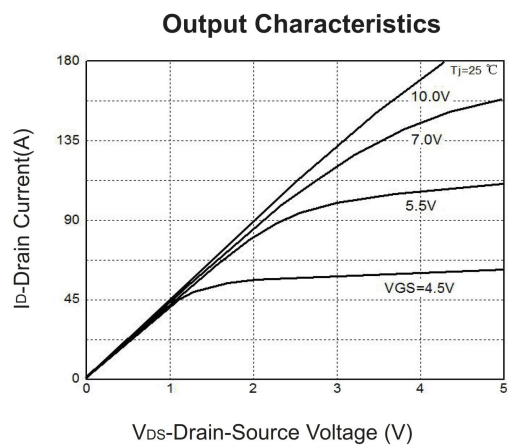
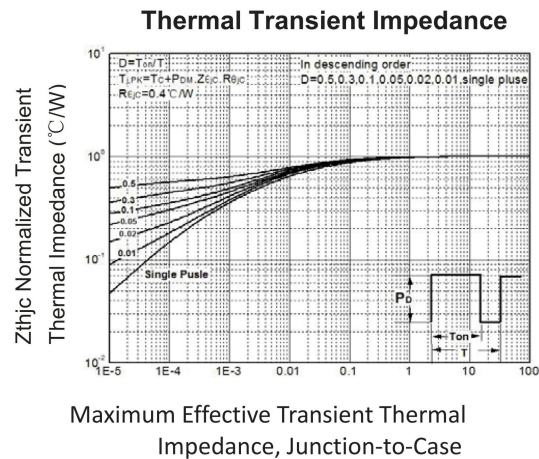
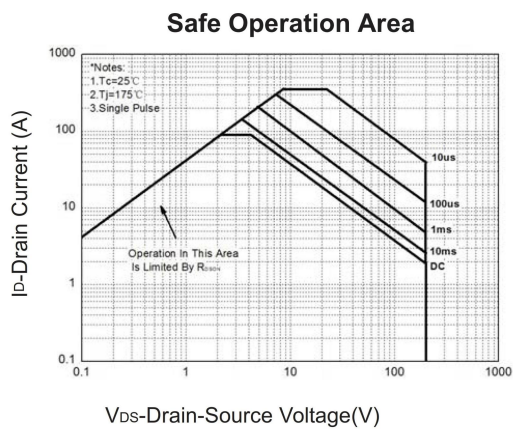
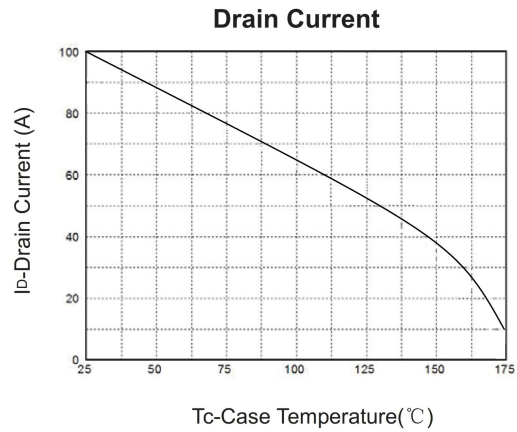
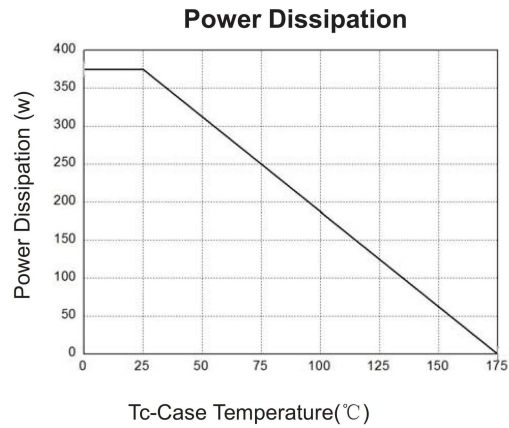
**Thermal Characteristic**

| Parameter                               | Symbol        | Value | Unit          |
|-----------------------------------------|---------------|-------|---------------|
| Thermal Resistance, junction to Case    | $R_{th(j-C)}$ | 0.4   | $^{\circ}C/W$ |
| Thermal Resistance, junction to Ambient | $R_{th(j-A)}$ | 40    | $^{\circ}C/W$ |

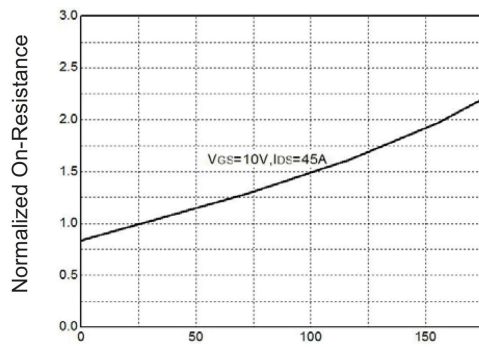
Notes:

1. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$
2. Limited by  $T_{jmax}$ , starting  $T_j=25^{\circ}C$ ,  $L=0.5mH$ ,  $V_D=100V$ ,  $V_{GS}=10V$

## Electrical Characteristics

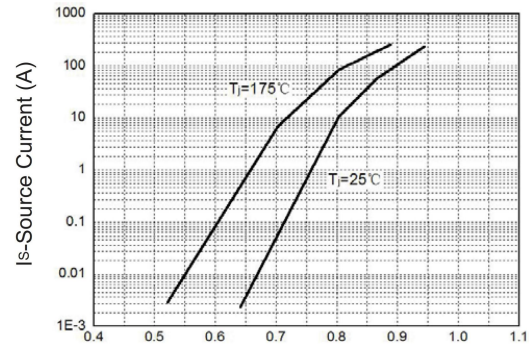


On-Resistance vs. Temperature



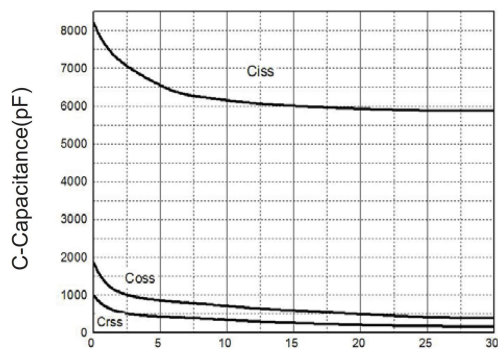
T<sub>j</sub>-Junction Temperature (°C)

Source-Drain Diode Forward



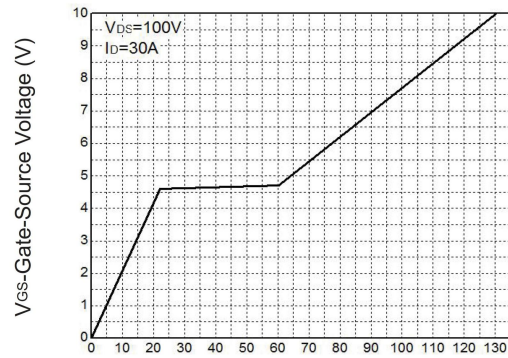
V<sub>SD</sub>, Source-Drain Voltage(V)

Capacitance Characteristics



V<sub>DS</sub>-Drain-Source Voltage (V)

Gate Charge Characteristics



Q<sub>G</sub>-Gate Charge (nC)

## Package Mechanical DATA

