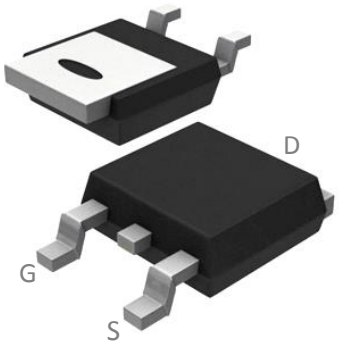
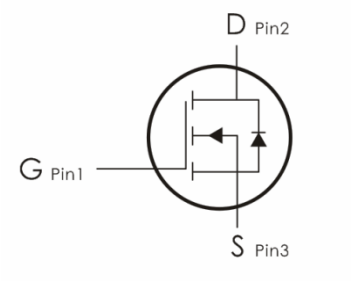
## Description：

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.




## Features：

1) $V_{DS}$=30V,$I_D$=100A,$R_{DS(ON)}$<4.2mΩ @$V_{GS}$=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

## Absolute Maximum Ratings： ($T_C$=25℃ unless otherwise noted)

| Symbol | Parameter | Ratings | Units |
|---|---|---|---|
| $V_{DS}$ | Drain-Source Voltage | 30 | V |
| $V_{GS}$ | Gate-Source Voltage | ±20 | V |
| $I_D$ | Continuous Drain Current-$T_C$=25℃[1] | 100 | A |
| | Continuous Drain Current-$T_C$=100℃[1] | 59 | |
| | Pulsed Drain Current[2] | 160 | |
| $E_{AS}$ | Single Pulse Avalanche Energy[3] | 250 | mJ |
| $P_D$ | Power Dissipation,$T_C$=25℃[4] | 90 | W |
| $T_J$, $T_{STG}$ | Operating and Storage Junction Temperature Range | -55 to +175 | ℃ |

## Thermal Characteristics：

| Symbol | Parameter | Max | Units |
|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance,Junction to Case | 2.5 | ℃/W |
| $R_{\theta JA}$ | Thermal Resistance,Junction to Ambient[3] | 62.5 | |

## Electrical Characteristics: ($T_C$=25℃ unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|
| **Off Characteristics** | | | | | | |
| $BV_{DSS}$ | Drain-Sourtce Breakdown Voltage | $V_{GS}$=0V,$I_D$=250μA | 30 | --- | --- | V |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{GS}$=0V, $V_{DS}$=24V | --- | --- | 1 | μA |
| $I_{GSS}$ | Gate-Source Leakage Current | $V_{GS}$=±20V, $V_{DS}$=0A | --- | --- | ±100 | nA |
| **On Characteristics** | | | | | | |
| $V_{GS(th)}$ | GATE-Source Threshold Voltage | $V_{GS}$=$V_{DS}$, $I_D$=250μA | 1 | | 3 | V |
| $R_{DS(ON)}$ | Drain-Source On Resistance[2] | $V_{GS}$=10V,$I_D$=40A | --- | 3.6 | 4.2 | mΩ |
| | | $V_{GS}$=4.5V,$I_D$=30A | --- | --- | 7 | |
| $G_{FS}$ | Forward Transconductance | $V_{DS}$=10V, $I_D$=15A | --- | 28 | --- | S |
| **Dynamic Characteristics** | | | | | | |
| $C_{iss}$ | Input Capacitance | $V_{DS}$=15V, $V_{GS}$=0V, f=1MHz | --- | 1950 | 2350 | pF |
| $C_{oss}$ | Output Capacitance | | --- | 320 | --- | |
| $C_{rss}$ | Reverse Transfer Capacitance | | --- | 240 | --- | |
| **Switching Characteristics** | | | | | | |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{DD}$=15V, $I_D$=15A, $V_{GS}$=10V,$R_{GEN}$=3.3Ω | --- | 13 | --- | ns |
| $t_r$ | Rise Time | | --- | 36 | --- | ns |
| $t_{d(off)}$ | Turn-Off Delay Time | | --- | 43 | --- | ns |
| $t_f$ | Fall Time | | --- | 16 | --- | ns |
| $Q_g$ | Total Gate Charge | $V_{GS}$=10V, $V_{DS}$=24V, $I_D$=20A | --- | 42 | 84 | nC |
| $Q_{gs}$ | Gate-Source Charge | | --- | 3.9 | --- | nC |
| $Q_{gd}$ | Gate-Drain “Miller” Charge | | --- | 14 | --- | nC |
| **Drain-Source Diode Characteristics** | | | | | | |
| $V_{SD}$ | Source-Drain Diode Forward Voltage[2] | $V_{GS}$=0V,$I_S$=30A | --- | --- | 1.2 | V |

| | | | | | |
|---|---|---|---|---|---|
| **trr** | Reverse Recovery Time | $I_S$=10A, $V_{GS}$=0V, dI/dt=100A | 16 | --- | Ns |
| **qrr** | Reverse Recovery Charge | | 5 | --- | nc |

## Notes:

1.Pulse width limited by max. junction temperature

2.Pulse test

3.Surface mounted on 1 $in^2$ copper pad of FR4 board

## Typical Characteristics: ($T_C$=25℃ unless otherwise noted)

**Figure1:** Output Characteristics

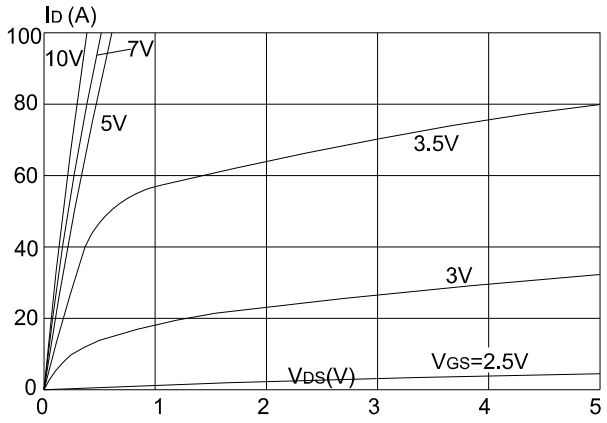



**Figure 2:** Typical Transfer Characteristics

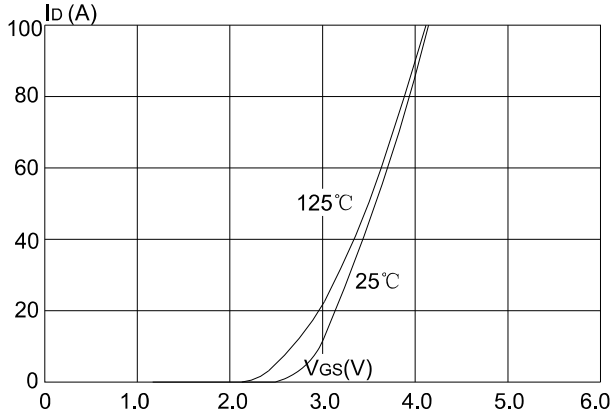



**Figure 3:**On-resistance vs. Drain Current

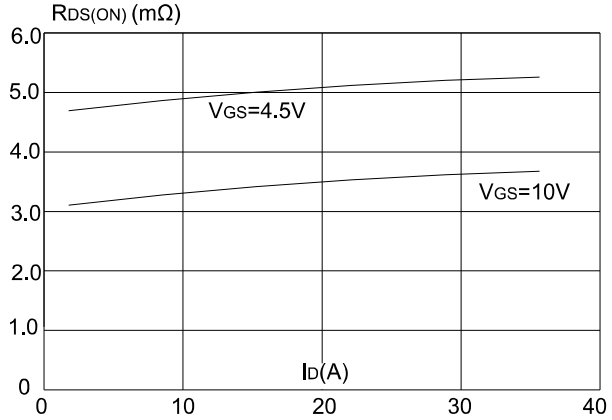



**Figure 4**: Body Diode Characteristics

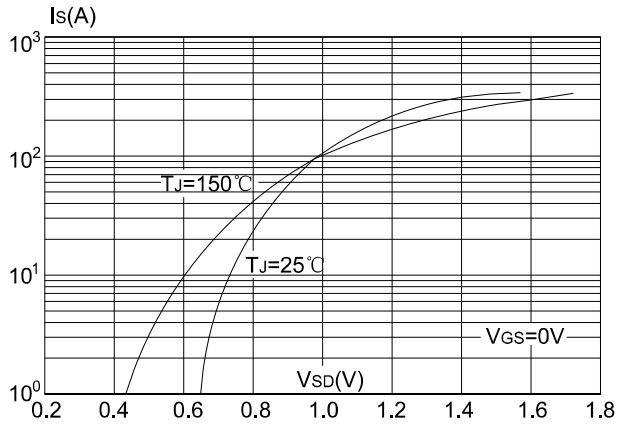



**Figure 5:** Gate Charge Characteristics

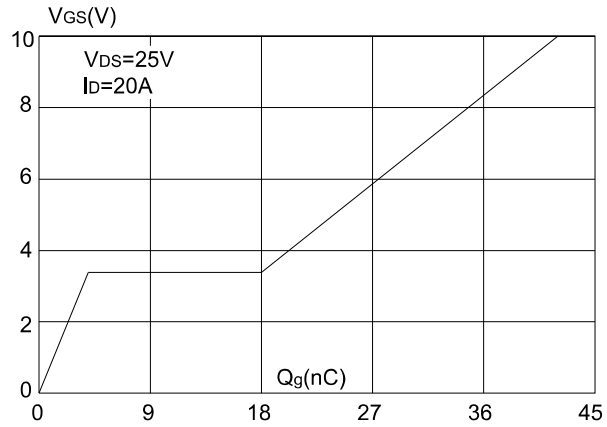



**Figure 6:** Capacitance Characteristics

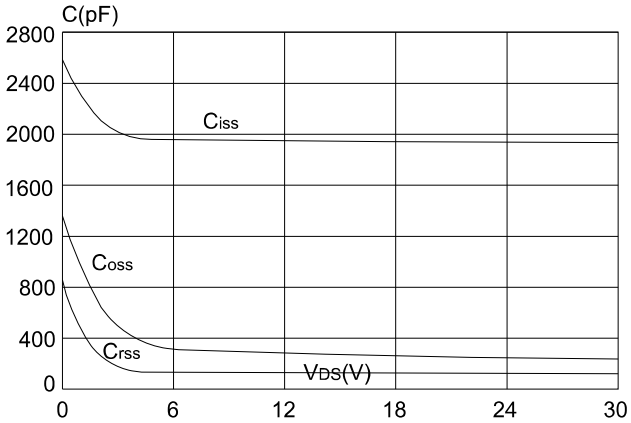


**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature

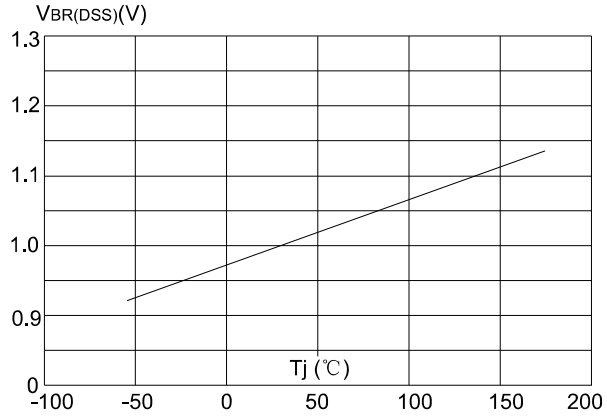



**Figure 8:** Normalized on Resistance vs. Junction Temperature

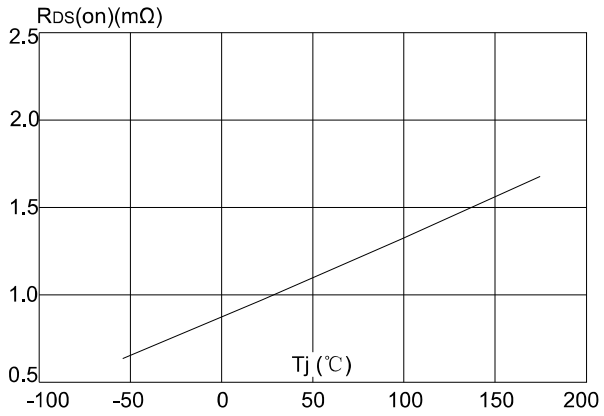



**Figure 9:** Maximum Safe Operating Area

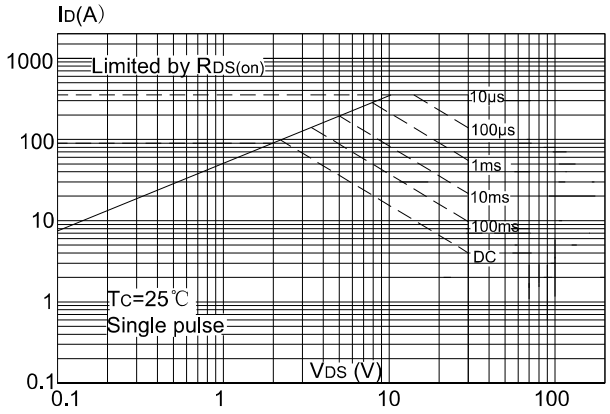



**Figure 10:** Maximum Continuous Drain Current vs. Case Temperature

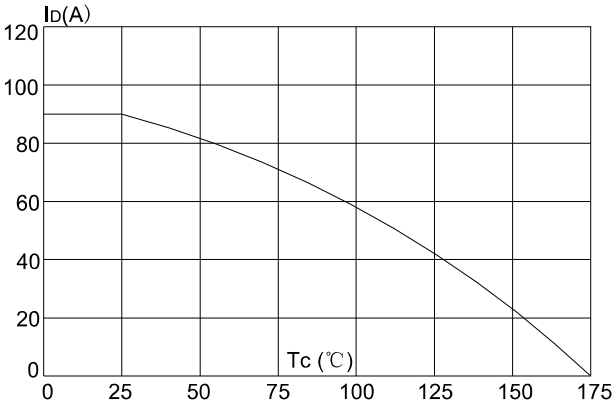



**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Case (TO-252)