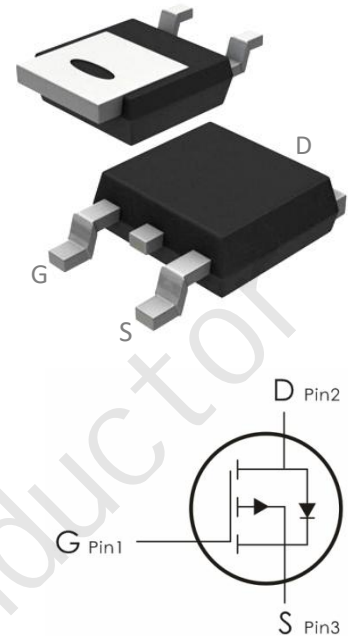


Description:

This P-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) $V_{DS}=-30V, I_D=-80A, R_{DS(ON)}<7.5\ m\ \Omega\ @V_{GS}=-10\ V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.

Absolute Maximum Ratings: ($T_C=25^\circ C$ 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- $T_C=25^\circ C$ | -80 | A |
| | Continuous Drain Current- $T_C=100^\circ C$ | -49 | A |
| I_{DM} | Pulsed Drain Current ^{note1} | -260 | A |
| E_{AS} | Single Pulsed Avalanche Energy ^{note2} | 164 | mJ |
| P_D | Total Power Dissipation | 84 | W |
| T_J, T_{STG} | Operating and Storage Junction Temperature Range | -55 to +175 | $^\circ C$ |

Thermal Characteristics:

| Symbol | Parameter | Max | Units |
|-----------------|--------------------------------------|-----|--------------|
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 1.5 | $^\circ C/W$ |

Electrical Characteristics: ($T_J=25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
|---|--|--|------|------|-----------|------------|
| Off Characteristics | | | | | | |
| BV_{DSS} | Drain-Source Breakdown Voltage | $V_{GS}=0V, I_D=250\ \mu A$ | -30 | --- | --- | V |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{GS}=0V, V_{DS}=-30V, T_J=25^\circ\text{C}$ | --- | --- | -1 | μA |
| I_{GSS} | Gate-Source Leakage Current | $V_{GS}=\pm 20V, V_{DS}=0A$ | --- | --- | ± 100 | nA |
| On Characteristics | | | | | | |
| $V_{GS(th)}$ | GATE-Source Threshold Voltage | $V_{GS}=V_{DS}, I_D=250\ \mu A$ | -1.0 | -1.6 | -2.5 | V |
| $R_{DS(on)}$ | Static Drain-Source On-Resistance ^{note3} | $V_{GS}=-10V, I_D=-30A$ | --- | 5.8 | 7.5 | m Ω |
| | | $V_{GS}=-4.5V, I_D=-20A$ | --- | 9 | 12.6 | |
| Dynamic Characteristics | | | | | | |
| C_{iss} | Input Capacitance | $V_{DS}=-15V, V_{GS}=0V, f=1\text{MHz}$ | --- | 4550 | --- | pF |
| C_{oss} | Output Capacitance | | --- | 525 | --- | |
| C_{rss} | Reverse Transfer Capacitance | | --- | 480 | --- | |
| Switching Characteristics | | | | | | |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{DD}=-15V, I_D=-30A,$ $V_{GS}=-10V, R_G=2.5\ \Omega$ | --- | 19 | --- | ns |
| t_r | Rise Time | | --- | 15 | --- | ns |
| $t_{d(off)}$ | Turn-Off Delay Time | | --- | 65 | --- | ns |
| t_f | Fall Time | | --- | 36 | --- | ns |
| Q_g | Total Gate Charge | $V_{GS}=-10V, V_{DS}=-15V,$ $I_D=-20A$ | --- | 45 | --- | nC |
| Q_{gs} | Gate-Source Charge | | --- | 8 | --- | nC |
| Q_{gd} | Gate-Drain "Miller" Charge | | --- | 12 | --- | nC |
| Drain-Source Diode Characteristics | | | | | | |
| V_{SD} | Drain Diode Forward Voltage | $V_{GS}=0V, I_S=-30A, T_J=25^\circ\text{C}$ | --- | -0.8 | -1.2 | V |

| | | | | | | |
|----------|---------------------------|------------------------------|-----|-----|------|---|
| I_S | Continuous Source Current | $V_G=V_D=0V$, Force Current | --- | --- | -80 | A |
| I_{SM} | Pulsed Source Current | | --- | --- | -240 | A |

- Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
 2. EAS condition: $T_J=25^\circ C$, $V_{DD}=-15V$, $V_G=-10V$, $R_G=25\Omega$, $L=0.5mH$, $I_{AS}=-24A$
 3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Typical Characteristics: ($T_C=25^\circ C$ unless otherwise noted)

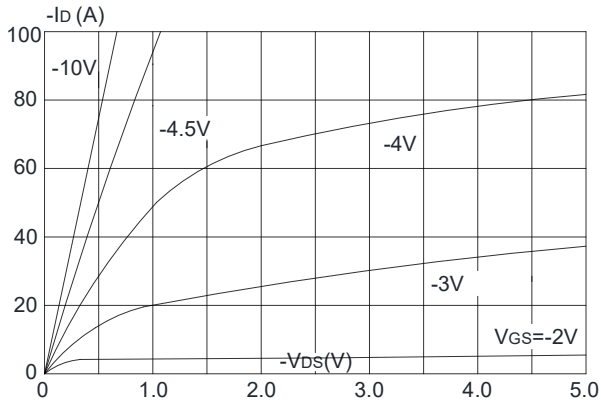


Figure 1: Output Characteristics

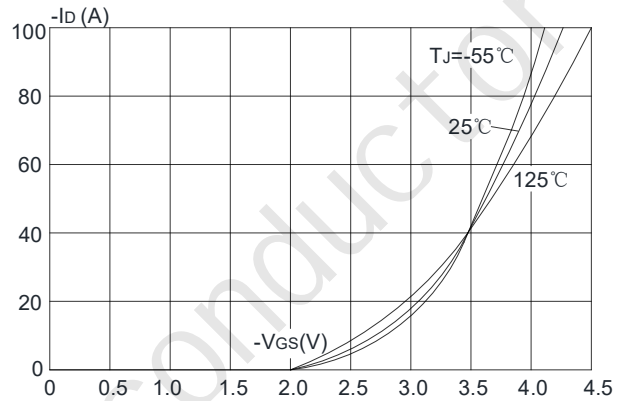


Figure 2: Typical Transfer Characteristics

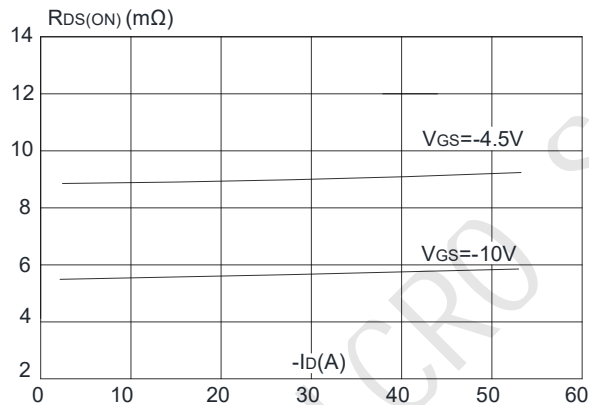


Figure 3: On-resistance vs. Drain Current

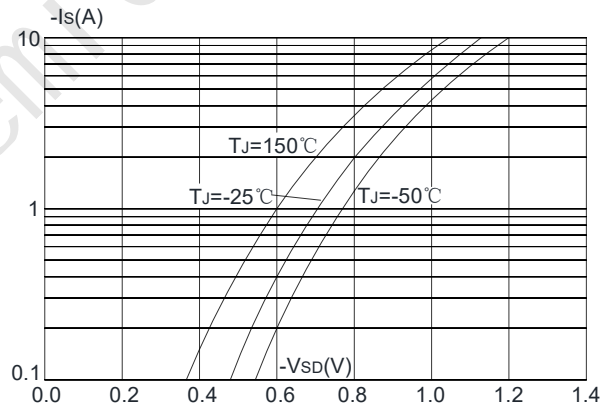


Figure 4: Body Diode Characteristics

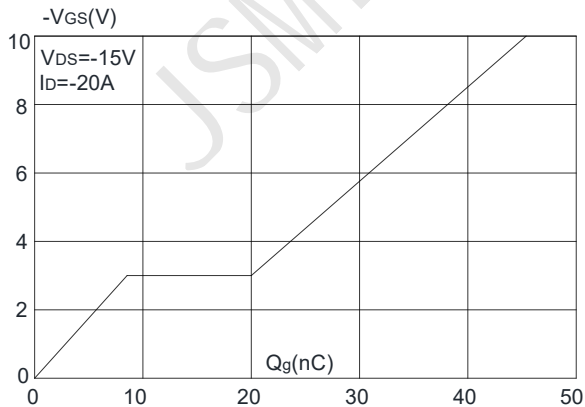


Figure 5: Gate Charge Characteristics

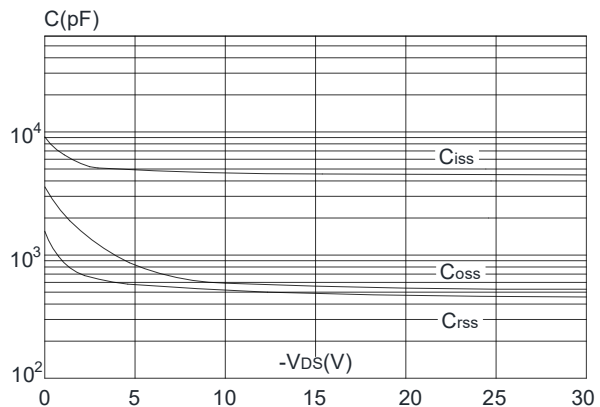


Figure 6: Capacitance Characteristics

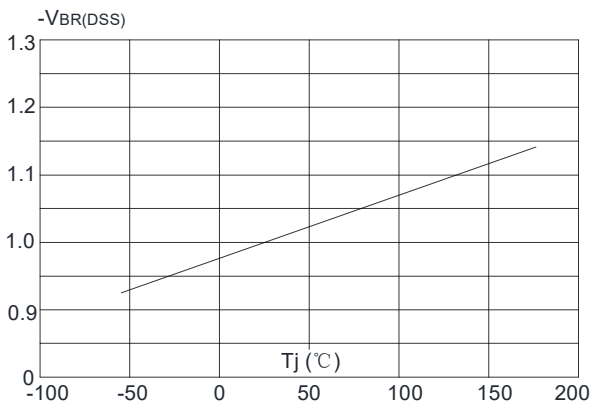


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

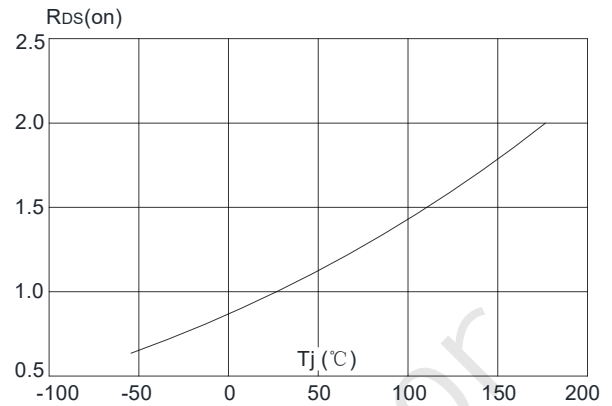


Figure 8: Normalized on Resistance vs. Junction Temperature

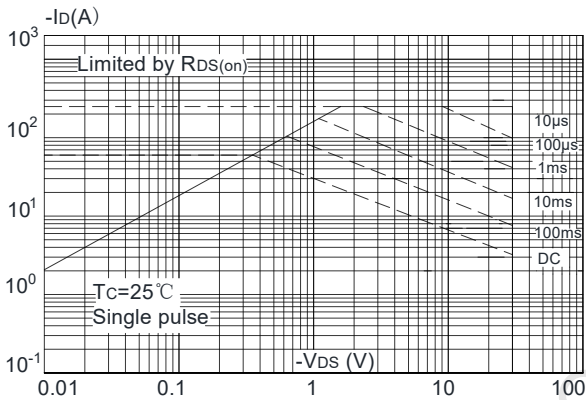


Figure 9: Maximum Safe Operating Area

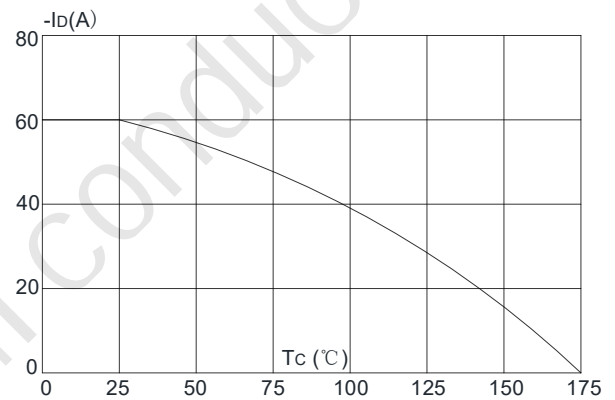


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

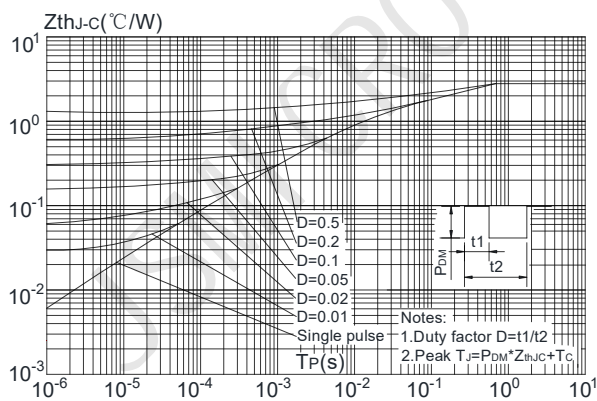


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

外形尺寸图 / Package Dimensions

