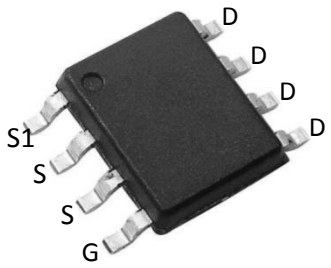
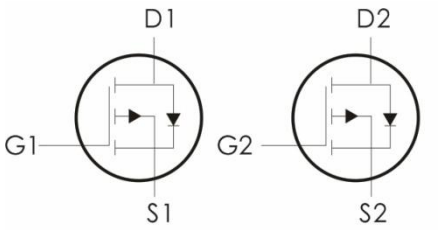
## Description：

This Dual 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,$I_D$=-7A,$R_{DS(ON)}$<20mΩ @$V_{GS}$=-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-TC=25℃ | -7 | A |
| | Continuous Drain Current-TC=100℃ | -5.1 | |
| | Pulsed Drain Current[1] | -32 | |
| $E_{AS}$ | Single Pulse Avalanche Energy | --- | mJ |
| $P_D$ | Power Dissipation($T_C$=25℃) | 2.1 | W |
| $T_J$, $T_{STG}$ | Operating and Storage Junction Temperature Range | -55 to +150 | ℃ |

## Thermal Characteristics：

| Symbol | Parameter | Max | Units |
|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance,Junction to Case | --- | ℃/W |
| $R_{\theta JA}$ | Thermal Resistance,Junction to Ambient | 60 | |

## 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 | $V_{DS}$=-30V , $V_{GS}$=0V , $T_J$=25℃ | --- | --- | -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 | -1.0 | -1.6 | -2.5 | V |
| $R_{DS(ON)}$ | Drain-Source On Resistance[2] | $V_{GS}$=-10V,$I_D$=-8A | --- | 16.5 | 20 | mΩ |
| | | $V_{GS}$=-4.5V,$I_D$=-5A | --- | 25.6 | 32 | |
| $G_{FS}$ | Forward Transconductance | $V_{DS}$=-10V, $I_D$=-3A | --- | 6.8 | --- | S |
| **Dynamic Characteristics** | | | | | | |
| $C_{iss}$ | Input Capacitance | $V_{DS}$=-15V, $V_{GS}$=0V, f=1MHz | --- | 1250 | 1820 | pF |
| $C_{oss}$ | Output Capacitance | | --- | 160 | 235 | |
| $C_{rss}$ | Reverse Transfer Capacitance | | --- | 90 | 130 | |
| **Switching Characteristics** | | | | | | |
| $t_{d(on)}$ | Turn-On Delay Time[2,3] | $V_{DD}$=-15V , $V_{GS}$=-10V , $R_G$=6,$I_D$=-1A | --- | 5.8 | 11 | ns |
| $t_r$ | Rise Time[2,3] | | --- | 18.8 | 36 | ns |
| $t_{d(off)}$ | Turn-Off Delay Time[2,3] | | --- | 46.9 | 89 | ns |
| $t_f$ | Fall Time[2,3] | | --- | 12.3 | 23 | ns |
| $Q_g$ | Total Gate Charge[2,3] | $V_{DS}$=-15V , $VG_S$=-4.5V , $I_D$=-5A | --- | 11 | 17 | nC |
| $Q_{gs}$ | Gate-Source Charge[2,3] | | --- | 3.4 | 6 | nC |
| $Q_{gd}$ | Gate-Drain “Miller” Charge[2,3] | | --- | 4.2 | 8 | nC |
| **Drain-Source Diode Characteristics** | | | | | | |
| $V_{SD}$ | Source-Drain Diode Forward Voltage[2] | $V_{GS}$=0V,$I_S$=-1A | --- | --- | -1 | V |

## Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.

2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%.

3. Essentially independent of operating temperature.

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

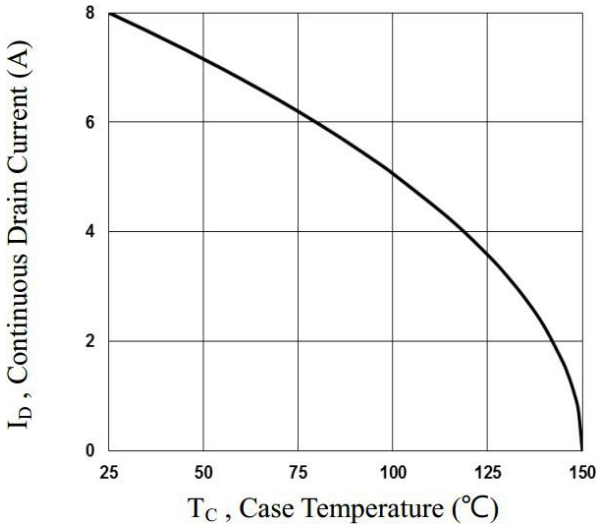



**Fig.1 Continuous Drain Current vs. $T_C$**

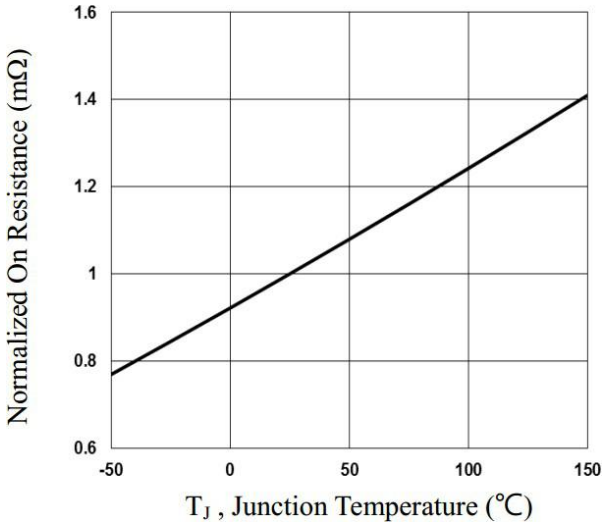



**Fig.2 Normalized $R_{DSON}$ vs. $T_J$**

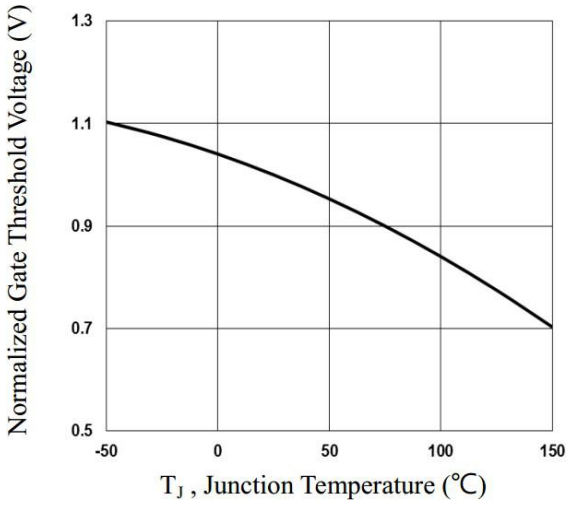



**Fig.3 Normalized $V_{th}$ vs. $T_J$**

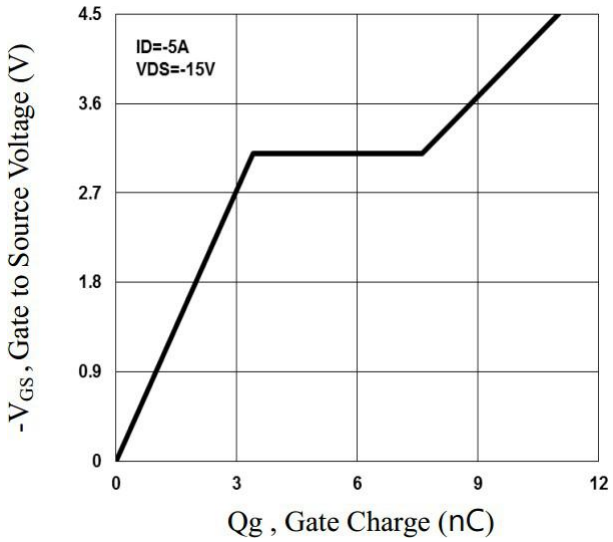



**Fig.4 Gate Charge Waveform**

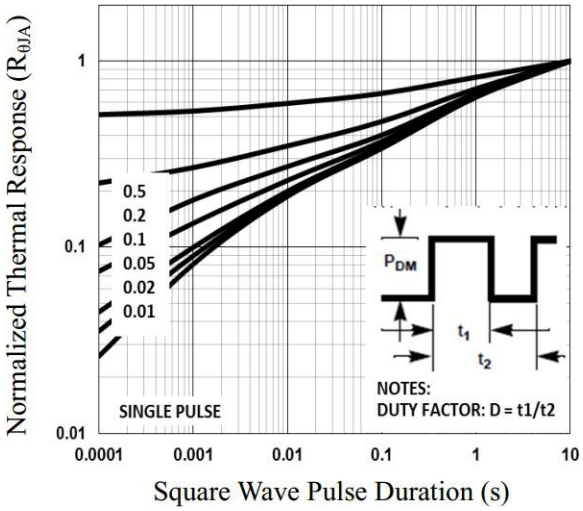



**Fig.5 Normalized Transient Impedance**

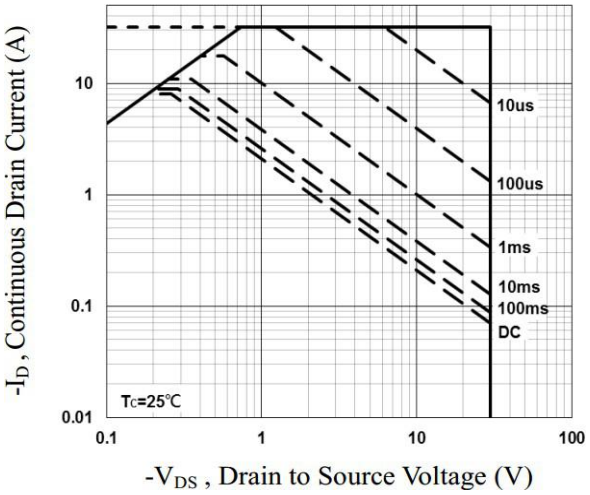



**Fig.6 Maximum Safe Operation Area**

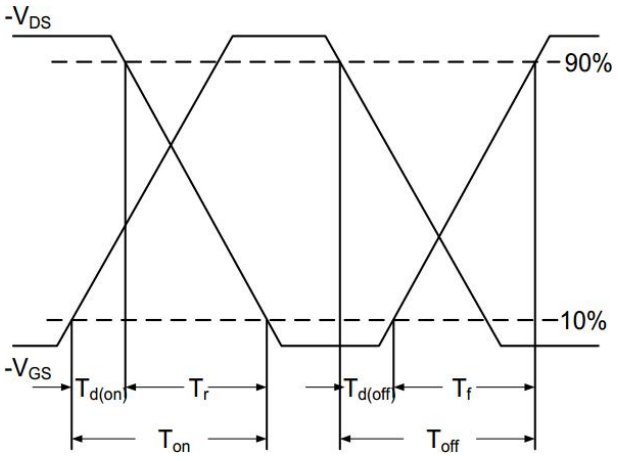



**Fig.7 Switching Time Waveform**

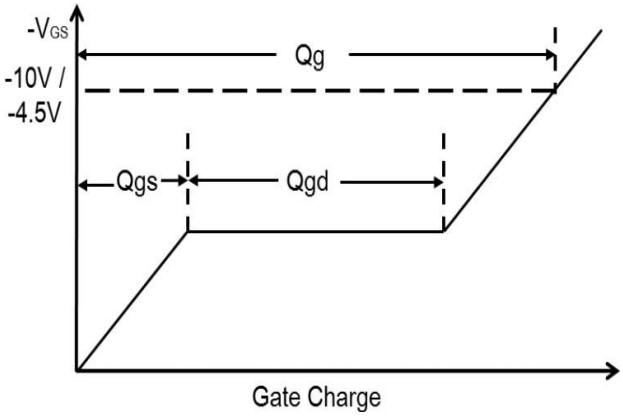



**Fig.8 Gate Charge Waveform**