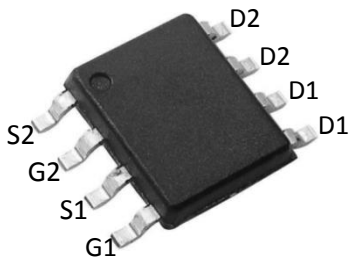
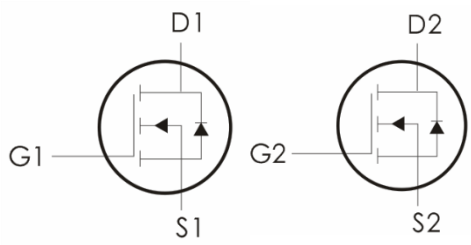
## Description：

This Dual 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) $V_{DS}$=100V,$I_D$=2.7A,$R_{DS(ON)}$<135mΩ @$V_{GS}$=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： ($T_A$=25℃ unless otherwise noted)

| Symbol | Parameter | Ratings | Units |
|---|---|---|---|
| $V_{DS}$ | Drain-Source Voltage | 100 | V |
| $V_{GS}$ | Gate-Source Voltage | ±20 | V |
| $I_D$ | Drain Current – Continuous ($T_A$=25℃) | 2.7 | A |
| | Drain Current – Continuous ($T_A$=100℃) | 2 | |
| $I_{DM}$ | Drain Current – Pulsed[1] | 10 | |
| $P_D$ | Power Dissipation ($T_A$=25℃) | 2.2 | W |
| | Power Dissipation – Derate above 25℃ | --- | |
| $T_J$, $T_{STG}$ | 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 | 56 | |

## Package Marking and Ordering Information：

| Part NO. | Marking | Package |
|---|---|---|
| **SH130DNG** | H130DN | SOP-8 |

## 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 | 100 | --- | --- | V |
| $I_{DSS}$ | Drain-Source Leakage Current | $V_{DS}$=80V , $V_{GS}$=0V | --- | --- | 25 | uA |
| $I_{GSS}$ | Gate-Source Leakage Current | $V_{GS}$=±20V, $V_{DS}$=0V | --- | --- | ±100 | nA |
| **On Characteristics** | | | | | | |
| $V_{GS(th)}$ | GATE-Source Threshold Voltage | $V_{GS}$=$V_{DS}$, $I_D$=250μA | 1 | 1.7 | 3 | V |
| △VGS(th) | VGS(th) Temperature Coefficient | | --- | --- | --- | mV/℃ |
| $R_{DS(ON)}$ | Static Drain-Source On Resistance | $V_{GS}$=10V,$I_D$=3A | --- | 112 | 135 | mΩ |
| | | $V_{GS}$=4.5V,$I_D$=2A | --- | 120 | 145 | |
| $G_{FS}$ | Forward Transconductance | $V_{DS}$=5V, $I_D$=3A | --- | 11 | --- | S |
| **Dynamic Characteristics**[4] | | | | | | |
| $C_{iss}$ | Input Capacitance | $V_{DS}$=25V, $V_{GS}$=0V, f=1MHz | --- | 610 | 980 | pF |
| $C_{oss}$ | Output Capacitance | | --- | 40 | --- | |
| $C_{rss}$ | Reverse Transfer Capacitance | | --- | 25 | --- | |
| **Switching Characteristics** | | | | | | |
| $t_{d(on)}$ | Turn-On Delay Time[2,3] | $V_{DS}$=50V, $I_D$=1A, $R_{GEN}$=3.3Ω , $V_{GS}$=10V | --- | 7 | --- | ns |
| $t_r$ | Rise Time[2,3] | | --- | 5 | --- | ns |
| $t_{d(off)}$ | Turn-Off Delay Time[2,3] | | --- | 16 | --- | ns |
| $t_f$ | Fall Time[2,3] | | --- | 6 | --- | ns |
| $Q_g$ | Total Gate Charge[2,3] | $V_{GS}$=10V, $V_{DS}$=80V, $I_D$=3A | --- | 12 | 20 | nC |
| $Q_{gs}$ | Gate-Source Charge[2,3] | | --- | 2.2 | --- | nC |
| $Q_{gd}$ | Gate-Drain “Miller” Charge[2,3] | | --- | 2.5 | --- | nC |
| **Drain-Source Diode Characteristics** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| $V_{SD}$ | Source-Drain Diode Forward Voltage[3] | $V_{GS}$=0V,$I_S$=2A,$T_J$=25℃ | --- | --- | 1.2 | V |
| Trr | Reverse Recovery Timel | Is=3A, $V_{GS}$=0V dI/dt=100A/μs | --- | 22 | --- | nS |
| Qrr | Reverse Recovery Charge | | --- | 23 | --- | 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, t ≤10sec ; 125 ℃/W when mounted on Min. copper pad.

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

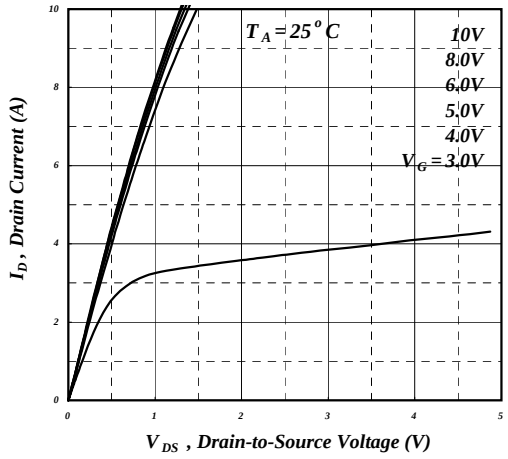



**Fig 1. Typical Output Characteristics**

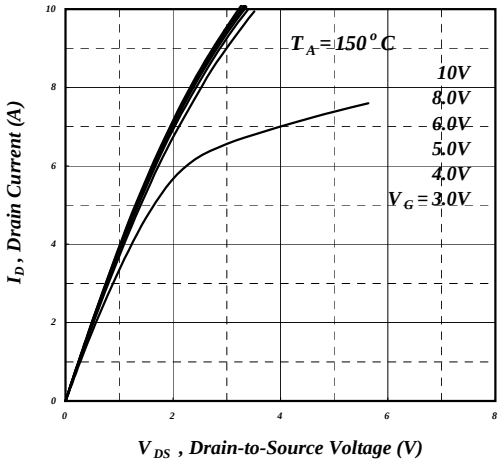



**Fig 2. Typical Output Characteristics**

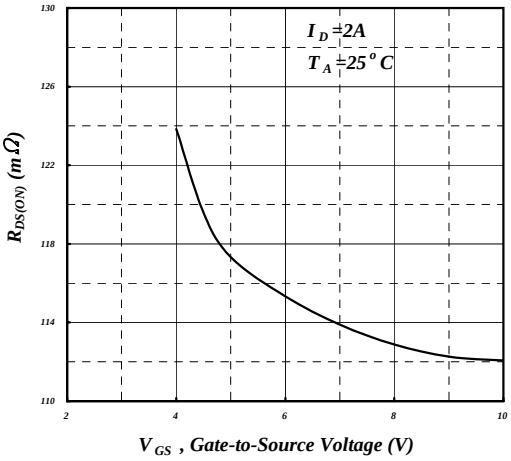



**Fig 3. On-Resistance v.s. Gate Voltage**

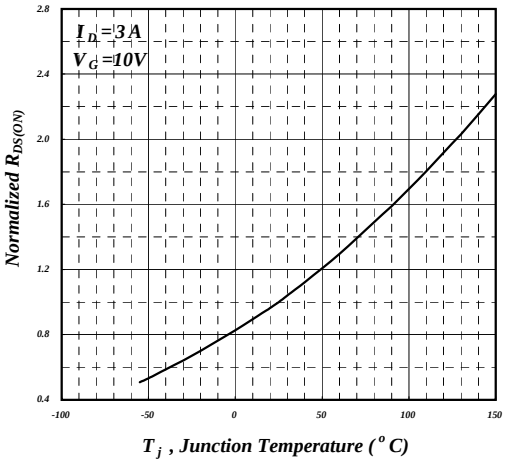



**Fig 4. Normalized On-Resistance v.s. Junction Temperature**

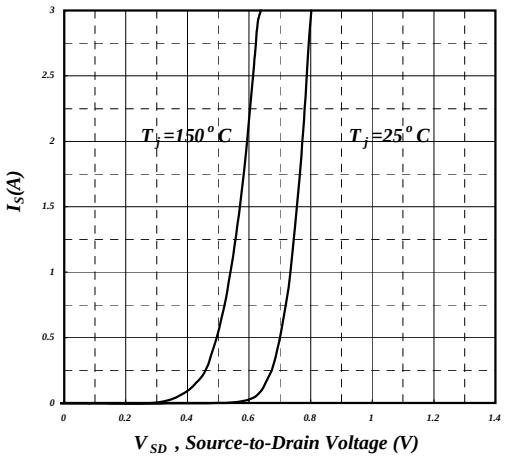



**Fig 5. Forward Characteristic of Reverse Diode**

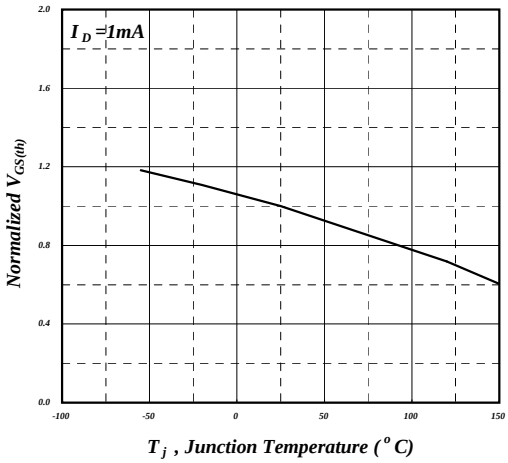



**Fig 6. Gate Threshold Voltage v.s. Junction Temperature**

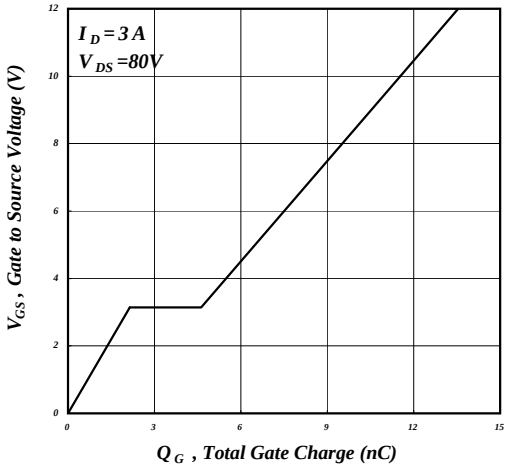



**Fig 7. Gate Charge Characteristics**

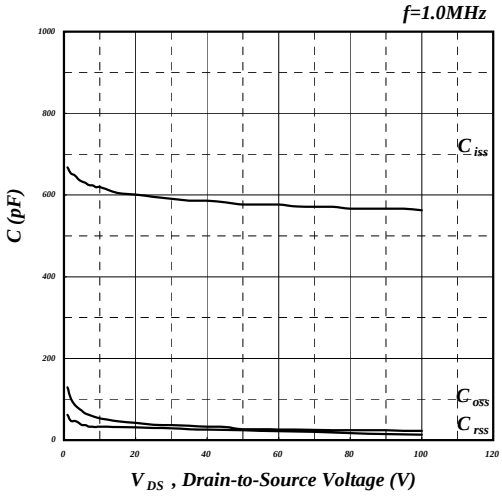



**Fig 8. Typical Capacitance Characteristics**

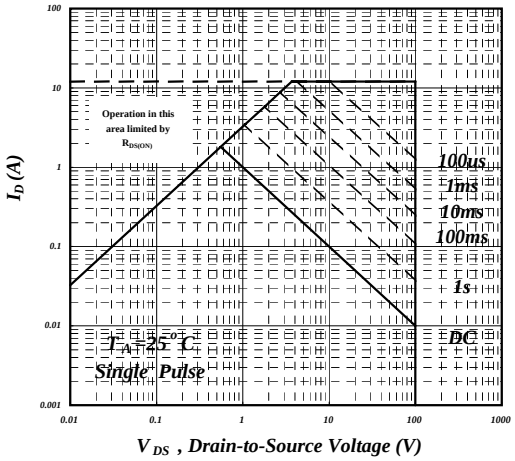



**Fig 9. Maximum Safe Operating Area**

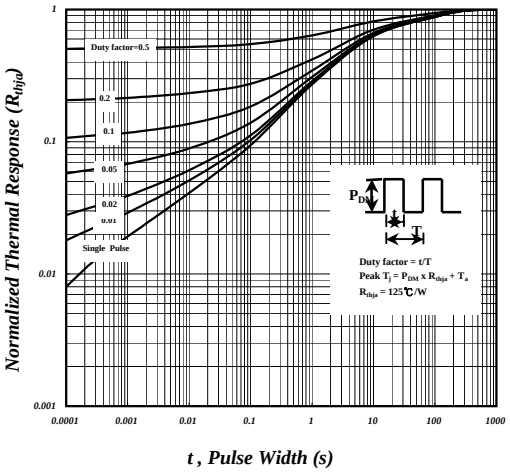



**Fig 10. Effective Transient Thermal Impedance**

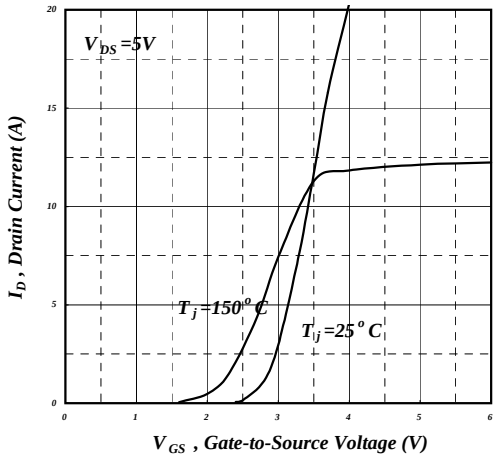



**Fig 11. Transfer Characteristics**

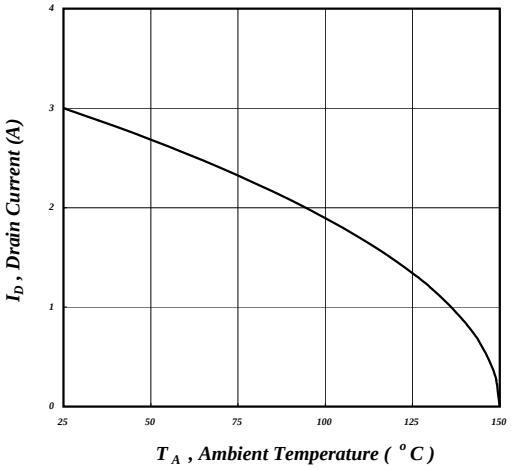



**Fig 12. Drain Current v.s. Ambient Temperature**

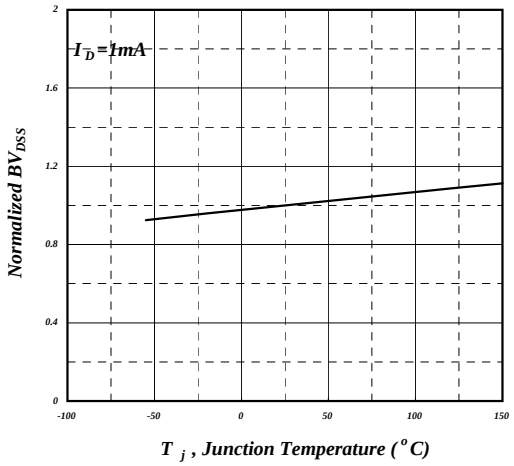



**Fig 13. Normalized BV DSS v.s. Junction Temperature**

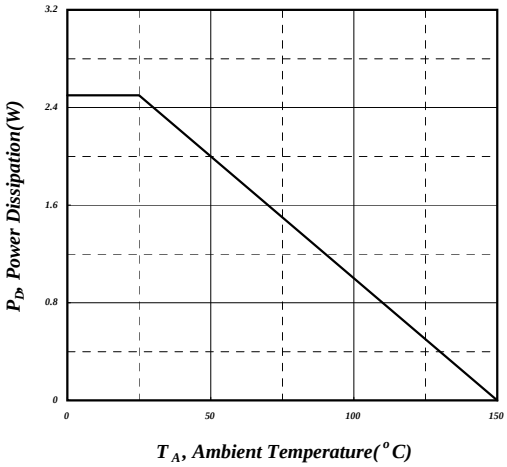



**Fig 14. Total Power Dissipation**

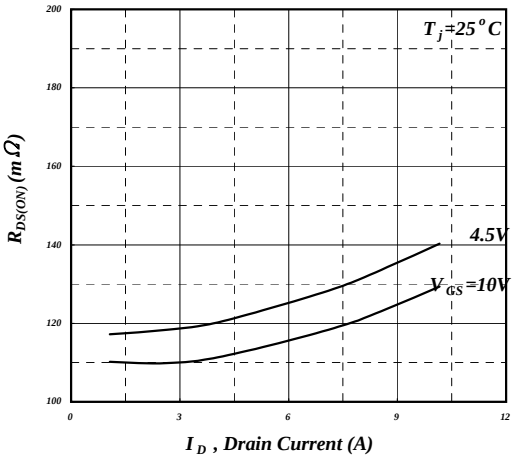



**Fig 15. Typ. Drain-Source on State Resistance**