## 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.
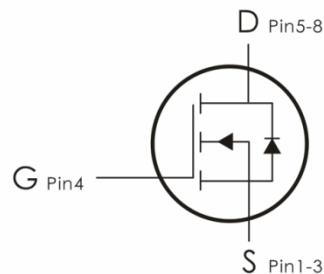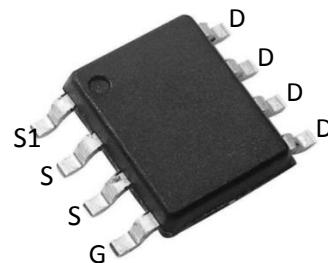
Features：

1) V_{DS}=60V, I_D=8A, $R_{DS(ON)}$<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	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current － Continuous (T$_C$=25℃)	8	A
	Drain Current － Continuous (T$_C$=100℃)	5.6	
I_{DM}	Drain Current － Pulsed[1]	32	
P_D	Power Dissipation (T$_C$=25℃)	2.1	W
	Power Dissipation － Derate above 25℃	---	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	

STS7NF60L

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	60	---	---	V
△BVDSS/△TJ	BVDSS Temperature Coefficient	Reference to 25℃ , I_D=1mA	---	---	---	V/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=0V , V_{GS}=0V , T_J=125℃	---	---	10	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	1.6	2.2	V
△VGS(th)	VGS(th) Temperature Coefficient		---	---	---	mV/℃
$R_{DS(ON)}$	Static Drain-Source On Resistance	V_{GS}=10V,I_D=8A	---	15.6	20	mΩ
		V_{GS}=4.5V,I_D=8A	---	20	28	
G_{FS}	Forward Transconductance	V_{DS}=5V, I_D=8A	18	---	---	S
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{DS}=30V, V_{GS}=0V, f=1MHz	---	1600	---	pF
C_{oss}	Output Capacitance		---	112	---	
C_{rss}	Reverse Transfer Capacitance		---	98	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time[2,3]	V_{DS}=30V, , R_L=1Ω R_{GEN}=3Ω , V_{GS}=10V	---	---	---	ns
t_r	Rise Time[2,3]		---	5.5	---	ns
$t_{d(off)}$	Turn-Off Delay Time[2,3]		---	29	---	ns
t_f	Fall Time[2,3]		---	4.5	---	ns

Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=30V, I_D=8A	---	38.5	---	nC
Q_{gs}	Gate-Source Charge		---	4.7	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	10.3	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[3]	V_{GS}=0V,I_S=8A,T_J=25℃	---	---	1.	V
I_S	Continuous Source Current	---	---	---	8	A
Trr	Reverse Recovery Time	TJ = 25°C, IF =8A di/dt = 100A/μs[Note3]	---	28	---	Ns
Qrr	Reverse Recovery Charge		---	40	---	Nc

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Characteristics： (T_C=25℃ unless otherwise noted)
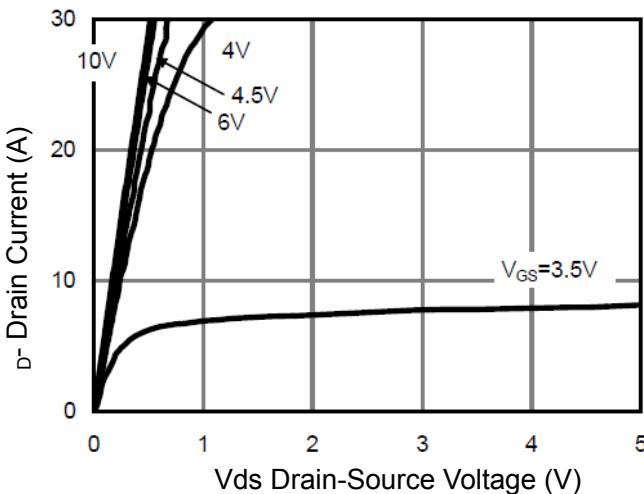
Figure 1 Output Characteristics
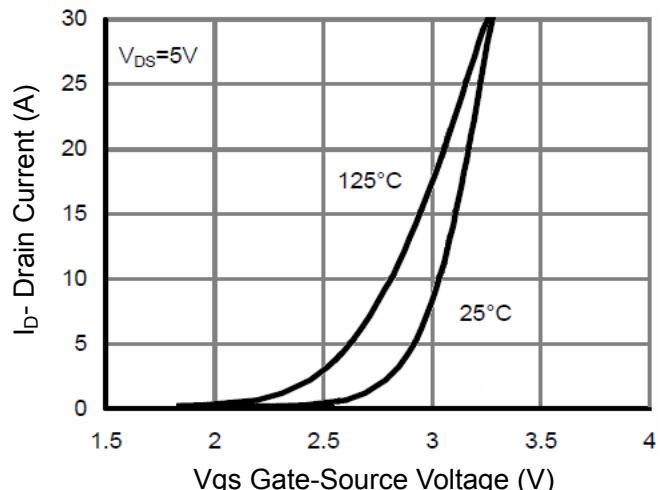
Figure 2 Transfer Characteristics
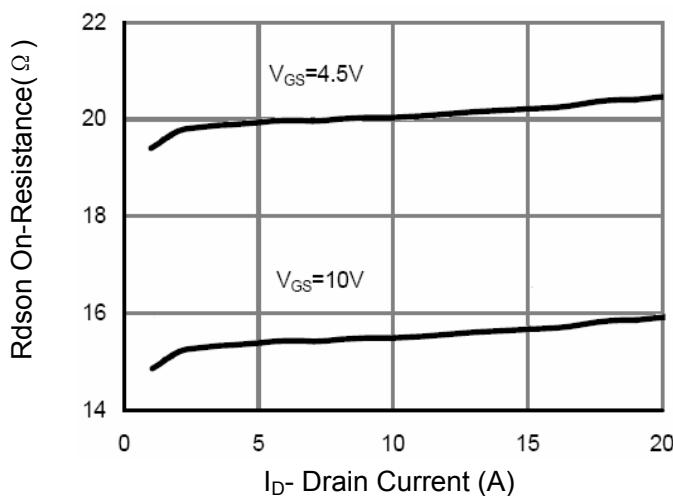
**Figure 3 Rdson- Drain Current**
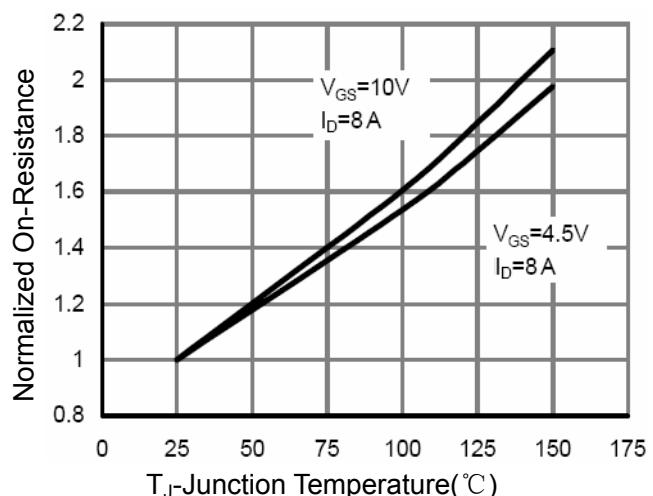

Figure 4 Rdson-JunctionTemperature
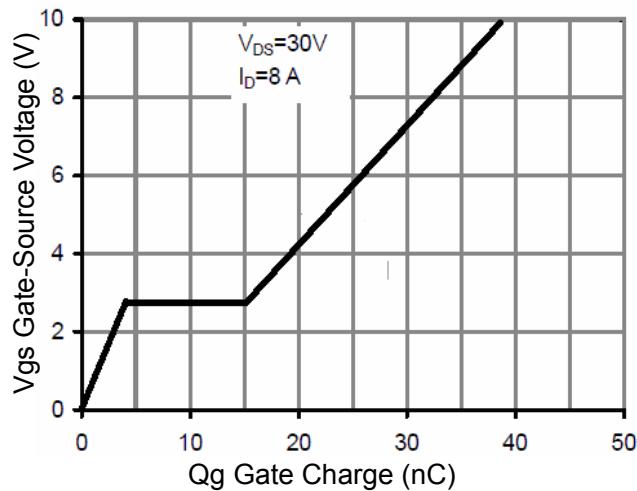

Figure 5 Gate Charge
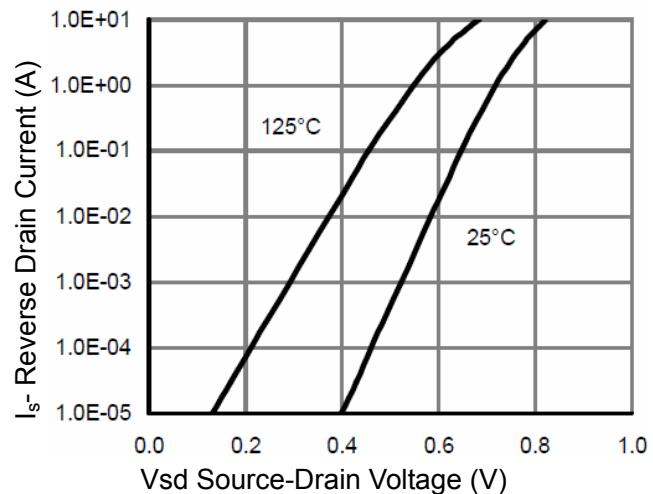
**Figure 6 Source- Drain Diode Forward**
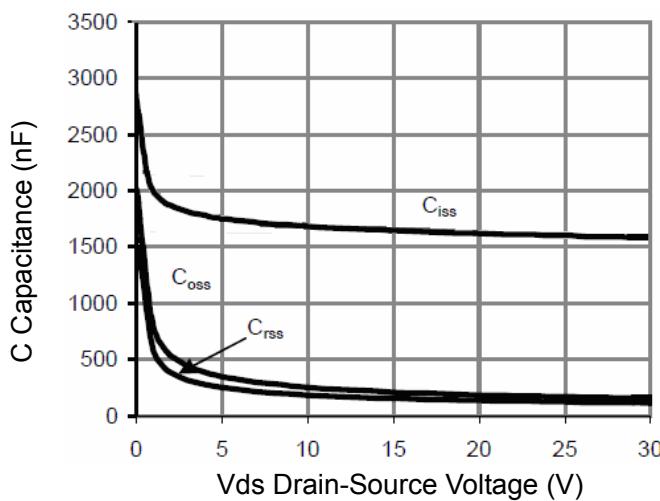
**Figure 7 Capacitance vs Vds**
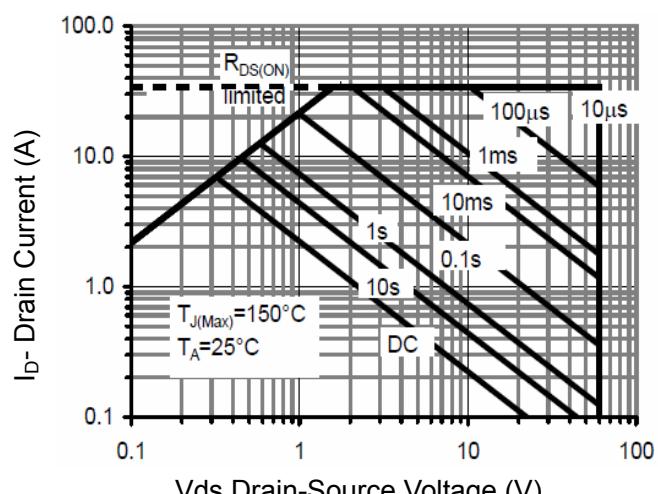

**Figure 8 Safe Operation Area**
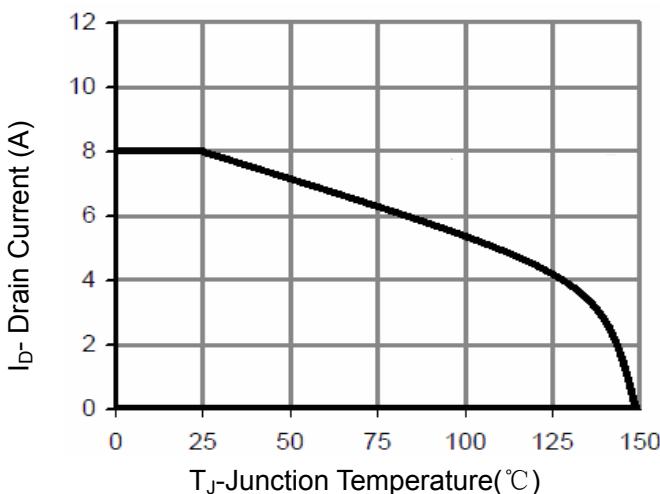
Figure 9 Current De-rating
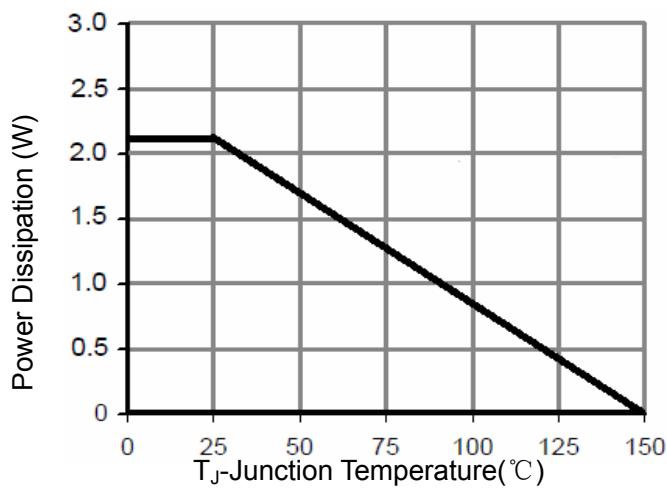
Figure 10 Power De-rating
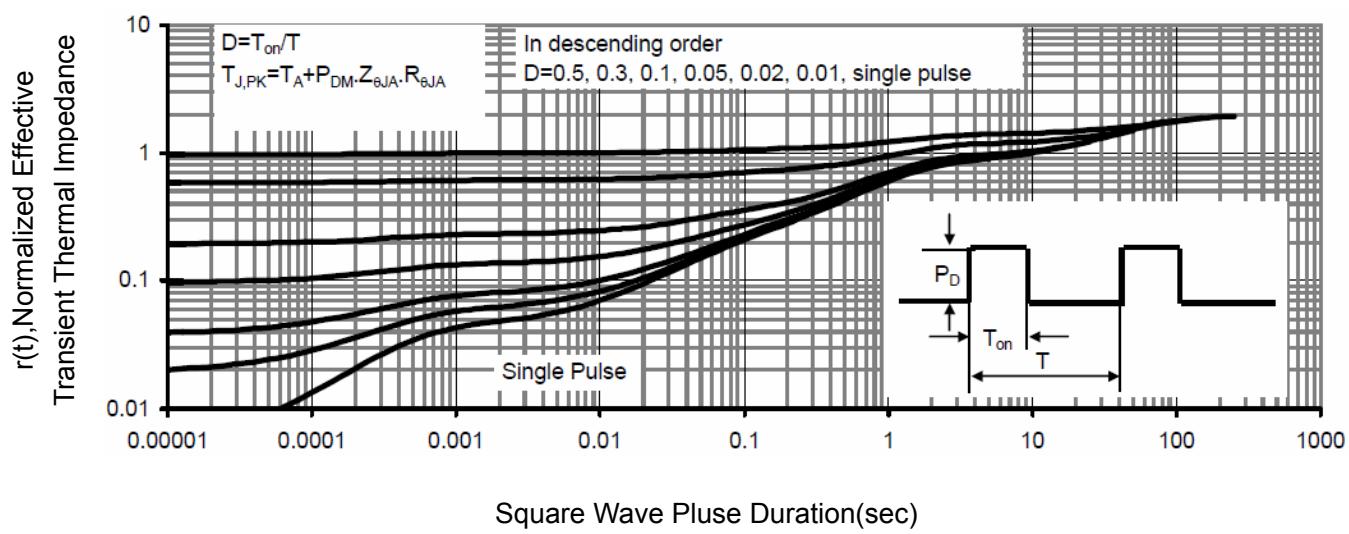
Figure 11 Normalized Maximum Transient Thermal Impedance

0086- 0755- 8278- 9056

www.doingter.cn