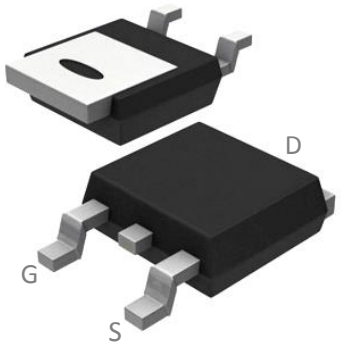
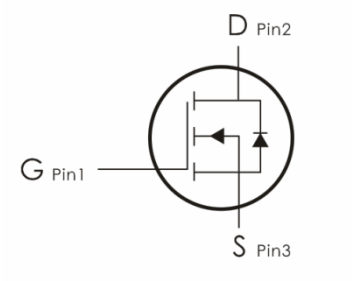
Description：

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}=100V,I_D=12A,$R_{DS(ON)}$<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_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current-T_C=25℃	12	A
	Continuous Drain Current-T_C=100℃	5.1	
	Pulsed Drain Current[1]	28	
E_{AS}	Single Pulse Avalanche Energy4	8	mJ
P_D	Power Dissipation,T_C=25℃	20.8	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	6	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient3	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	100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=80V	---	---	25	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=5A	---	---	135	mΩ
		V_{GS}=4.5V,I_D=3A	---	---	145	
G_{FS}	Forward Transconductance	V_{DS}=10V, I_D=5A	---	17	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=50V, V_{GS}=0V, f=1MHz	---	580	928	pF
C_{oss}	Output Capacitance		---	27	---	
C_{rss}	Reverse Transfer Capacitance		---	19	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=50V, I_D=5A, V_{GS}=10V,R_{GEN}=3.3Ω	---	6	---	ns
t_r	Rise Time		---	8	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	14	---	ns
t_f	Fall Time		---	3	---	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=10V, I_D=20A	---	27	30	nC
Q_{gs}	Gate-Source Charge		---	6.5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	6.4	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[2]	V_{GS}=0V,I_S=5A	---	---	1.3	V

trr	Reverse Recovery Timel	V_{GS}=0V,I_S=5A dI/dt=100A/¦Ìs	---	20	---	Ns
Q_{rr}	Reverse Recovery Charge		---	18	---	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

4 4.Starting Tj=25℃,V_{DD}=50V,,L=1mH,Rg=25Ω,

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

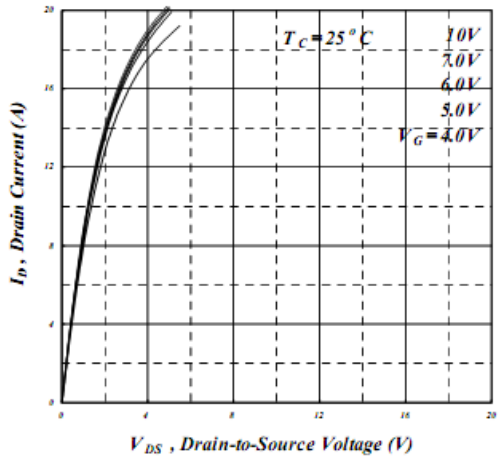


Fig 1. Typical Output Characteristics

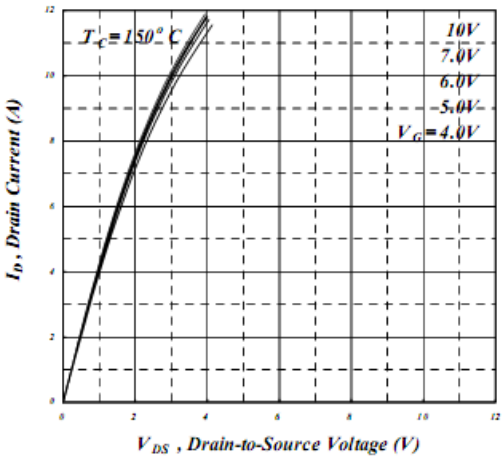


Fig 2. Typical Output Characteristics

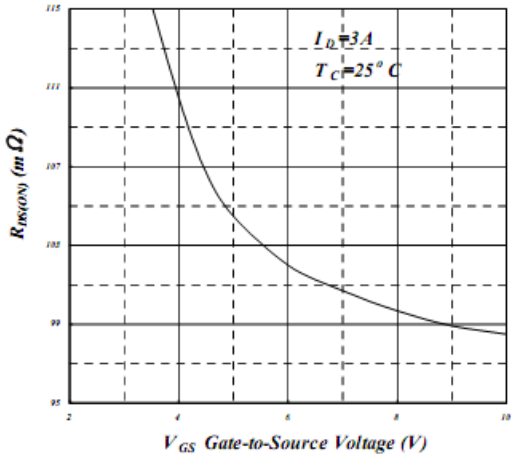


Fig 3. On-Resistance v.s. Gate Voltage

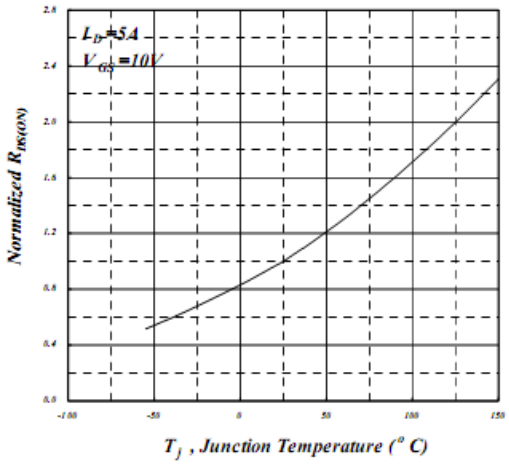


Fig 4. Normalized On-Resistance v.s. Junction Temperature

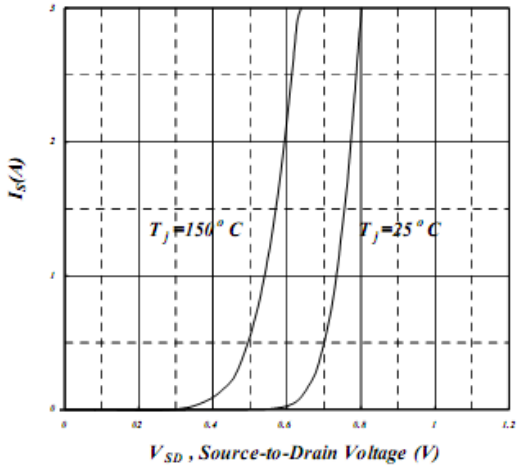


Fig 5. Forward Characteristic of Reverse Diode

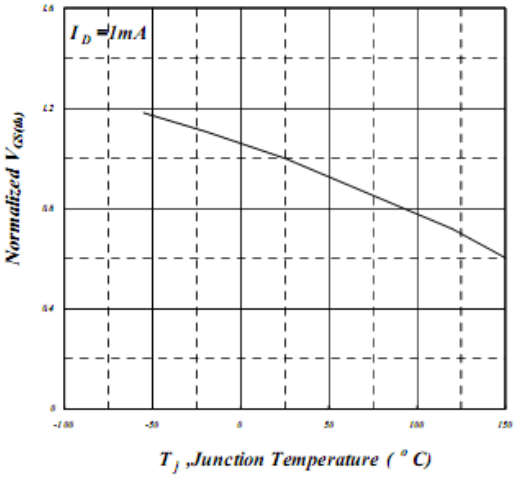


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

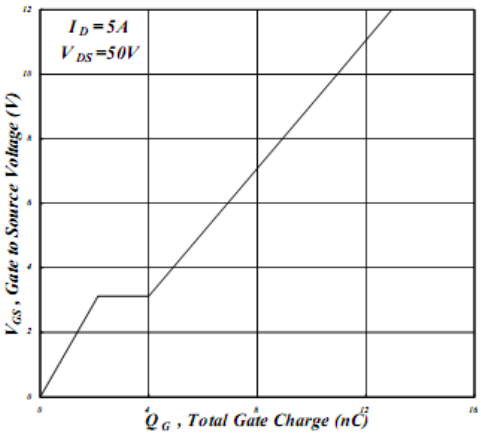


Fig 7. Gate Charge Characteristics

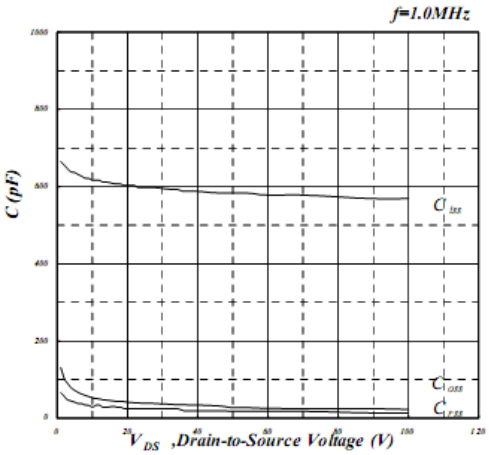


Fig 8. Typical Capacitance Characteristics

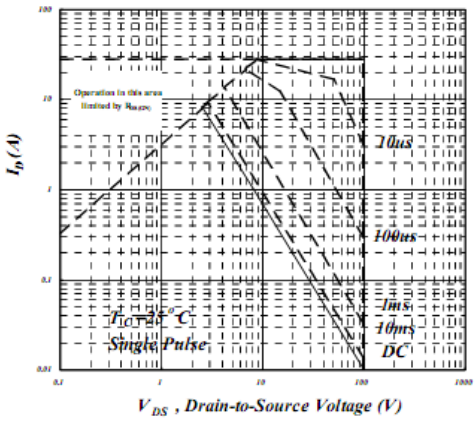


Fig 9. Maximum Safe Operating Area

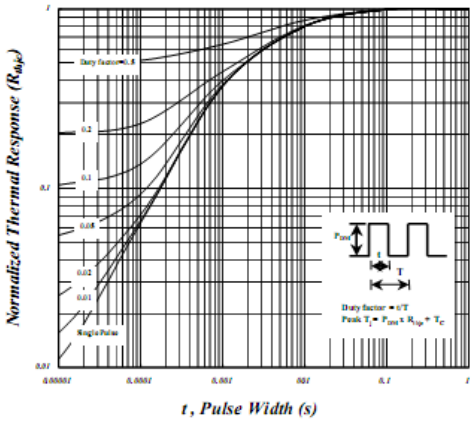


Fig 10. Effective Transient Thermal Impedance

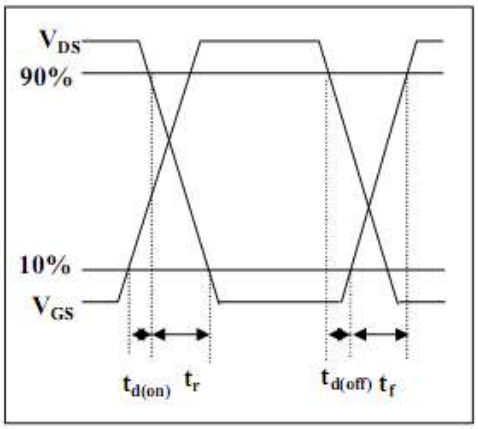


Fig 11. Switching Time Waveform

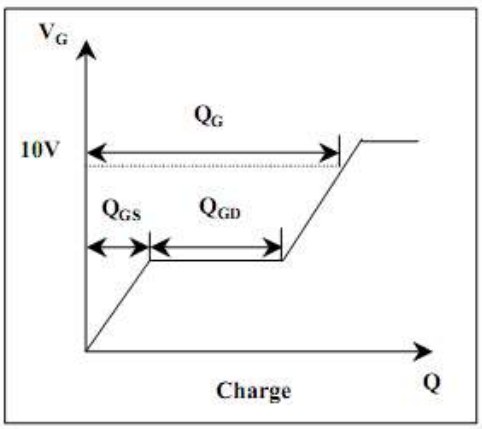


Fig 12. Gate Charge Waveform

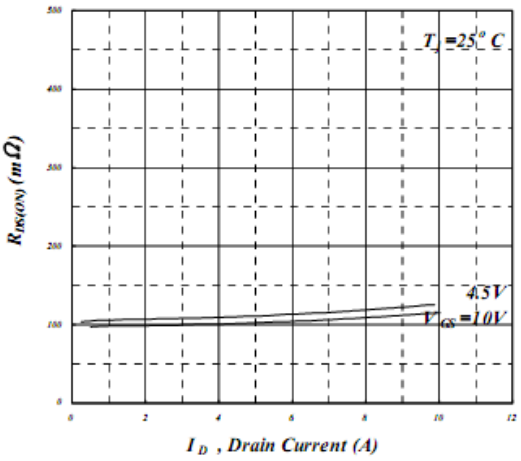


Fig 13. Typ. Drain-Source on State Resistance

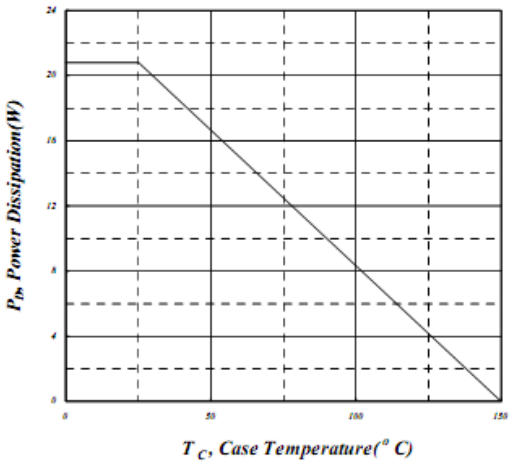


Fig 14. Total Power Dissipation

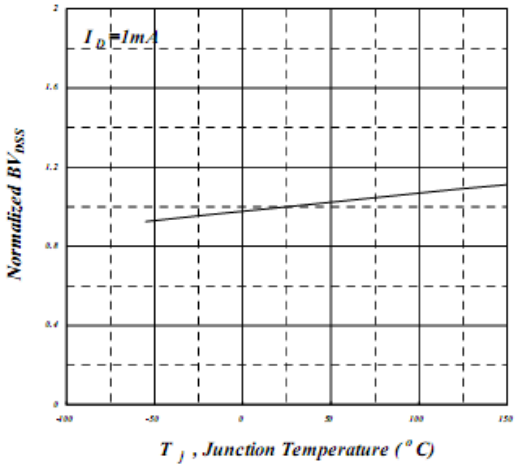


Fig 15. Normalized BV_{DSS} v.s. Junction