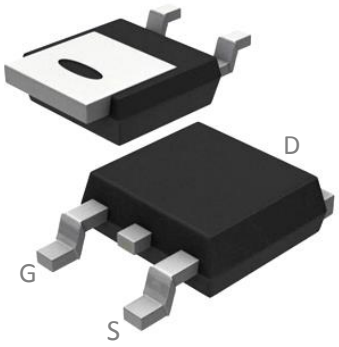
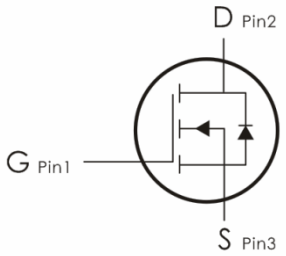
Description：

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}=600V,I_D=4A,$R_{DS(ON)}$<2.5Ω @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	600	V
V_{GS}	Gate-Source Voltage	±30	V
I_D	Continuous Drain Current-T_C=25℃	4	A
	Continuous Drain Current-T_C=100℃	2.5*	
	Pulsed Drain Current[1]	16*	
E_{AS}	Single Pulse Avalanche Energy[2]	240	mJ
P_D	Power Dissipation,T_C=25℃[4]	51	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	2.5	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	83	

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	600	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=600V	---	---	10	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±30V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	2	---	4	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=2A	---	2	2.5	Ω
		V_{GS}=4.5V,I_D=4A	---	50	60	
G_{FS}	Forward Transconductance 4	V_{DS}=40V, I_D=2A	---	4.7	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	710	920	pF
C_{oss}	Output Capacitance		---	65	85	
C_{rss}	Reverse Transfer Capacitance		---	14	19	
Switching Characteristics[4.5]						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=300V, I_D=4A, V_{GS}=10V,R_{GEN}=25Ω	---	20	50	ns
t_r	Rise Time		---	55	120	ns
$t_{d(off)}$	Turn-Off Delay Time		---	70	150	ns
t_f	Fall Time		---	55	120	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=480V, I_D=4A	---	27	30	nC
Q_{gs}	Gate-Source Charge		---	3.6	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	13.1	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage	V_{GS}=0V,I_S=4A	---	---	1.4	V

trr	Reverse Recovery Time[4]	V_{GS}=0V, I_S=4.0A dI_F/dt=100A/μs	330	---	Ns
qrr	Reverse Recovery Charge[4]		2.67	---	nc

Notes:

1：Pulse width limited by maximum junction temperature

2：L=25mH, I_{AS}=4.0A, V_{DD}=50V, R_G=25 Ω,Starting T_J=25℃

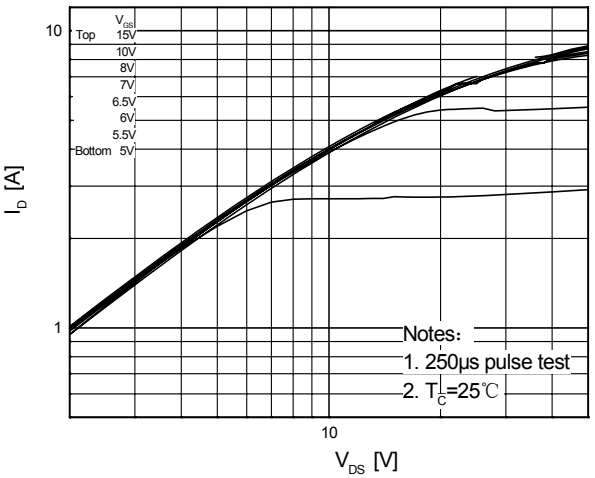
3： I_{SD} ≤4.0A,di/dt ≤200A/μs,VDD≤BV_{DSS}, Starting T_J=25℃

4：Pulse Test：Pulse Width ≤300μs,Duty Cycle≤2%

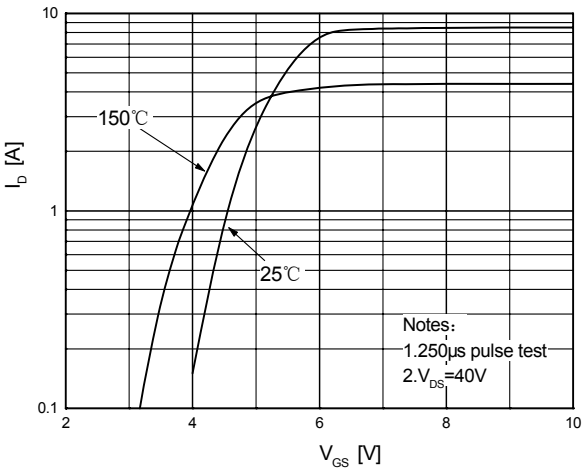
5：Essentially independent of operating temperature

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

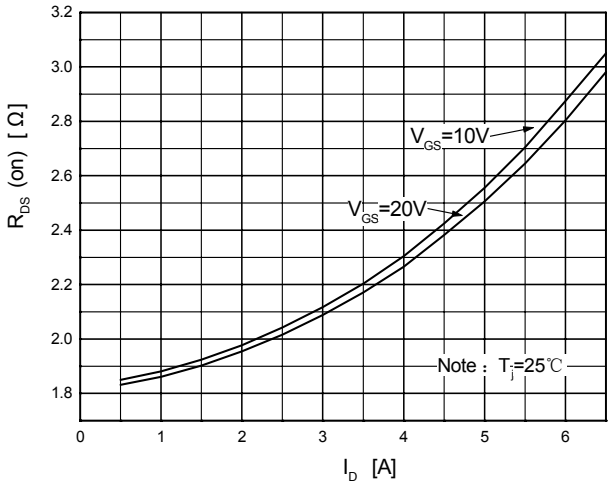
On-Region Characteristics



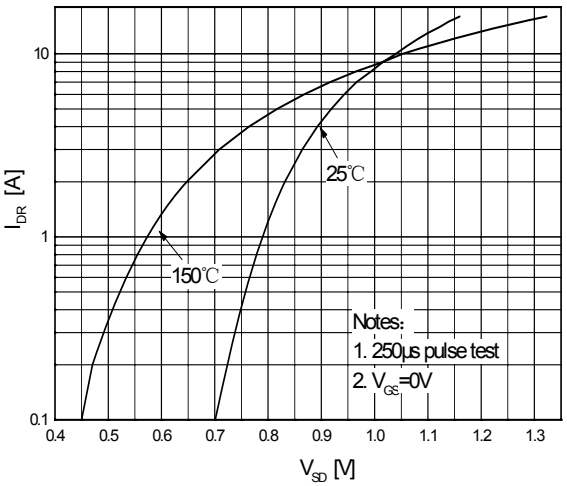
Transfer Characteristics



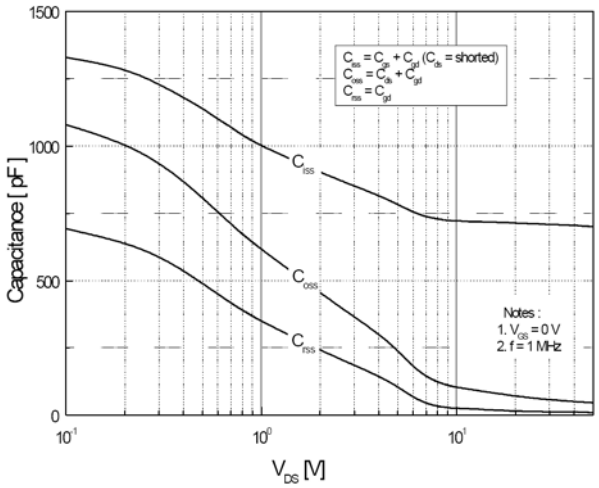
On-Resistance Variation vs. Drain Current and Gate Voltage



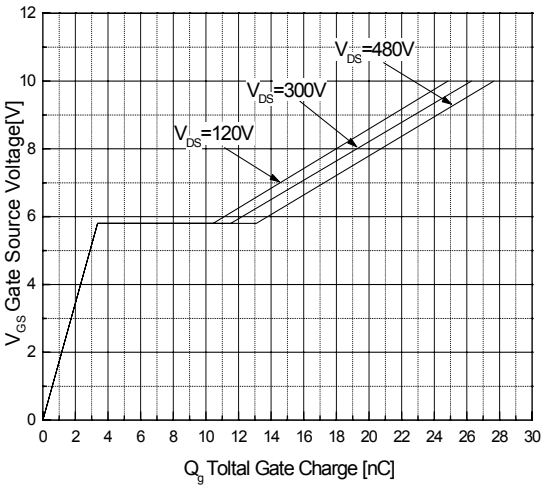
Body Diode Forward Voltage Variation vs. Source Current and Temperature



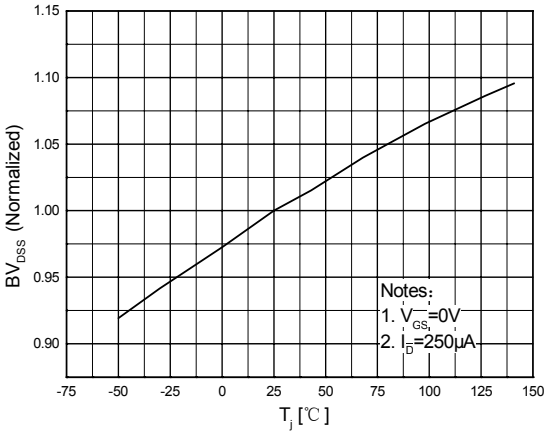
Capacitance Characteristics



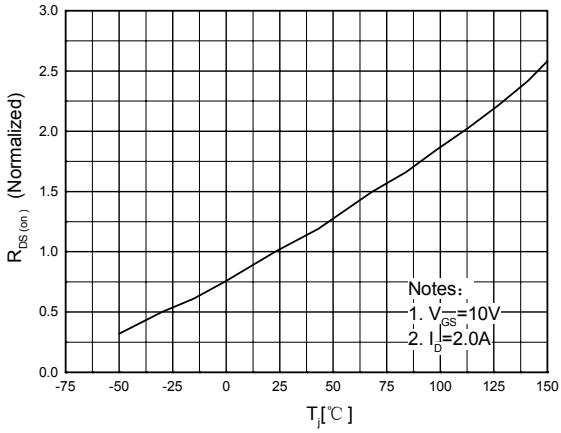
Gate Charge Characteristics



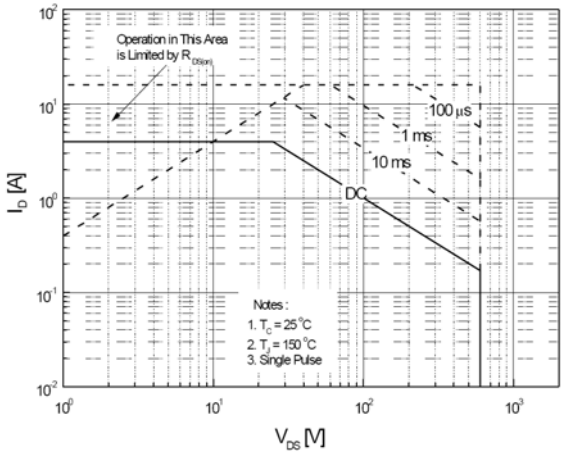
Breakdown Voltage Variation vs. Temperature



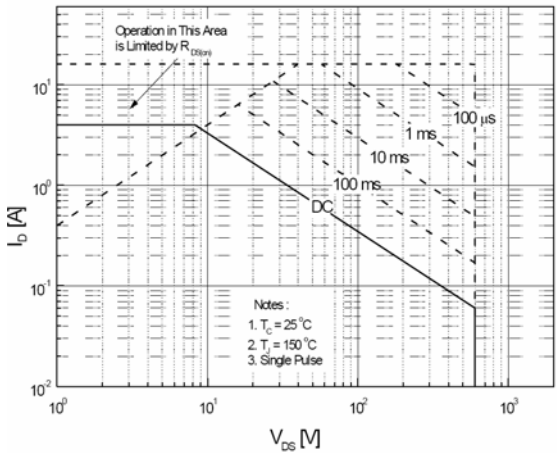
On-Resistance Variation vs. Temperature



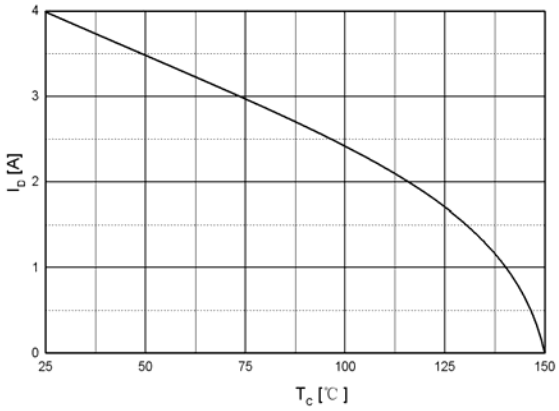
Maximum Safe Operating Area



Maximum Safe Operating Area



Maximum Drain Current vs. Case Temperature



Transient Thermal Response Curve