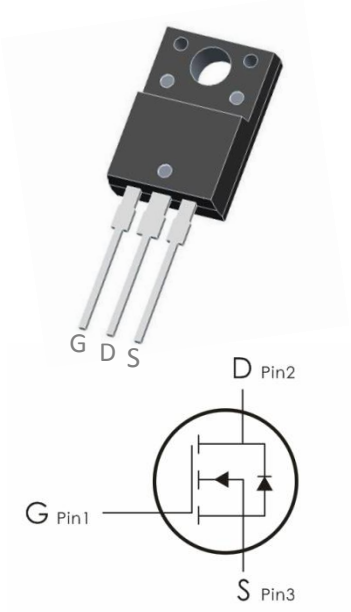
Description：

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}=200V,I_D=18A,$R_{DS(ON)}$<1.8Ω @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
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	200	V
V_{GS}	Gate-Source Voltage	±30	V
I_D	Continuous Drain Current- T_C=25℃	18	A
	Continuous Drain Current-T_C=100℃	11.9	
E_{AS}	Single Pulse Avalanche Energy(Note1)	250	mJ
I_{AR}	Avalanche Current (Note2)	18	A
P_D	Power Dissipation	139	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃
TL	Maximum lead temperature for soldering purpose,1/8" from case for 5 seconds	300	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	3.1	℃/W

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$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	62.5	℃/W

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	200	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=200V	---	---	1	μA
		V_{DS}=160V, T_C=125℃	---	---	10	
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=10A	---	---	1.8	Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	---	800	1050	pF
C_{oss}	Output Capacitance		---	185	250	
C_{rss}	Reverse Transfer Capacitance		---	20	30	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=100V,.I_D=18A R_G=25Ω. (Note3,4)	---	16	40	ns
t_r	Rise Time		---	133	275	ns
$t_{d(off)}$	Turn-Off Delay Time		---	38	85	ns
t_f	Fall Time		---	62	135	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=160V I_D=18A. (Note3,4)	---	20	26	nC
Q_{gs}	Gate-Source Charge		---	5.6	---	nC
Q_{gd}	Gate-Drain Charge		---	10	---	nC
Drain-Source Diode Characteristics						

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V_{SD}	Source-Drain Diode Forward Voltage	I_D=9A	---	---	1.5	V
I_S	Max. Diode Forward Current	---	---	---	18	A
I_{SM}	Max. Pulsed Forward Curent	---	---	---	72	A
Trr	Reverse Recovery Time	I_S=9A,V_{GS} =0V diF/dt=100A/μs (Note3)	---	158	---	Ns
qrr	Reverse Recovery Charge		---	1	---	μ C

Notes:

1, L=3.0mH, IAS=9A, VDD=50V, RG=25Ω, Starting TJ =25°C

2, Repetitive Rating : Pulse width limited by maximum junction temperature

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

4, Essentially Independent of Operating Temperature

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

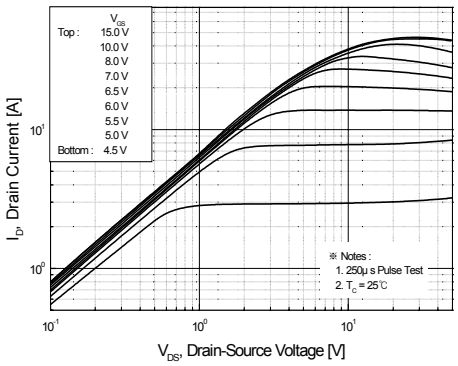


Figure 1. On-Region Characteristics

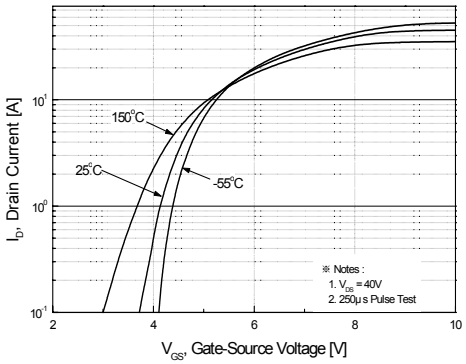


Figure 2. Transfer Characteristics

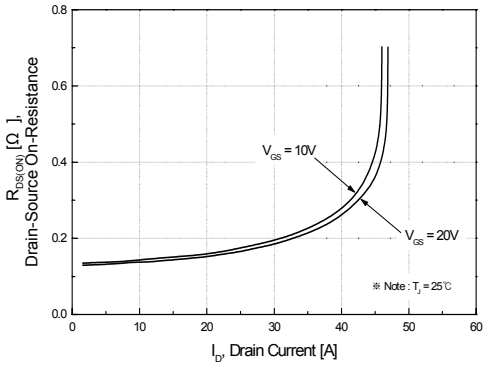


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

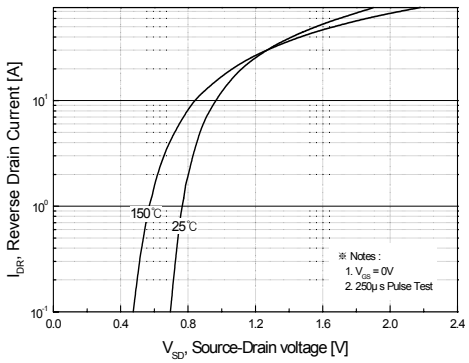


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

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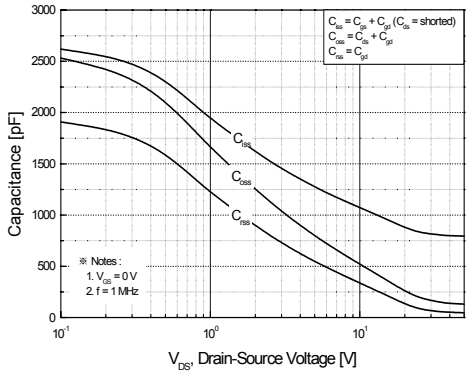


Figure 5. Capacitance Characteristics

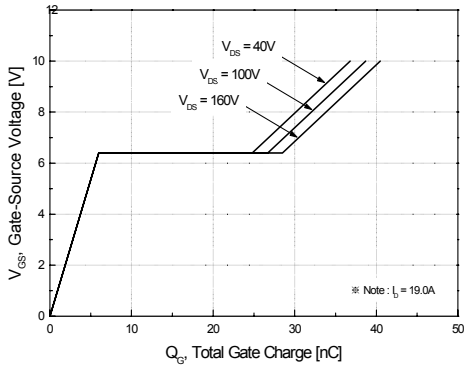


Figure 6. Gate Charge Characteristics

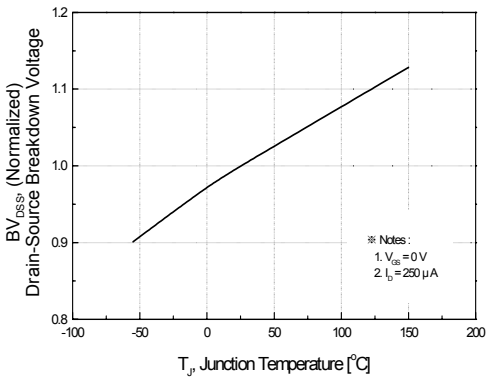


Figure 7. Breakdown Voltage Variation vs Temperature

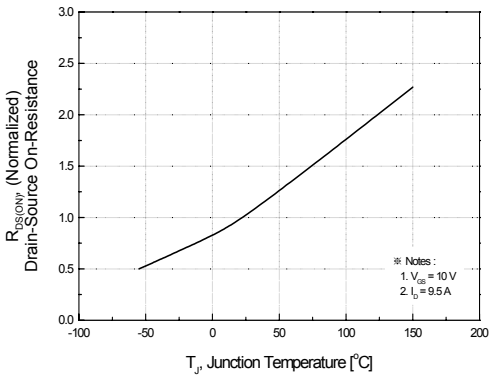


Figure 8. On-Resistance Variation vs Temperature

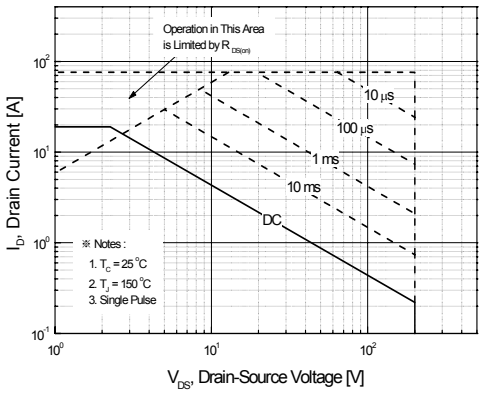


Figure 9-2. Maximum Safe Operating Area

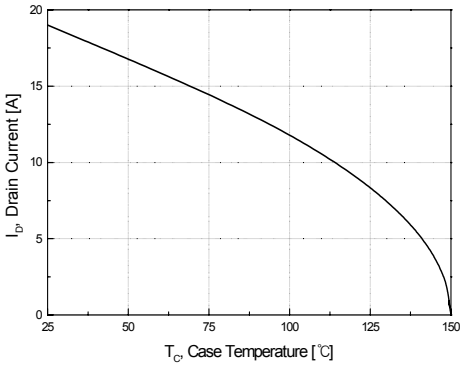


Figure 10. Maximum Drain Current vs Case Temperature

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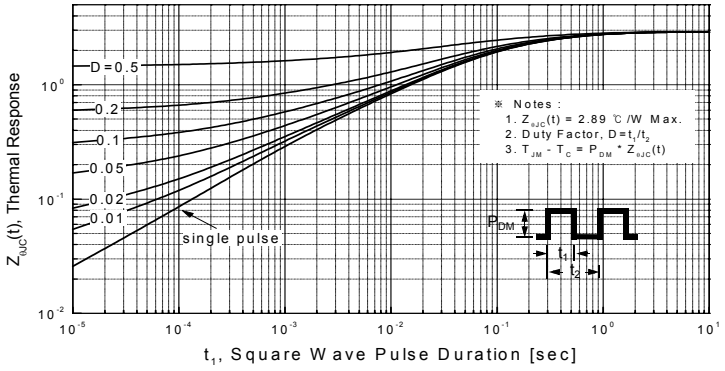


Figure 11-2. Transient Thermal Response Curve

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