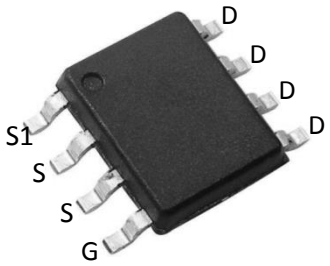
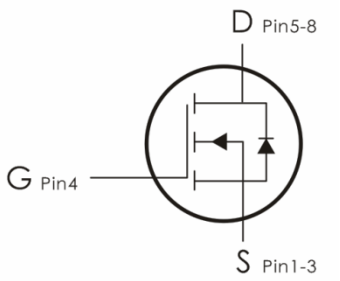
Description：

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=7A,$R_{DS(ON)}$<35mΩ @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℃)	7	A
	Drain Current – Continuous (T_C=100℃)	3.8	
I_{DM}	Drain Current – Pulsed[1]	20	
P_D	Power Dissipation (T_C=25℃)	1.5	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	36	℃/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	85	

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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	---	0.63	---	V/℃
I_{DSS}	Drain-Source Leakage Current	V_{DS}=48V , 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	1.2	---	2.5	V
△VGS(th)	VGS(th) Temperature Coefficient		---	-5.24	---	mV/℃
$R_{DS(ON)}$	Static Drain-Source On Resistance	V_{GS}=10V,I_D=4A	---	---	35	mΩ
		V_{GS}=4.5V,I_D=2A	---	---	38	
G_{FS}	Forward Transconductance	V_{DS}=5V, I_D=4A	---	21	---	S
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	1378	---	pF
C_{oss}	Output Capacitance		---	86	---	
C_{rss}	Reverse Transfer Capacitance		---	64	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time[2,3]	V_{DD}=30V, I_D=4A, R_{GEN}=3.3Ω , V_{GS}=10V	---	8	---	ns
t_r	Rise Time[2,3]		---	14.2	---	ns
$t_{d(off)}$	Turn-Off Delay Time[2,3]		---	24.4	---	ns
t_f	Fall Time[2,3]		---	4.6	---	ns

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Q_g	Total Gate Charge[2,3]	V_{GS}=4.5V, V_{DS}=48V, I_D=4A	---	12.6	---	nC
Q_{gs}	Gate-Source Charge[2,3]		---	3.2	---	nC
Q_{gd}	Gate-Drain "Miller" Charge[2,3]		---	6.3	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[3]	V_{GS}=0V,I_S=1A,T_J=25℃	---	---	1.2	V
I_S	Continuous Source Current	VG=VD=0V , Force Current	---	---	4.8	A
I_{SM}	Pulsed Source Current		---	---	9.6	A

Notes:

1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=22.6A
4.The power dissipation is limited by 150℃ junction temperature
5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

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

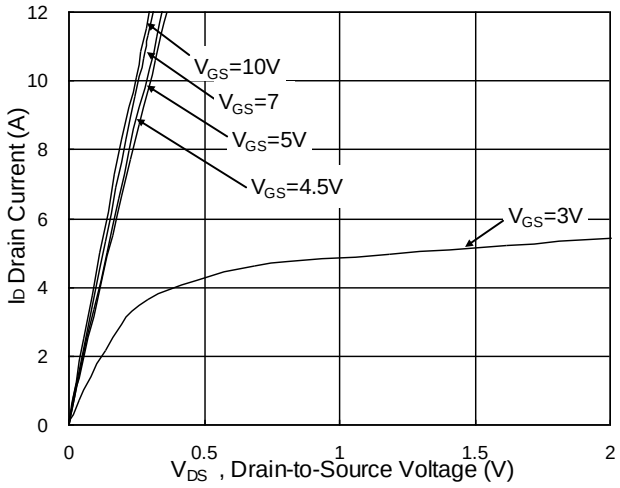


Fig.1 Typical Output Characteristics

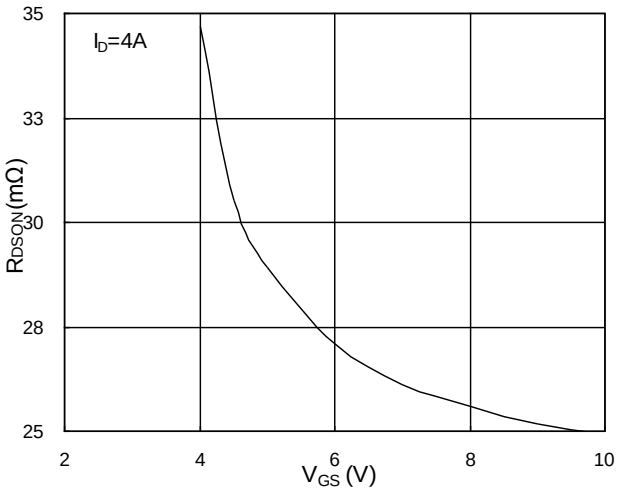


Fig.2 On-Resistance v.s Gate-Source

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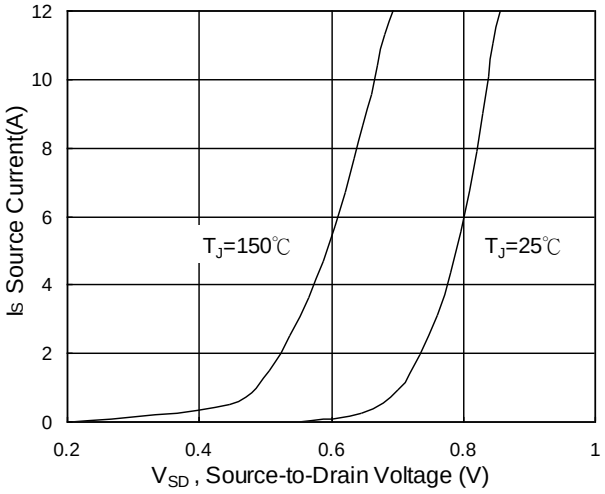


Fig.3 Forward Characteristics of Reverse

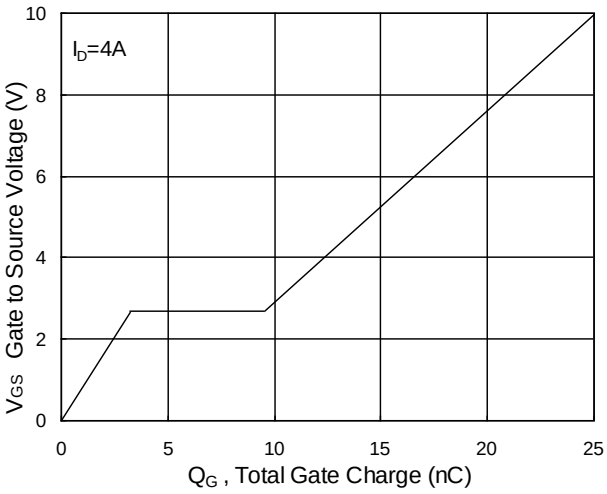


Fig.4 Gate-Charge Characteristics

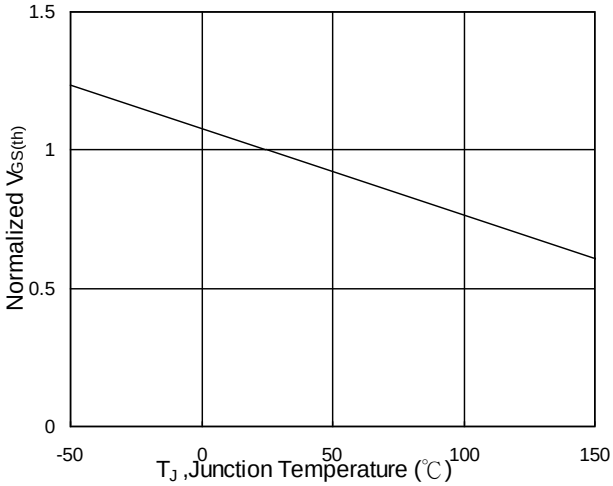


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

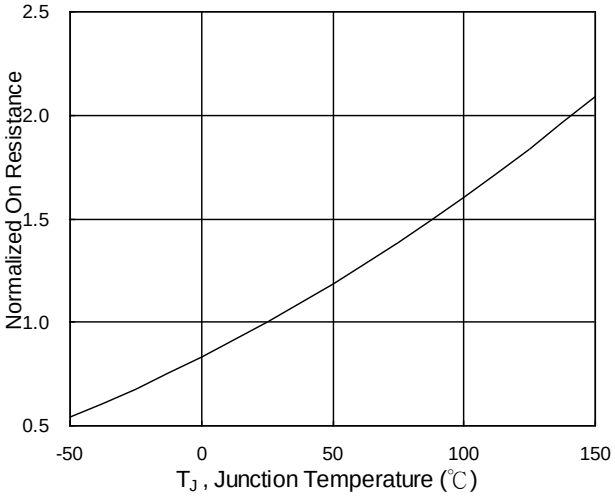


Fig.6 Normalized R_{DSON} v.s T_J

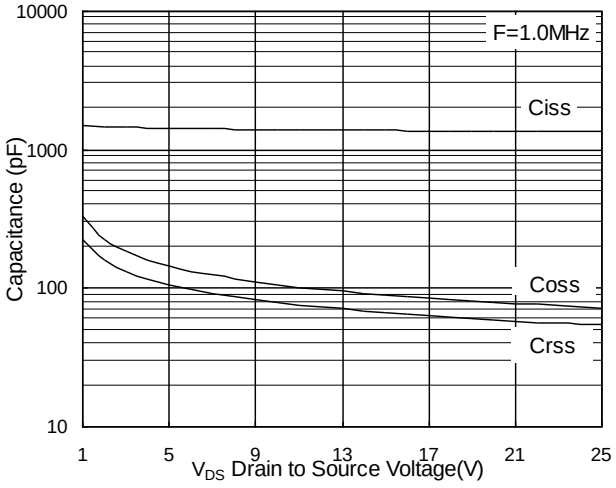


Fig.7 Capacitance

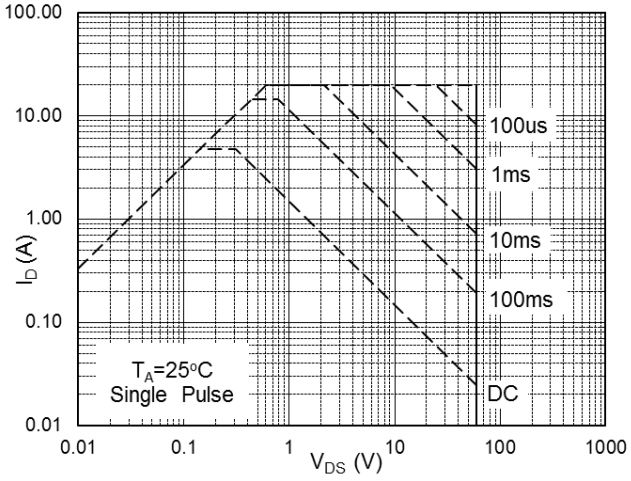


Fig.8 Safe Operating Area

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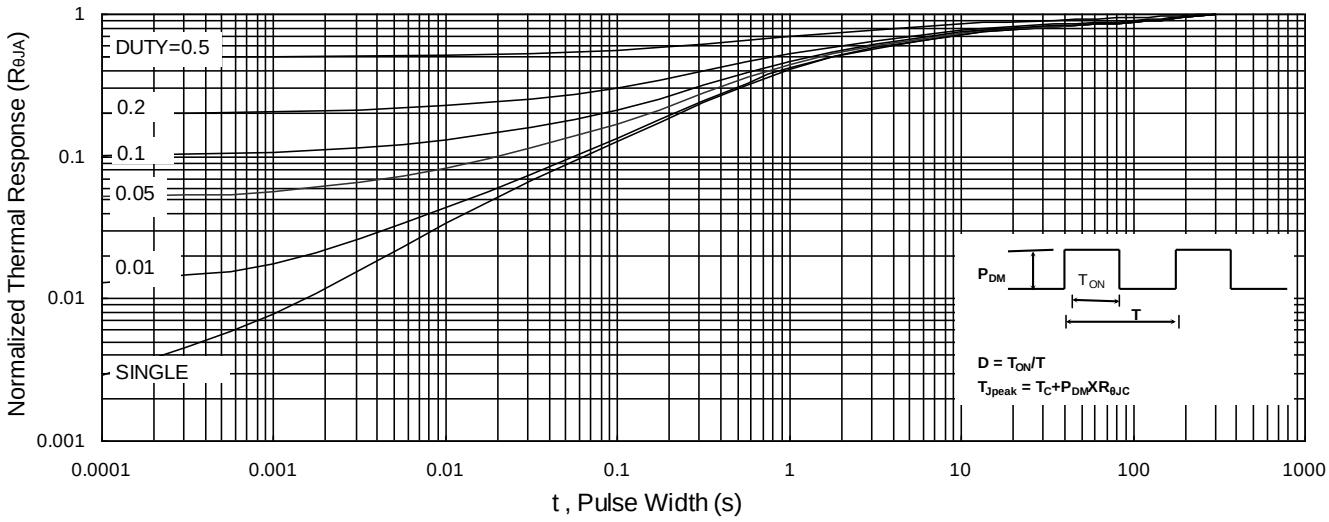


Fig.9 Normalized Maximum Transient Thermal Impedance

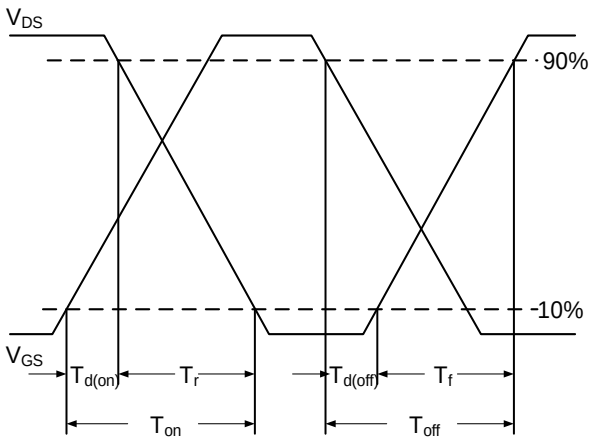


Fig.10 Switching Time Waveform

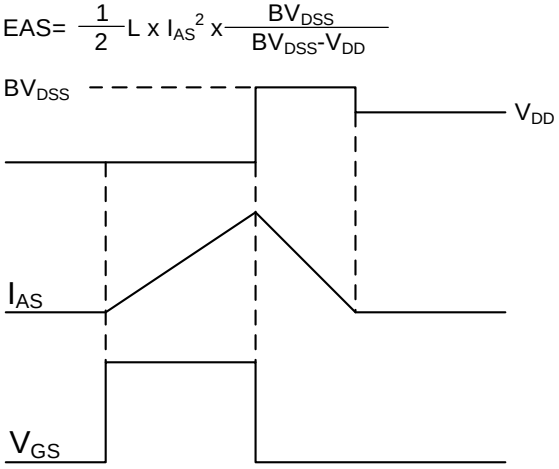


Fig.11 Unclamped Inductive Waveform

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