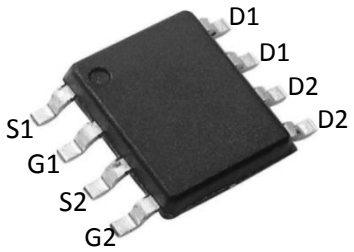
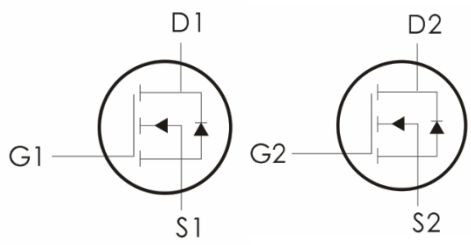
Description：

This Dual 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}=20V,I_D=12A,$R_{DS(ON)}$<11m Ω @V_{GS}=4.5V
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	20	V
V_{GS}	Gate-Source Voltage	±10	V
I_D	Continuous Drain Current-	12	A
	Pulsed Drain Current[1]	45	
P_D	Power Dissipation	2	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient[2]	62.5	℃/W

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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	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=20V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±10V, V_{DS}=0A	---	---	±100	nA
On Characteristics[3]						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	0.5	0.7	1	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=4.5V,I_D=5A	---	8	11	mΩ
		V_{GS}=2.5V,I_D=4A	---	10	13	
G_{FS}	Forward Transconductance	$V_{DS=}$5V, I_D=8A	---	15	---	S
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	---	1800	---	pF
C_{oss}	Output Capacitance		---	230	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	
Switching Characteristics[4]						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=10V, R_L=1.2Ω R_{GEN}=3Ω . V_{GS}=10V,	---	2.5	---	ns
t_r	Rise Time		---	7.2	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	49	---	ns
t_f	Fall Time		---	10.8	---	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=10V, I_D=8A	---	17.9	---	nC
Q_{gs}	Gate-Source Charge		---	1.5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	4.7	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[3]	V_{GS}=0V,I_S=4.5A	---	---	1.2	V
Is	Maximum Body-Diode Continuous Current[2]		---	---	12	

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

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

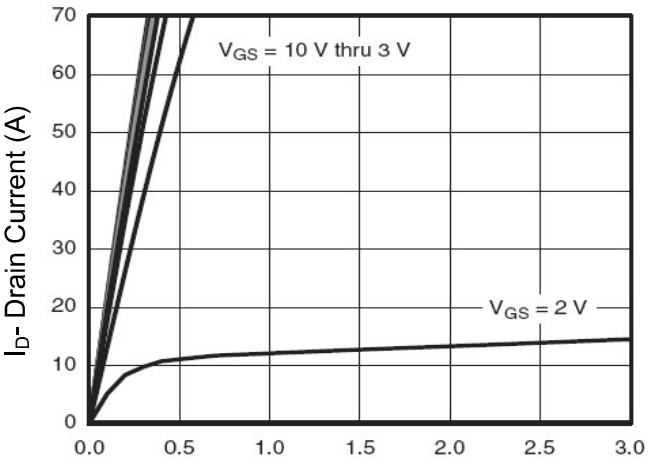


Figure 1 Output Characteristics

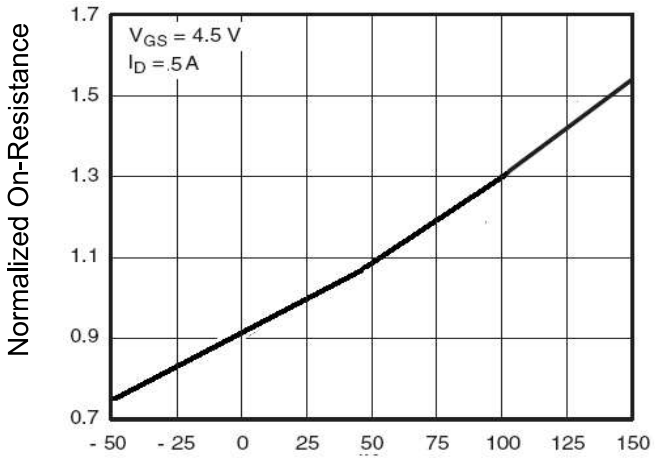


Figure 2 Rdson-Junction Temperature

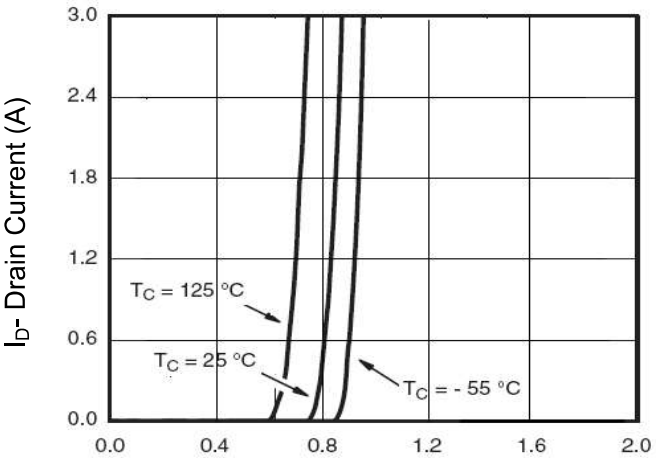


Figure 3 Transfer Characteristics

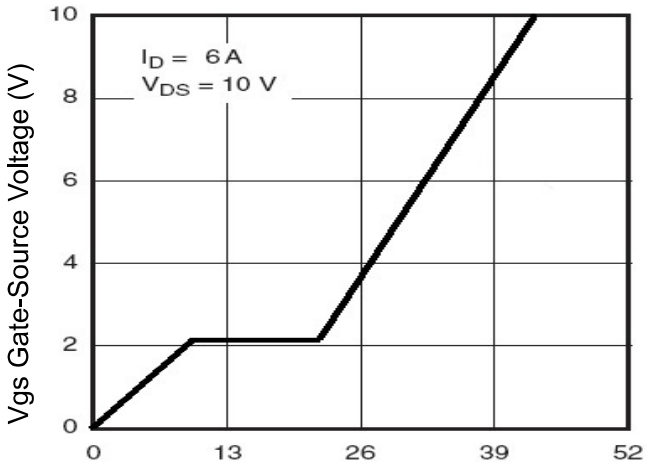


Figure 4 Gate Charge

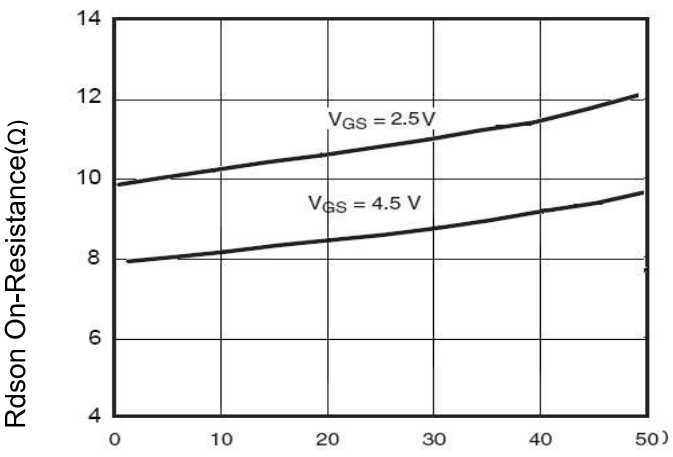


Figure 5 Rdson- Drain Current

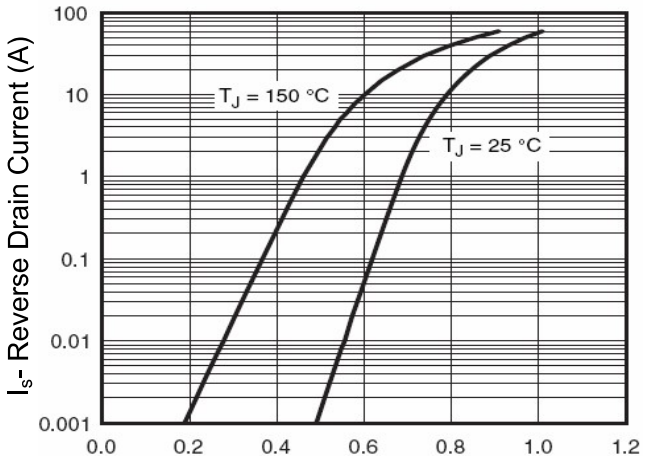


Figure 6 Source- Drain Diode Forward

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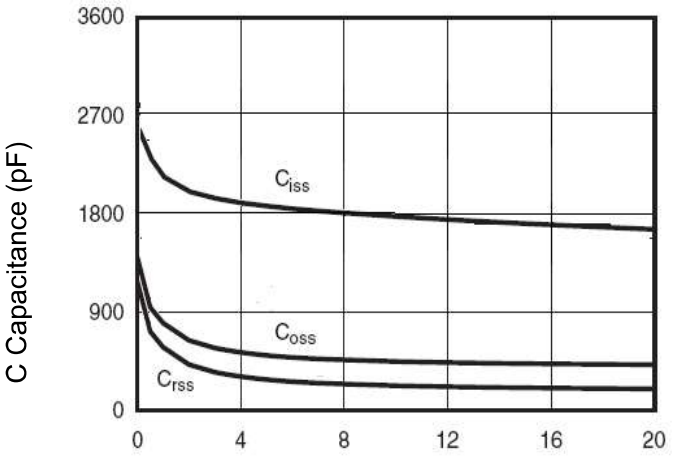


Figure 7 Capacitance vs Vds

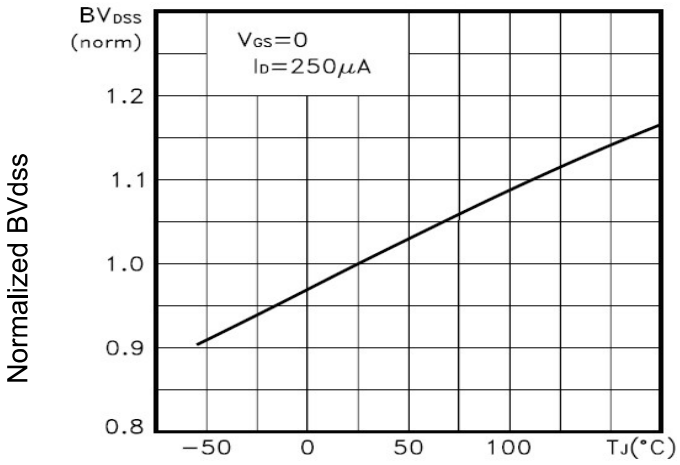


Figure 8 BV_{DSS} vs Junction Temperature

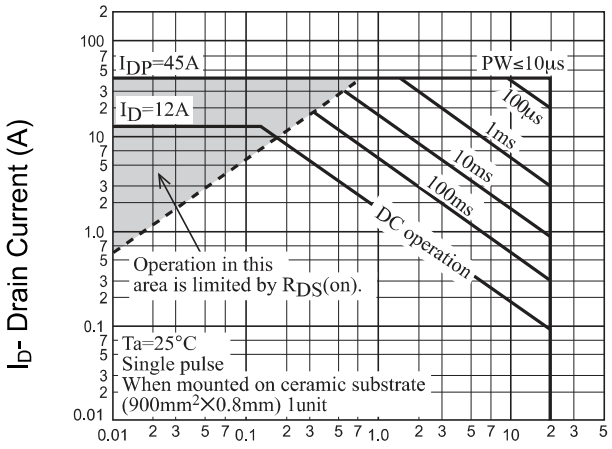


Figure 9 Safe Operation Area

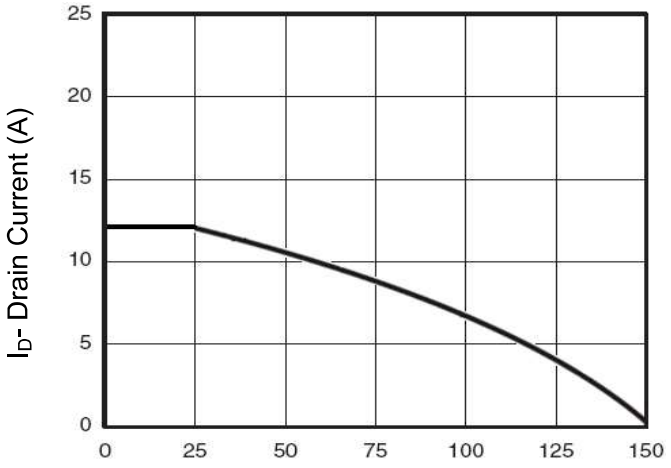
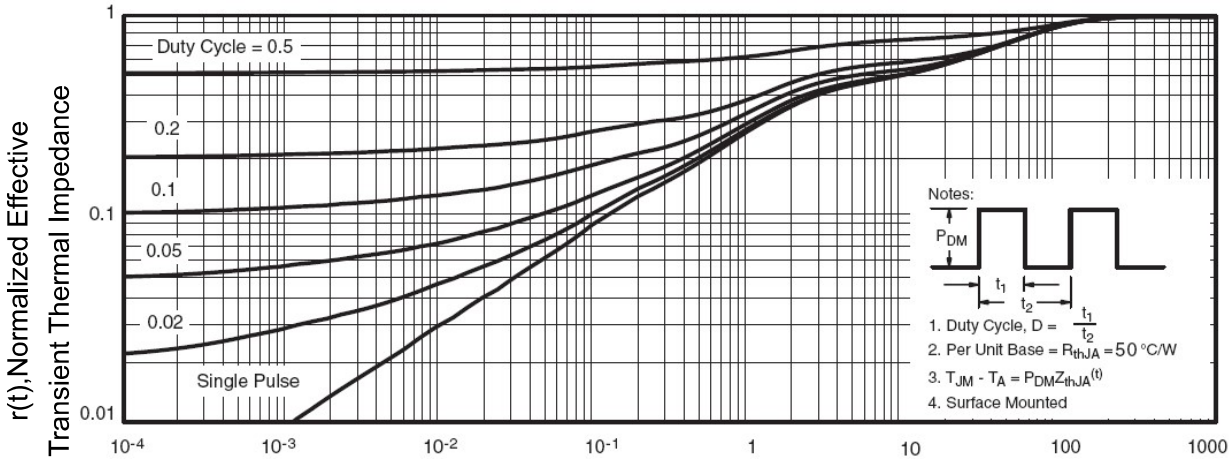


Figure 10 Current vs Junction Temperature



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