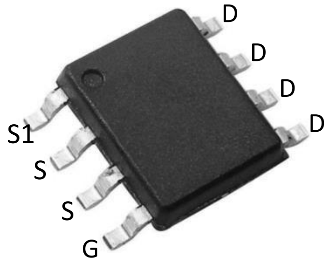
Description:

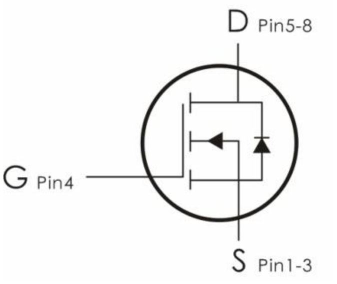
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features:

1) V_{DS}=30V,I_D=10A,$R_{DS(ON)}$<13m Ω @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	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous (T_C=25℃)	10	A
	Drain Current – Continuous (T_C=100℃)	6	
I_{DM}	Drain Current – Pulsed	50	
P_D	Power Dissipation (T_C=25℃)	2.5	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]	50	℃/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	30	33	---	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V , V_{GS}=0V ,T_J=25℃	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
On Characteristics[3]						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1	1.6	3	V
$R_{DS(ON)}$	Static Drain-Source On Resistance	V_{GS}=10V,I_D=10A	---	10	13	mΩ
		V_{GS}=4.5V,I_D=5A	---	13	18	
G_{FS}	Forward Transconductance	V_{DS}=5V, I_D=10A	15	---	---	S
Dynamic Characteristics[4]						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	1550	---	pF
C_{oss}	Output Capacitance		---	300	---	
C_{rss}	Reverse Transfer Capacitance		---	180	---	
Switching Characteristics[4]						
$t_{d(on)}$	Turn-On Delay Time[2,3]	V_{DS}=25V, I_D=1A, R_{GEN}=6Ω , V_{GS}=10V	---	30	---	ns
t_r	Rise Time[2,3]		---	200	---	ns
$t_{d(off)}$	Turn-Off Delay Time[2,3]		---	100	---	ns
t_f	Fall Time[2,3]		---	80	---	ns
Q_g	Total Gate Charge[2,3]	V_{GS}=5V, V_{DS}=15V, I_D=10A	---	13	---	nC
Q_{gs}	Gate-Source Charge[2,3]		---	5.5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge[2,3]		---	3.5	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage[3]	V_{GS}=0V,I_S=10A,T_J=25℃	---	---	1.2	V
I_S	Continuous Source Current[2]		---	---	10	A

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)

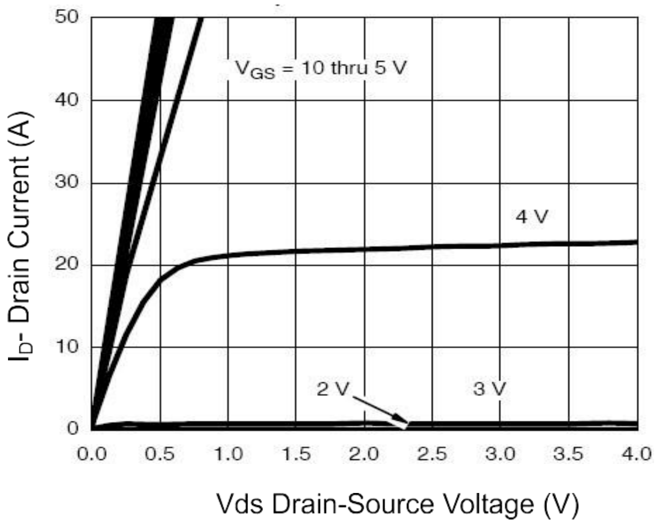

Figure 1 Output Characteristics

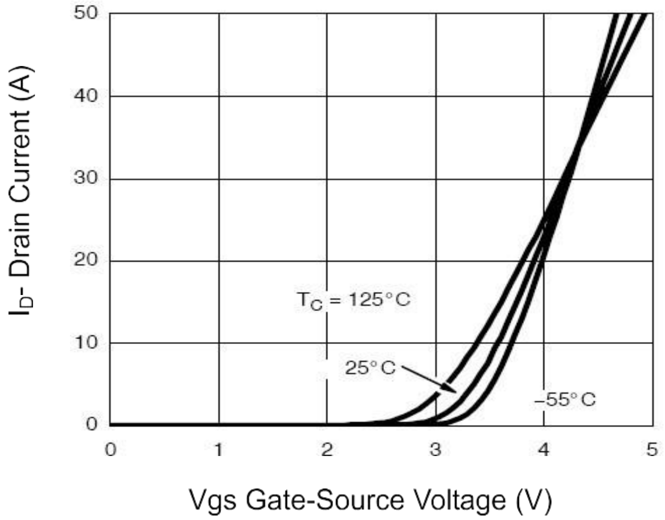

Figure 2 Transfer Characteristics

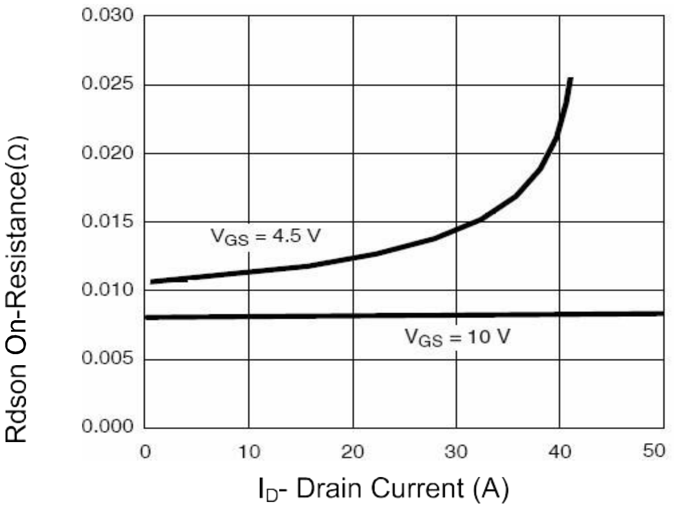

Figure 3 Rdson- Drain Current

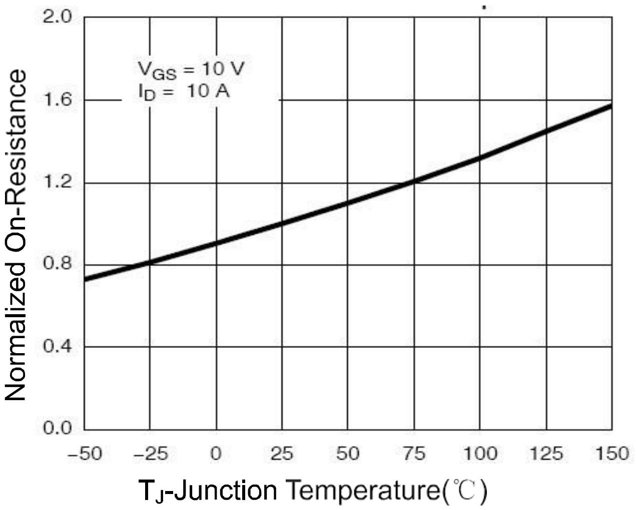

Figure 4 Rdson-JunctionTemperature

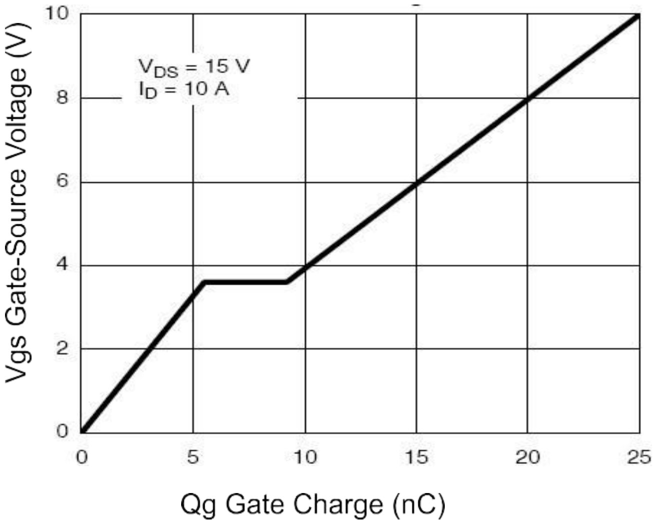

Figure 5 Gate Charge

Figure 6 Source- Drain Diode Forward

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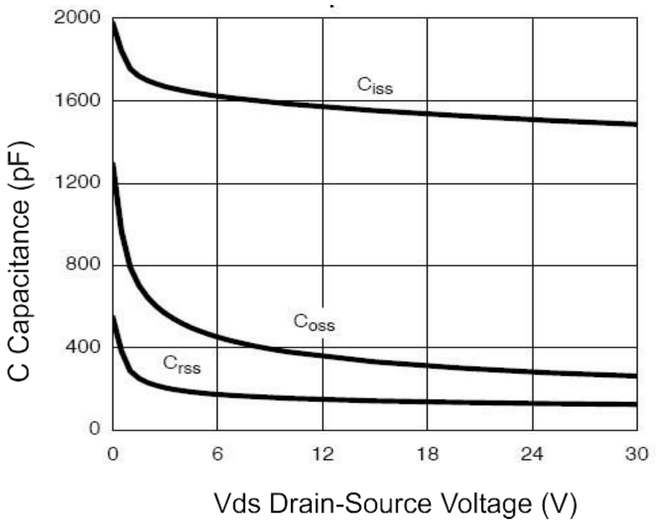

Figure 6 Capacitance vs Vds

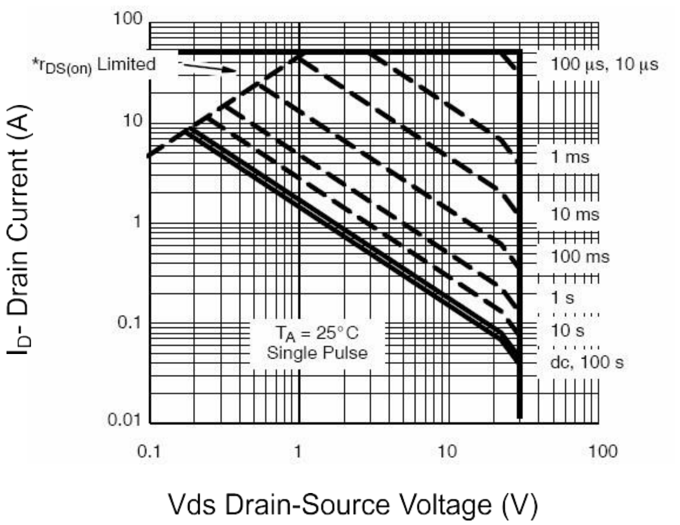

Figure 7 Safe Operation Area

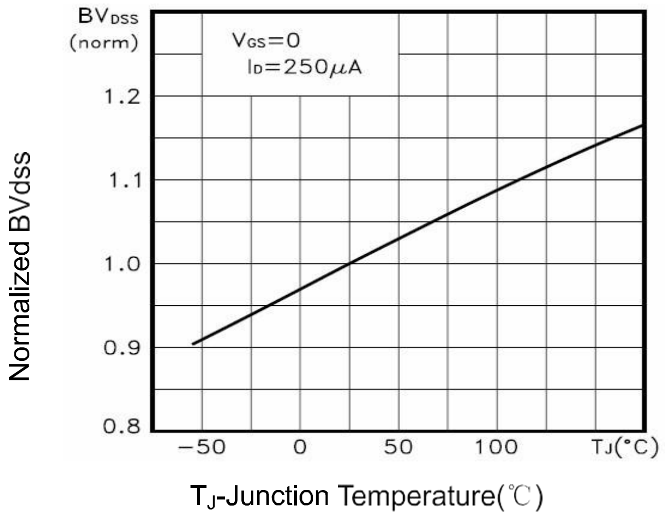

Figure 8 BV_{DSS} vs Junction Temperature

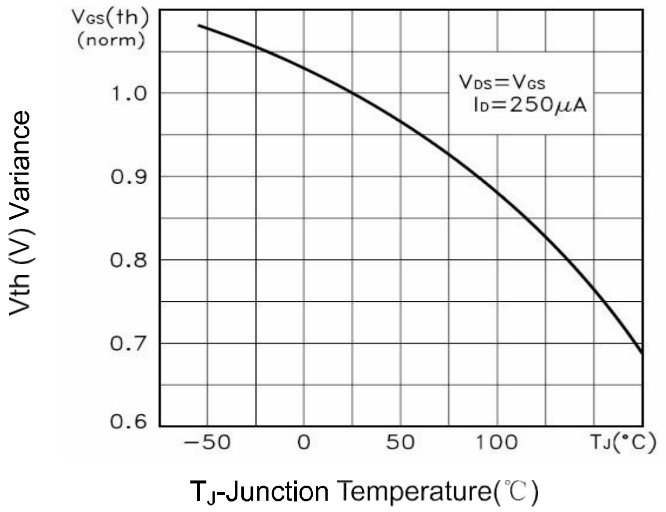

Figure 9 $V_{GS(th)}$ vs Junction Temperature

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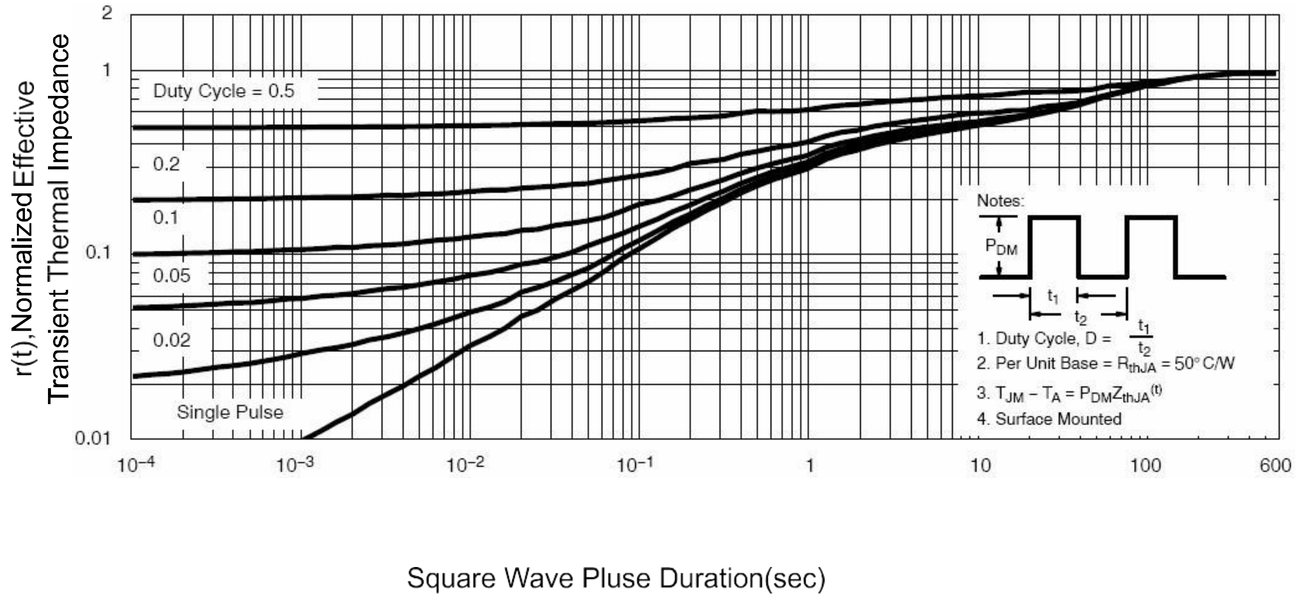

Figure 10 Normalized Maximum Transient Thermal Impedance

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