

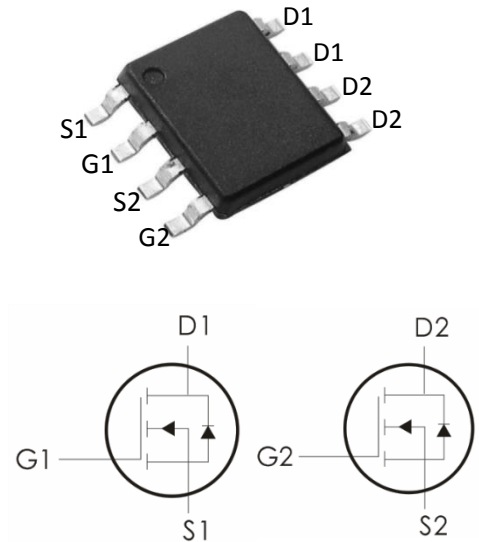
Description:

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) $V_{DS}=20V, I_D=12A, R_{DS(on)} < 11m\ \Omega @ V_{GS}=4.5V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_C=25^\circ C$ 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	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ²	62.5	$^\circ C/W$

Electrical Characteristics: ($T_c=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\ \mu\text{A}$	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=20V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 10V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics³						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	0.5	0.7	1	V
$R_{DS(on)}$	Drain-Source On Resistance	$V_{GS}=4.5V, I_D=5A$	---	8	11	m Ω
		$V_{GS}=2.5V, I_D=4A$	---	10	13	
G_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=8A$	---	15	---	S
Dynamic Characteristics⁴						
C_{iss}	Input Capacitance	$V_{DS}=10V, V_{GS}=0V, f=1\text{MHz}$	---	1800	---	pF
C_{oss}	Output Capacitance		---	230	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	
Switching Characteristics⁴						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=10V, R_L=1.2\ \Omega$ $R_{GEN}=3\ \Omega, V_{GS}=10V,$	---	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	---
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
I_S	Maximum Body-Diode Continuous Current ²		---	---	12	

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Typical Characteristics: ($T_c=25^\circ\text{C}$ unless otherwise noted)

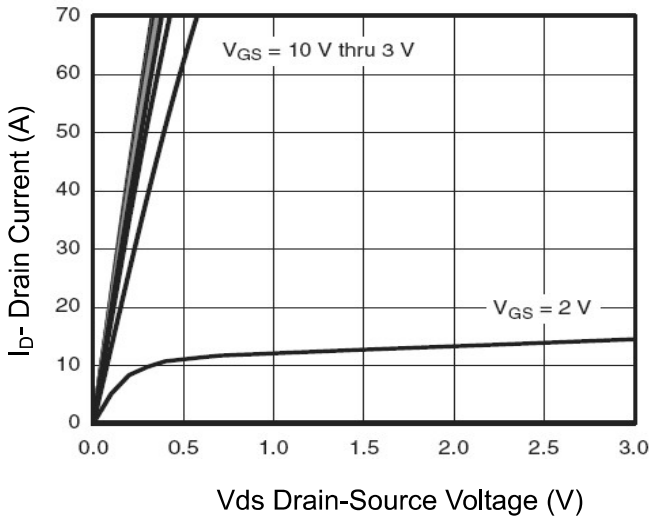


Figure 1 Output Characteristics

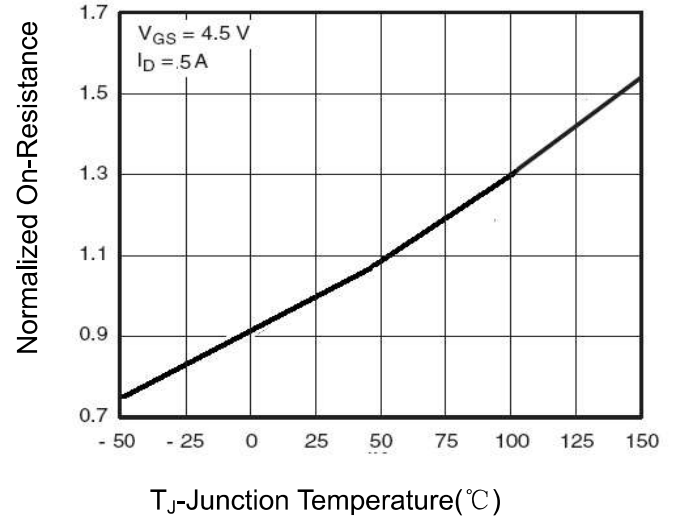


Figure 2 Rdson-Junction Temperature

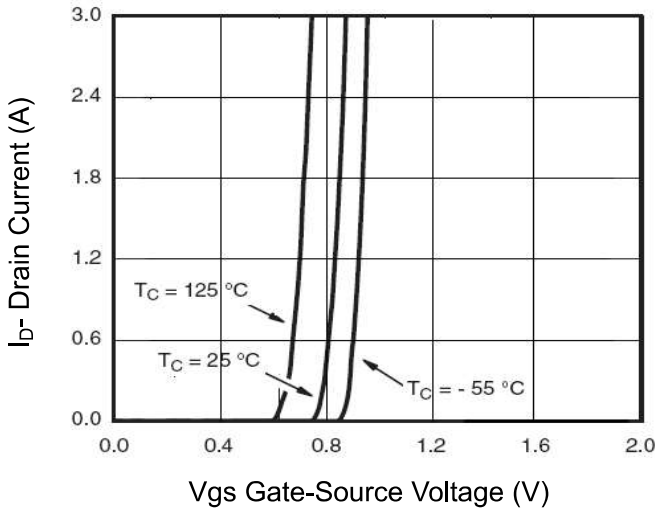


Figure 3 Transfer Characteristics

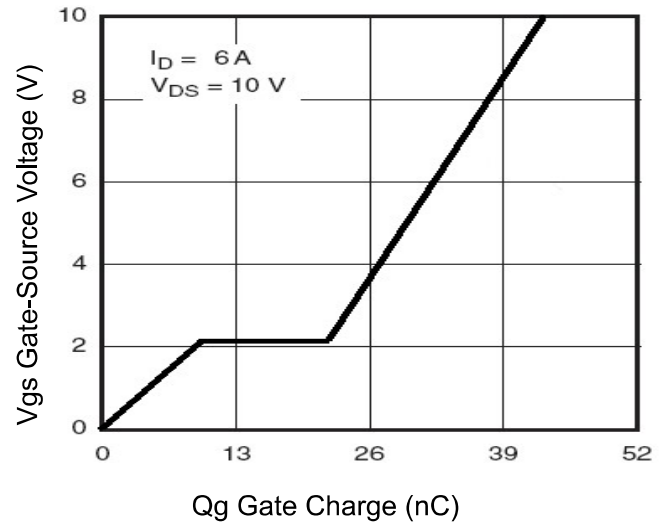


Figure 4 Gate Charge

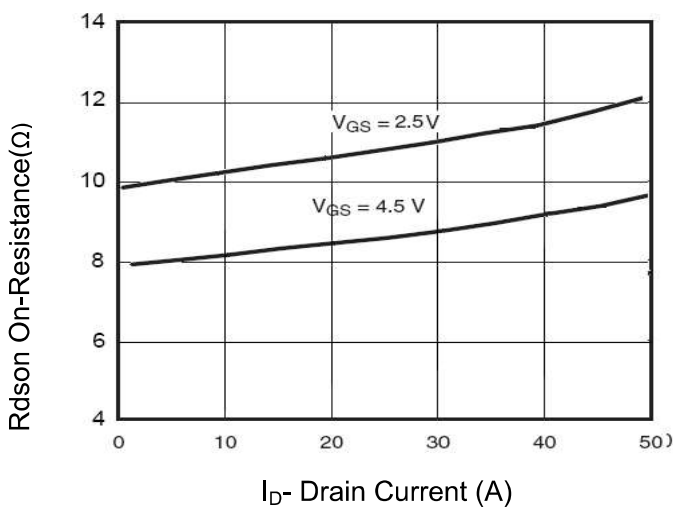


Figure 5 Rdson- Drain Current

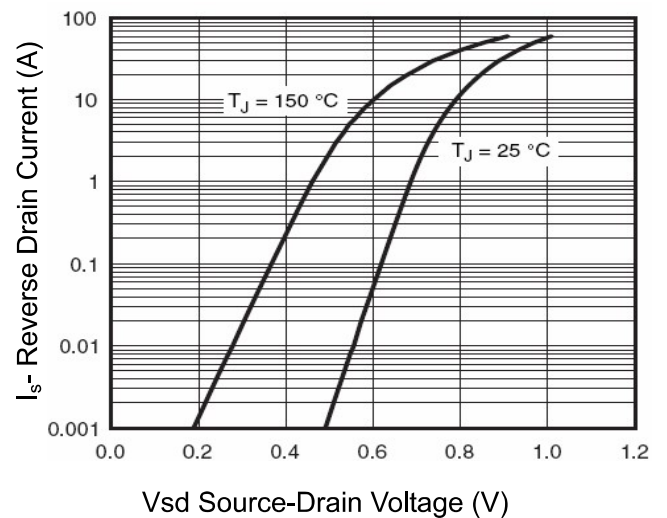


Figure 6 Source- Drain Diode Forward

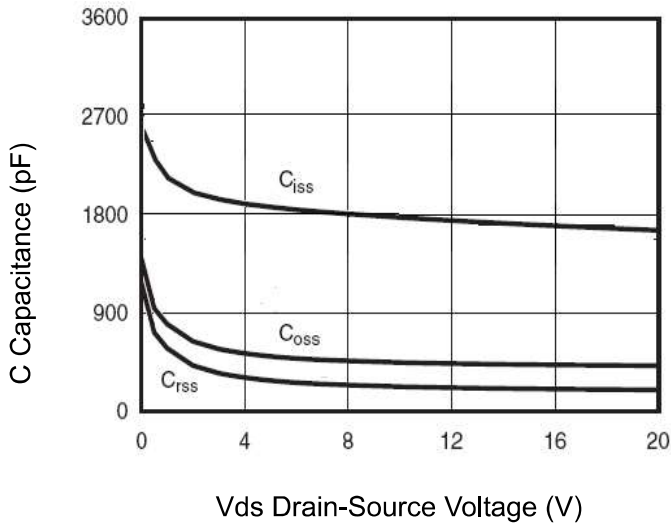


Figure 7 Capacitance vs Vds

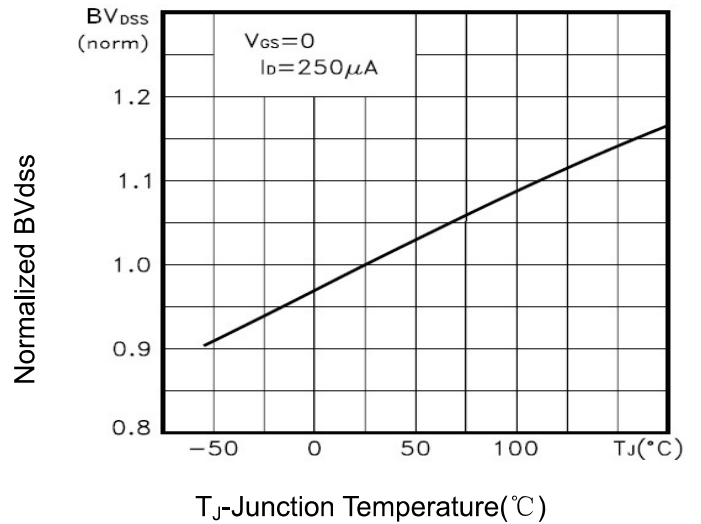


Figure 8 BV_{DSS} vs Junction Temperature

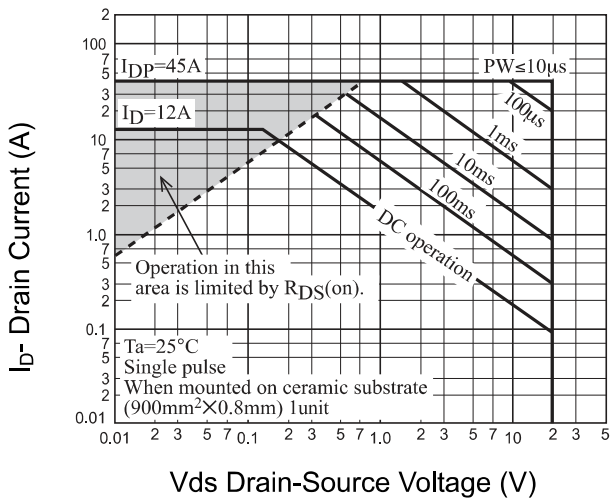


Figure 9 Safe Operation Area

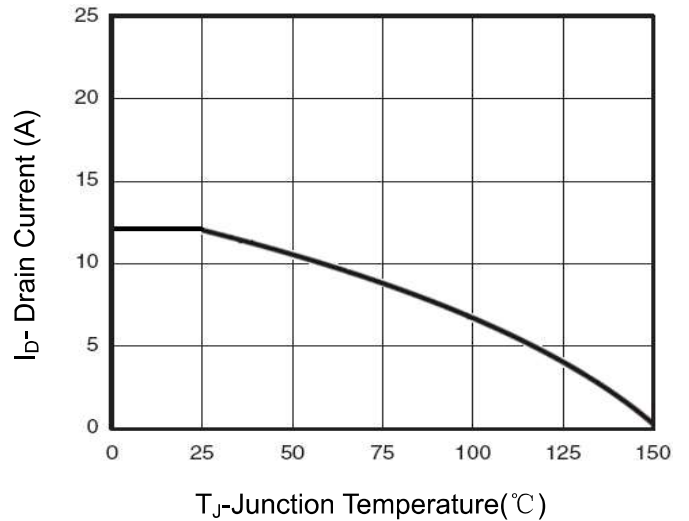
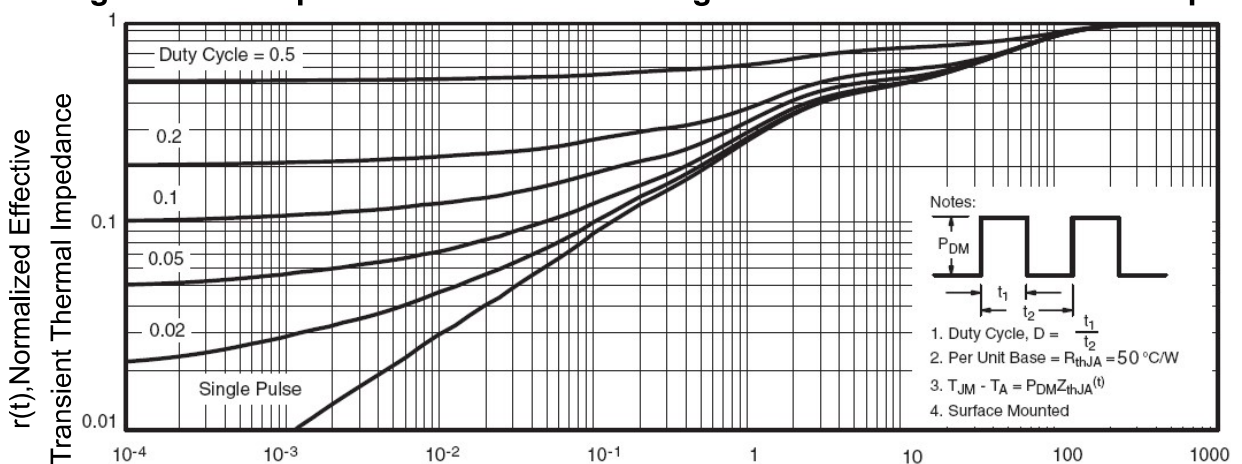


Figure 10 Current vs Junction Temperature



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