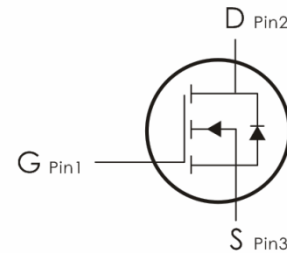
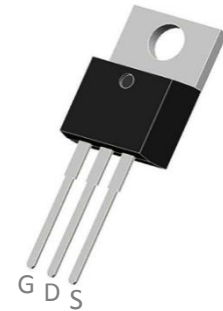


Description:

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) $V_{DS}=100V, I_D=100A, R_{DS(ON)} < 13m\ \Omega @ V_{GS}=10V$
- 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: ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current ¹	100	A
	Continuous Drain Current- $T_C=100^\circ\text{C}$	80	
	Pulsed Drain Current ²	380	
E_{AS}	Single Pulse Avalanche Energy ³	800	mJ
P_D	Power Dissipation ⁴	200	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case ¹	0.75	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ¹	---	

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	$V_{GS}=0V, I_D=250\ \mu\text{A}$	100	110	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=100V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	2	3	4	V
$R_{DS(on)}$	Drain-Source On Resistance ²	$V_{GS}=10V, I_D=40A$	---	9.9	13	m Ω
		$V_{GS}=4.5V, I_D=A$	---	---	---	
G_{FS}	Forward Transconductance	$V_{DS}=50V, I_D=40A$	100	---	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=50V, V_{GS}=0V, f=1\text{MHz}$	---	4800	---	pF
C_{oss}	Output Capacitance		---	304	---	
C_{rss}	Reverse Transfer Capacitance		---	150	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=50V, I_D=40A,$ $R_{GEN}=2.5\ \Omega, V_{GS}=10V$	---	15	---	ns
t_r	Rise Time		---	50	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	40	---	ns
t_f	Fall Time		---	55	---	ns
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=80V,$ $I_D=40A$	---	85	---	nC
Q_{gs}	Gate-Source Charge		---	18	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	28	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage ²	$V_{GS}=0V, I_S=40A$	---	---	-1.2	V

Ls	Diode Forward Current (Note 2)	---	---	---	57	A
Trr	Reverse Recovery Time	T _J = 25°C, I _F = 40A di/dt = 100A/μs	---	38	80	NS
Qrr	Reverse Recovery Charge		---	53	100	NC

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
5. EAS condition: T_J=25°C, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25Ω

Typical Characteristics: (T_c=25°C unless otherwise noted)

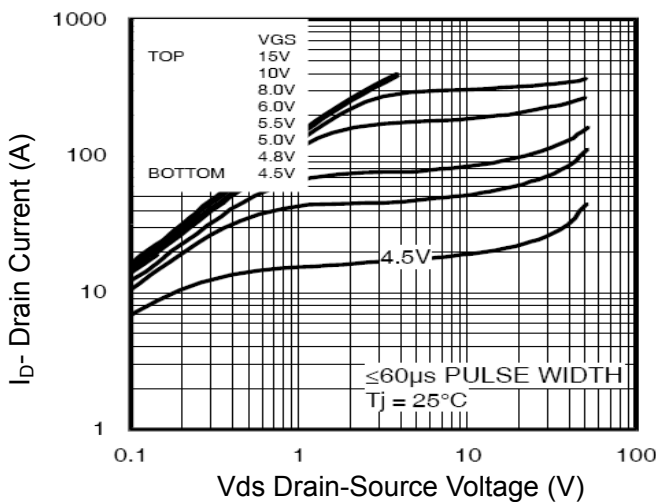


Figure 1 Output Characteristics

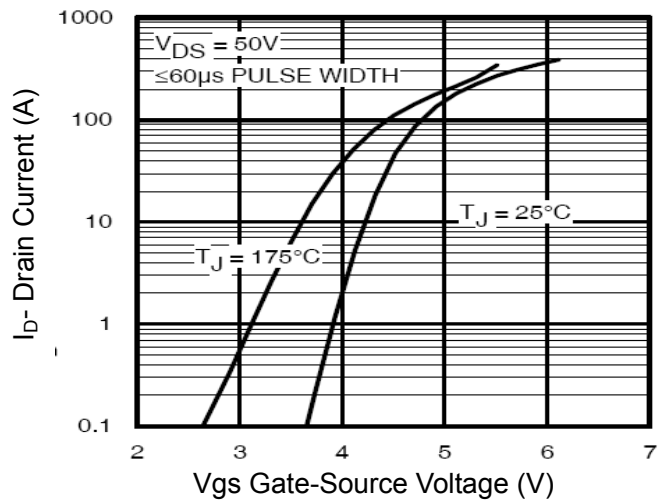


Figure 2 Transfer Characteristics

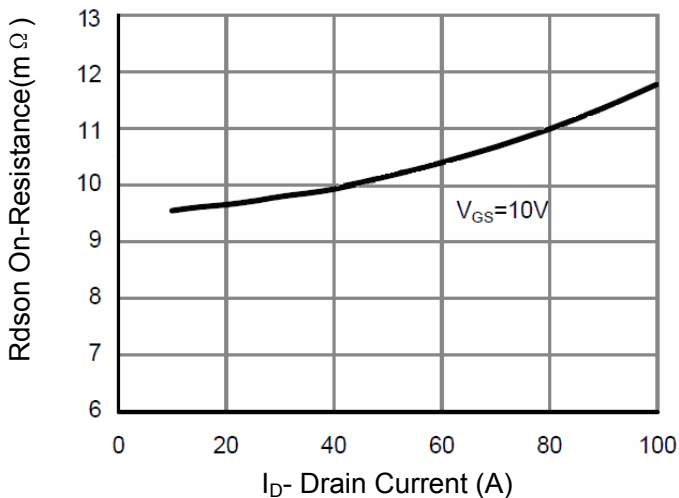


Figure 3 Rdson- Drain Current

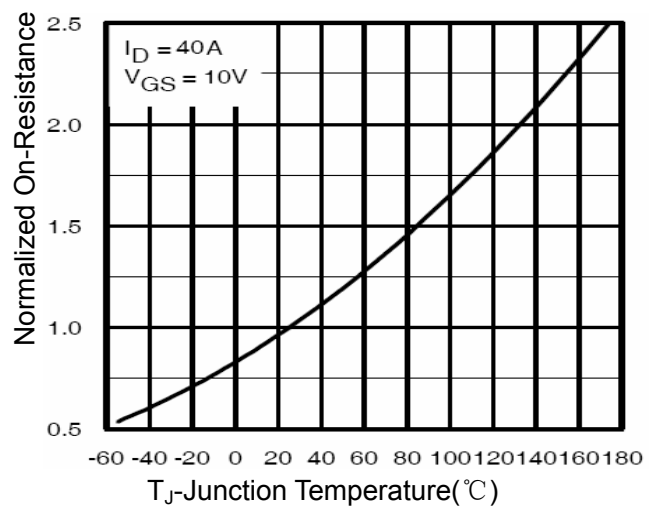


Figure 4 Rdson-Junction Temperature

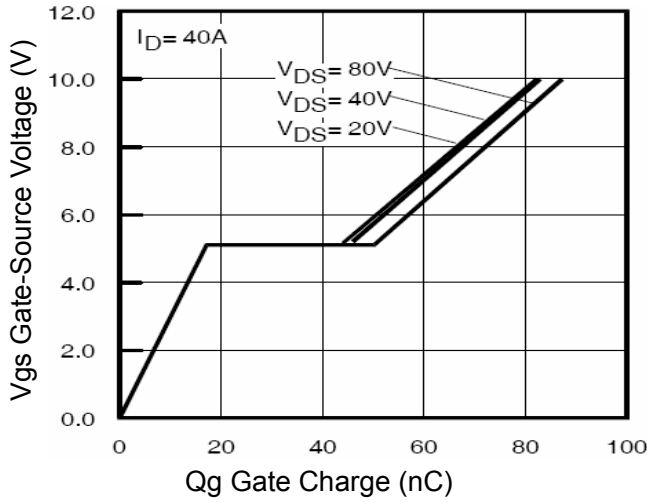


Figure 5 Gate Charge

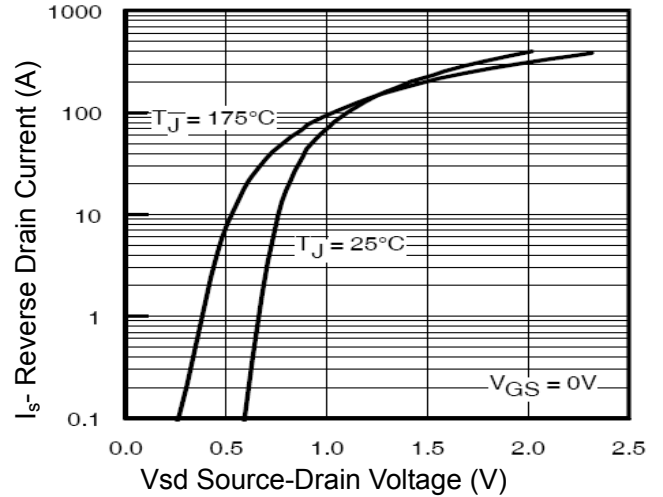


Figure 6 Source- Drain Diode Forward

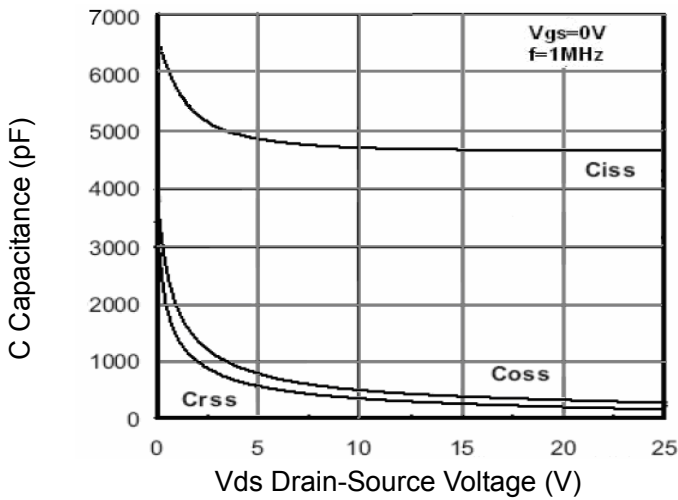


Figure 7 Capacitance vs Vds

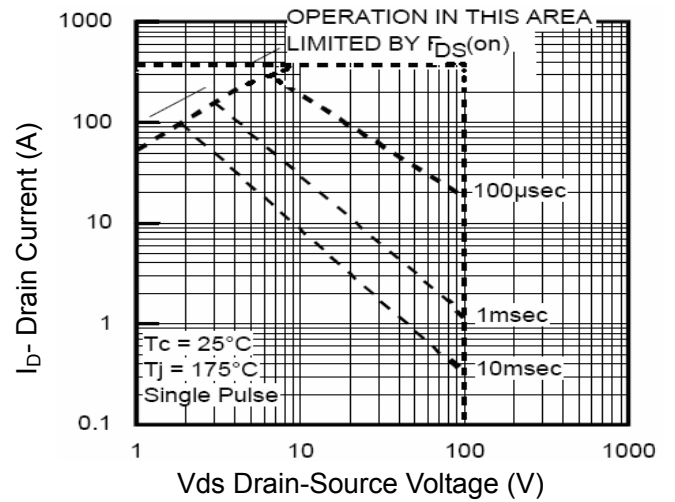


Figure 8 Safe Operation Area

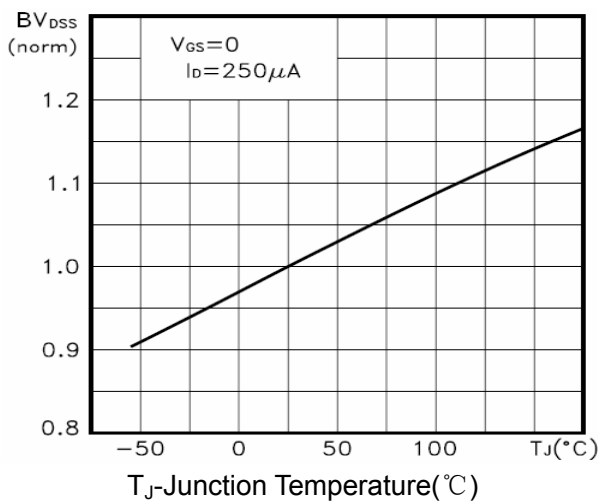


Figure 9 BV_{DSS} vs Junction Temperature

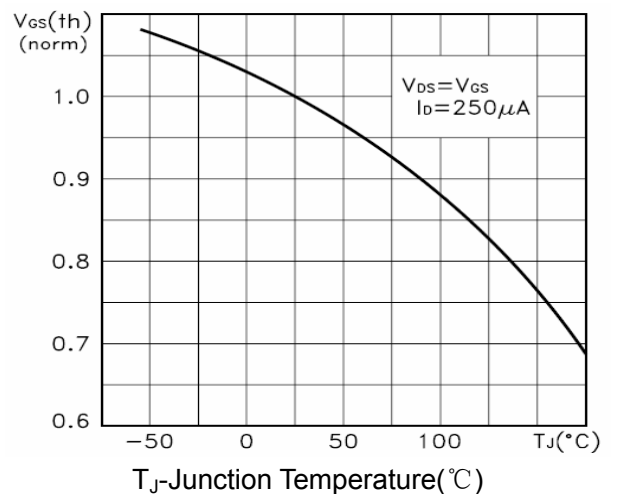
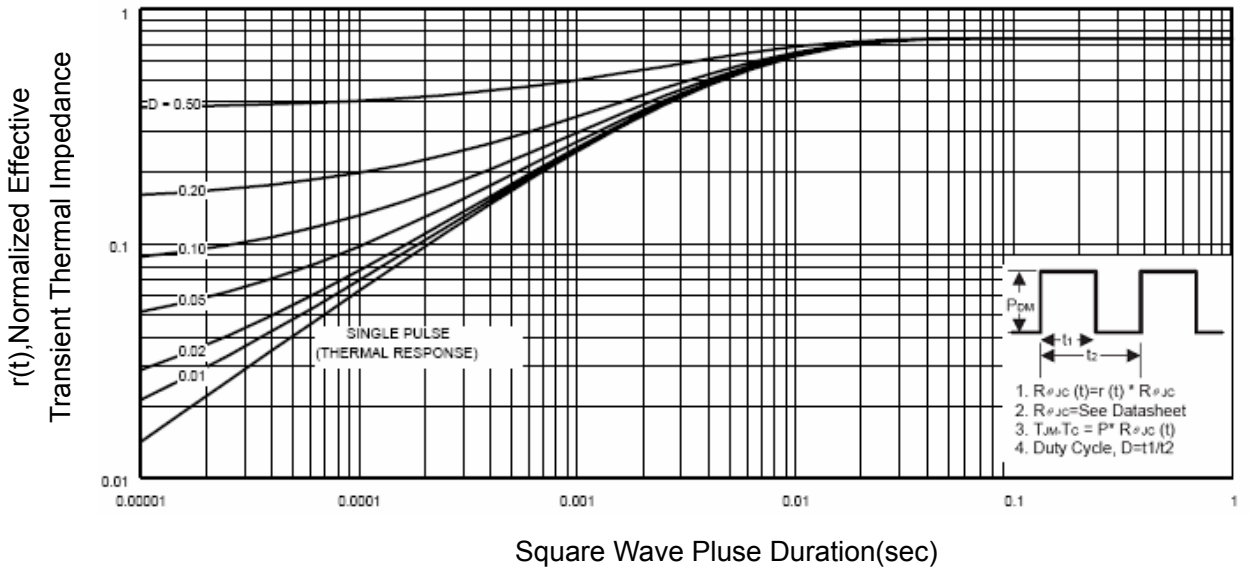


Figure 10 $V_{GS(th)}$ vs Junction Temperature



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