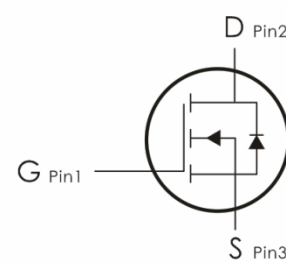
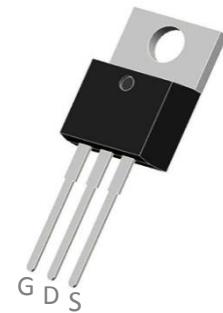


Description:

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) $V_{DS}=60V, I_D=45A, R_{DS(ON)} < 15m\ \Omega @ V_{GS}=10V$
- 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: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 25	V
I_D	Continuous Drain Current- $T_C=25^\circ C$	45	A
	Continuous Drain Current- $T_C=100^\circ C$	32	
	Pulsed Drain Current ¹	180	
E_{AS}	Single Pulse Avalanche Energy ²	182	mJ
P_D	Power Dissipation($T_C=25^\circ C$)	68	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.2	$^\circ C/W$

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	$V_{GS}=0V, I_D=250\ \mu\text{A}$	60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=60V, (TC=25^\circ\text{C})$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0A$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\ \mu\text{A}$	2	---	4	V
$R_{DS(ON)}$	Drain-Source On Resistance	$V_{GS}=10V, I_D=40A$	---	11.5	15	$\text{m}\Omega$
G_{FS}	Forward Transconductance	$V_{DS}=10V, I_D=15A$	18	---	---	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	1717	---	pF
C_{oss}	Output Capacitance		---	180	---	
C_{rss}	Reverse Transfer Capacitance		---	140	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=30V, R_L=2.5\Omega$ $V_{GS}=10V, R_G=3\Omega$	---	15	---	ns
t_r	Rise Time		---	25	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	50	---	ns
t_f	Fall Time		---	23	---	ns
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=30V,$ $I_D=15A$	---	50	---	nC
Q_{gs}	Gate-Source Charge		---	12	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	23	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Source-Drain Diode Forward Voltage ¹	$T_J=25^\circ\text{C}, I_{SD}=1A, V_{GS}=0V$	---	0.85	0.99	V

Notes:

1. Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 1.5\%$, Starting $T_J=25^\circ C$.

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

Figure1. Output Characteristics

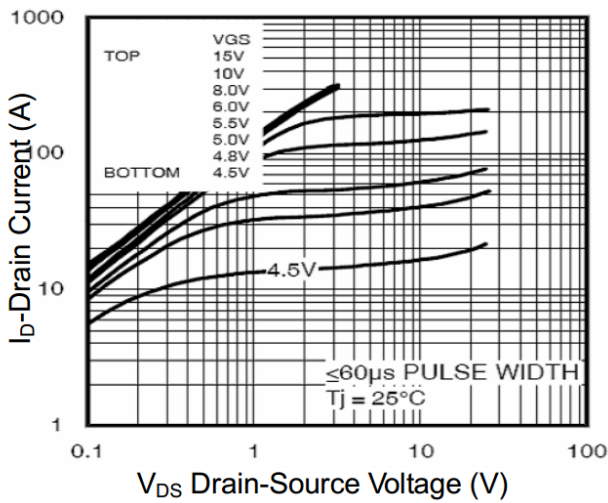


Figure2. Transfer Characteristics

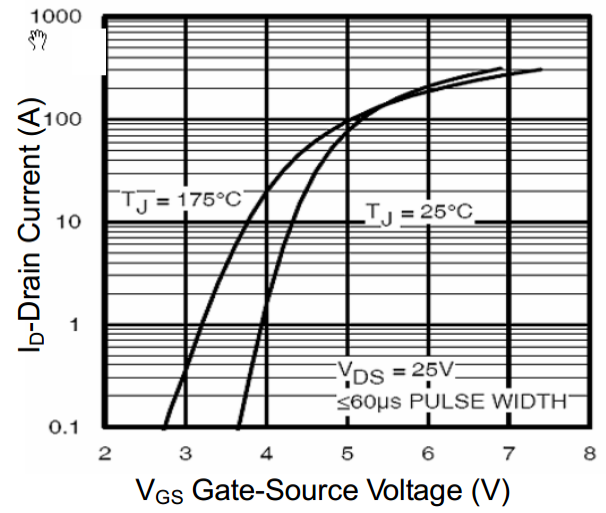


Figure3. BV_{DSS} vs Junction Temperature

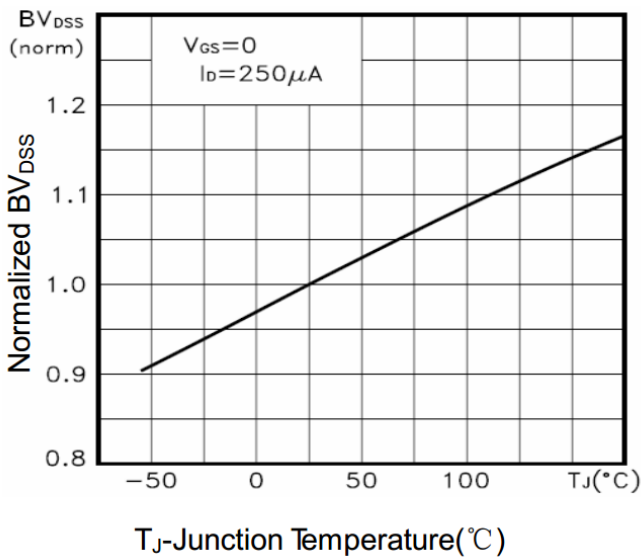


Figure4. ID vs Junction Temperature

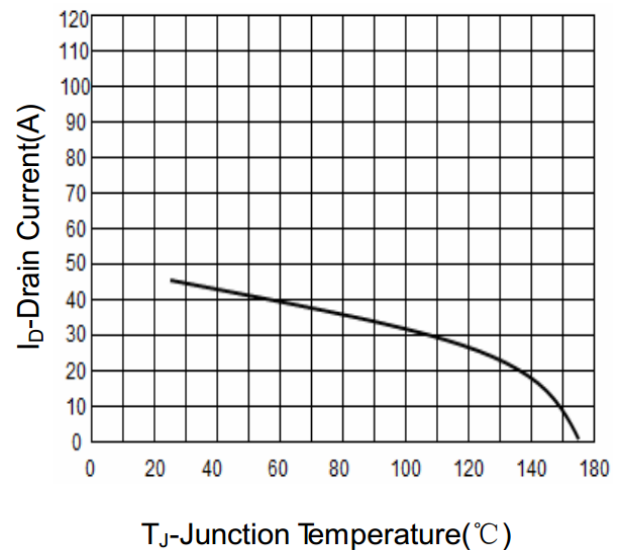


Figure5. VGS(th) vs Junction Temperature

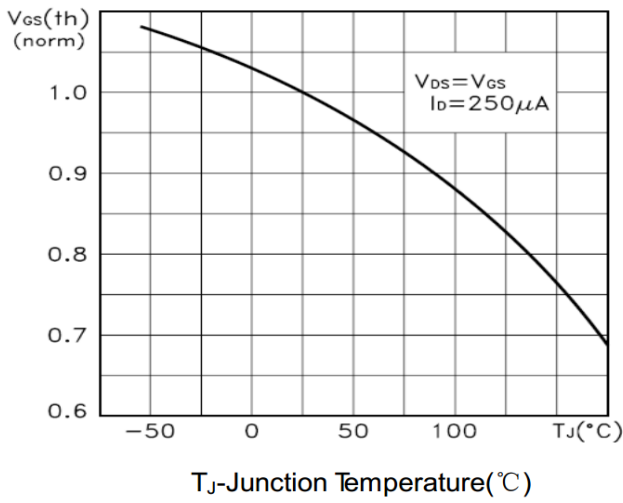


Figure6. Rds(on) Vs Junction Temperature

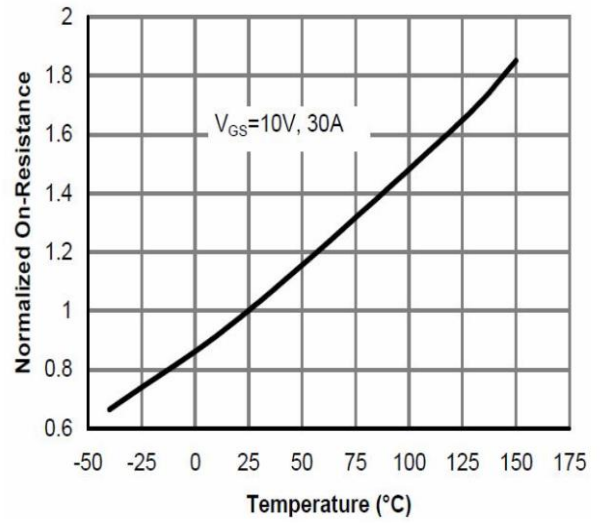


Figure7. Gate Charge

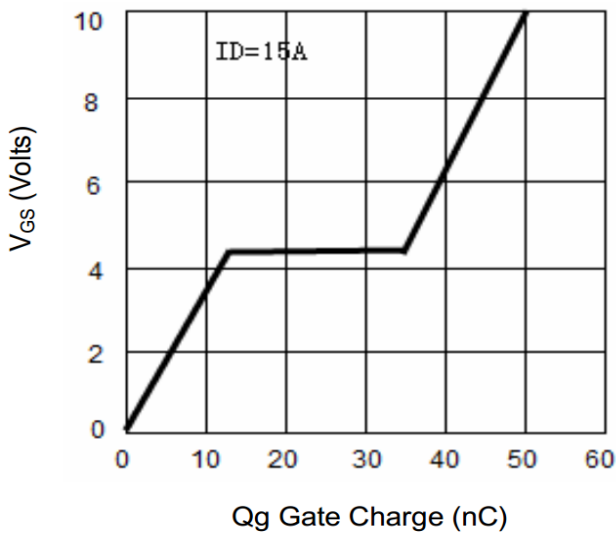


Figure8. Capacitance vs Vds

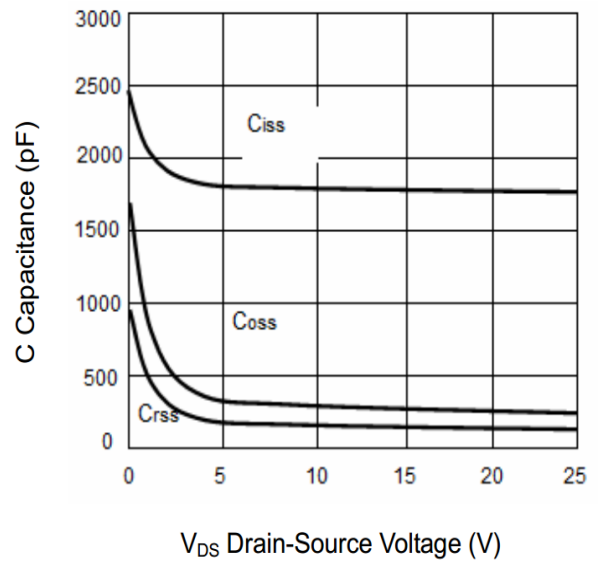


Figure9. Source- Drain Diode Forward

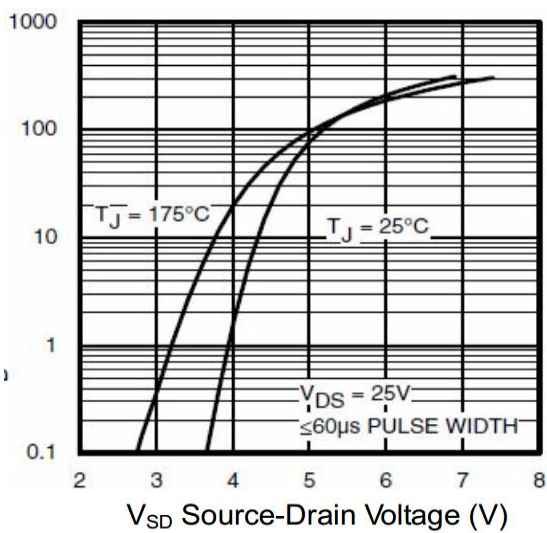


Figure10. Safe Operation Area

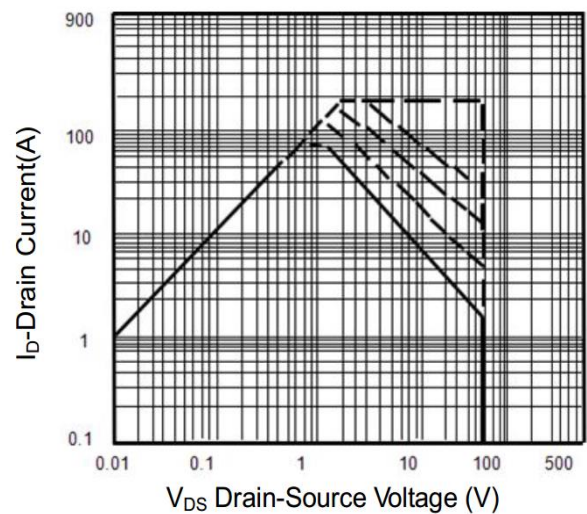
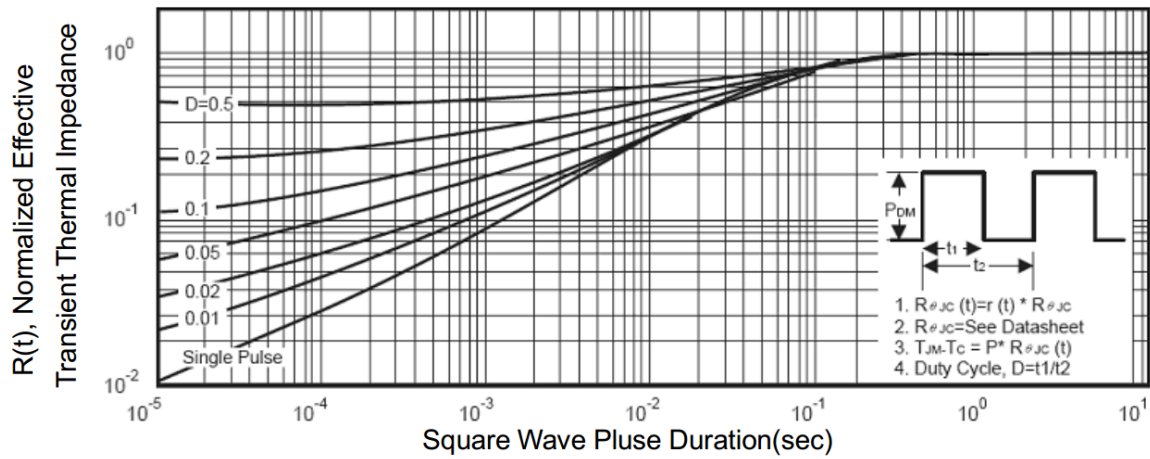


Figure11. Normalized Maximum Transient Thermal Impedance



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