

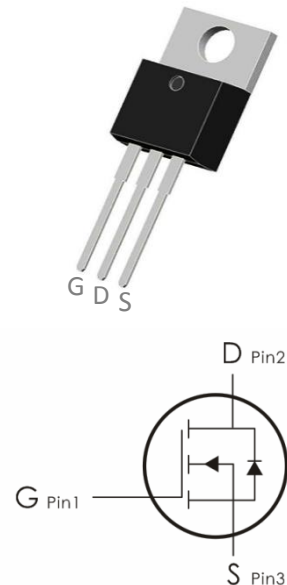
Description:

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) $V_{DS}=70V, I_D=68A, R_{DS(ON)} < 8.4m\Omega @ V_{GS}=10V$
- 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	70	V
V_{GS}	Gate-Source Voltage	± 25	V
I_D	Continuous Drain Current-	68	A
	Continuous Drain Current- $T_C=100^\circ C$	47.6	
	Pulsed Drain Current ¹	272	
E_{AS}	Single Pulse Avalanche Energy ²	380	mJ
P_D	Power Dissipation	88	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	1.7	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	---	

Notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature

2. EAS condition: $T_J=25^\circ C, V_{DD}=33V, V_G=10V$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce Breakdown Voltage	V _{GS} =0V,I _D =250 μ A	70	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =68V	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 25V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	2		4	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V,I _D =70A	---	7	8.4	m Ω
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=1MHz	---	2860	---	pF
C _{oss}	Output Capacitance		---	281	---	
C _{rss}	Reverse Transfer Capacitance		---	265	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =30V, I _D =2A, R _{GEN} =15 Ω .V _{GS} =10V	---	18	---	ns
t _r	Rise Time		---	29	---	ns
t _{d(off)}	Turn-Off Delay Time		---	55	---	ns
t _f	Fall Time		---	27	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =50V, I _D =40A	---	77	---	nC
Q _{gs}	Gate-Source Charge		---	15.7	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	35.2	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage ¹	V _{GS} =0V,I _S =40A	---	0.89	0.99	V
Ls	Diode Forward Current	---	---	---	68	A

Trr	Reverse Recovery Time ¹	T _J =25°C, I _F =75A di/dt=100A/μs	---	33	---	NS
Qrr	Reverse Recovery Charge ¹		---	26	---	NC

Notes:

1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 1.5%, R_G=25Ω, Starting T_J=25°C

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

Figure1. Output Characteristics

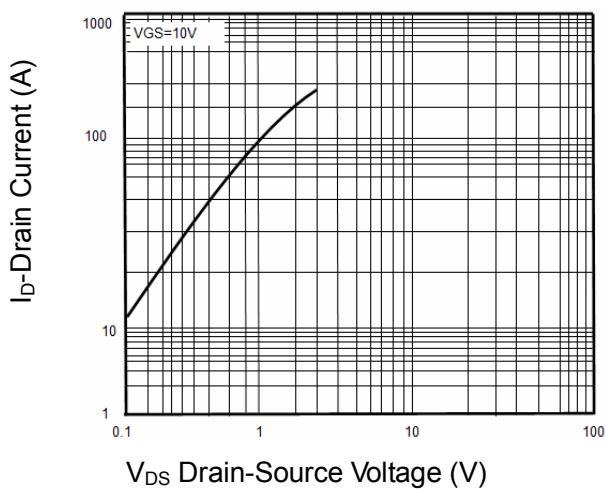


Figure2. Transfer Characteristics

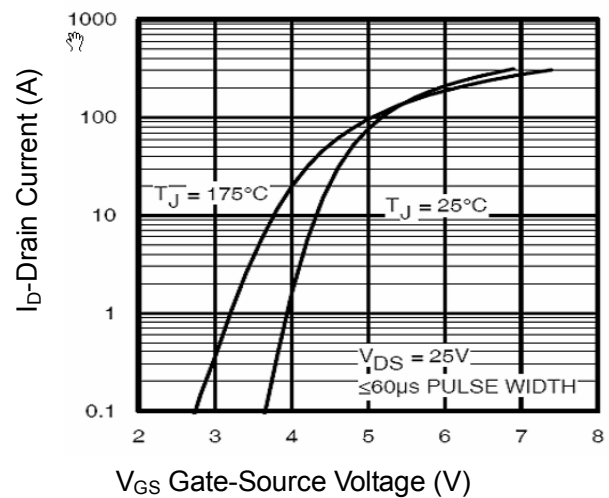


Figure3. BVDS vs Junction Temperature

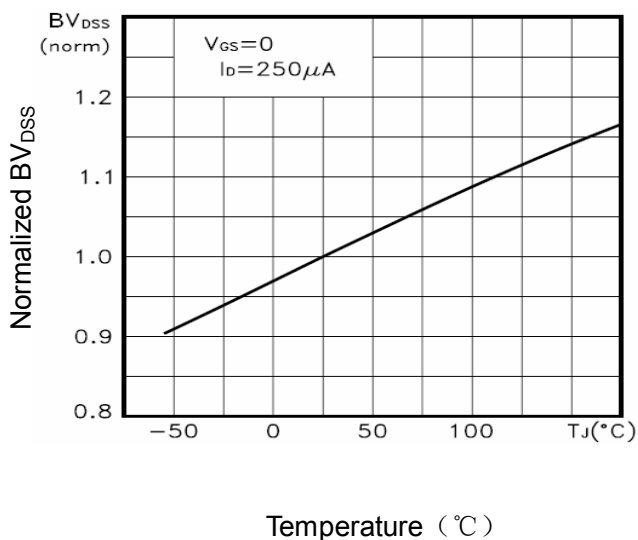


Figure4. ID vs Junction Temperature

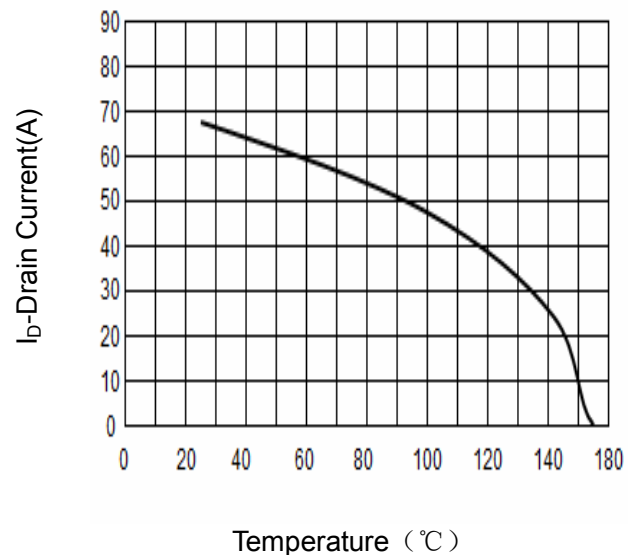


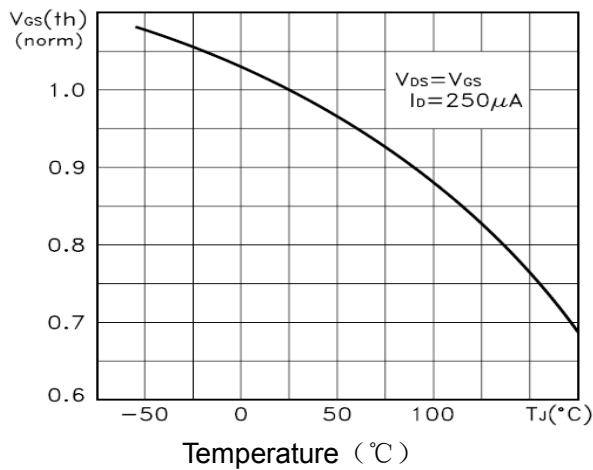
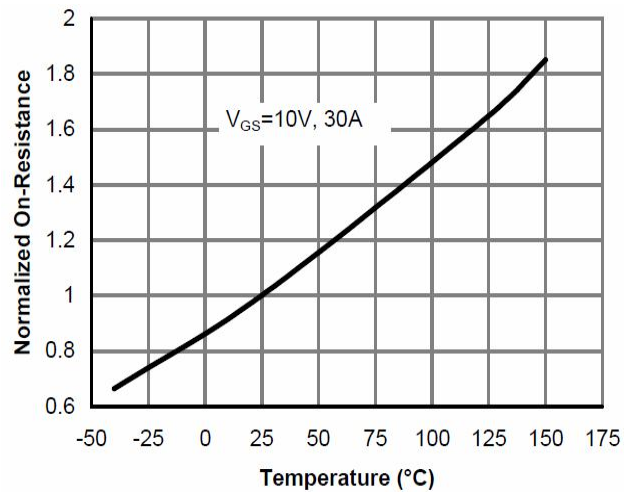
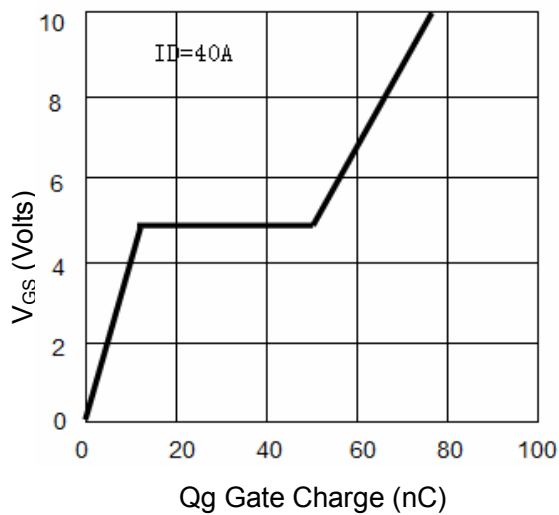
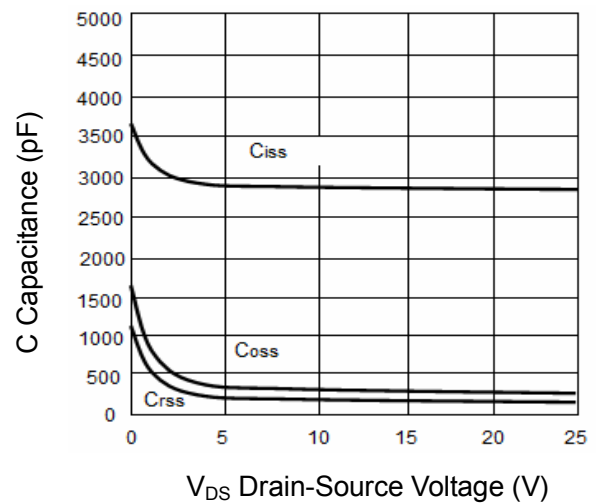
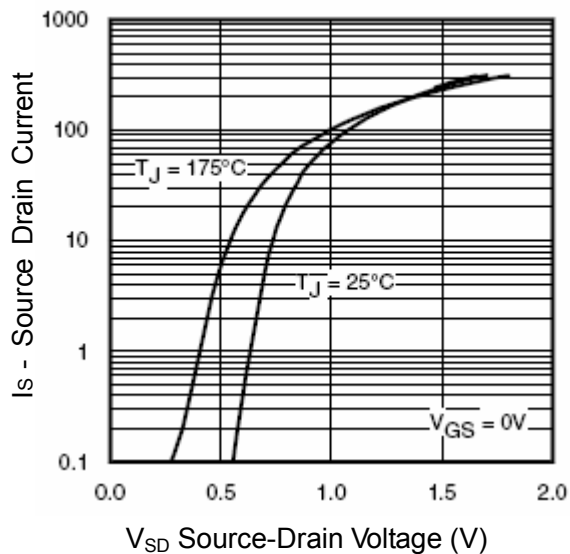
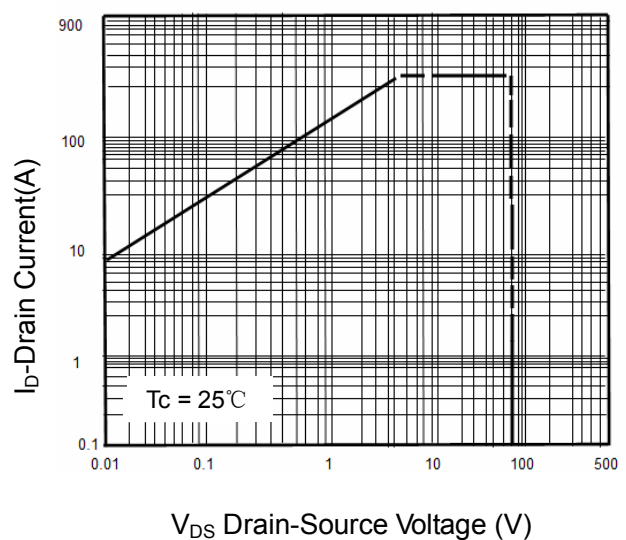
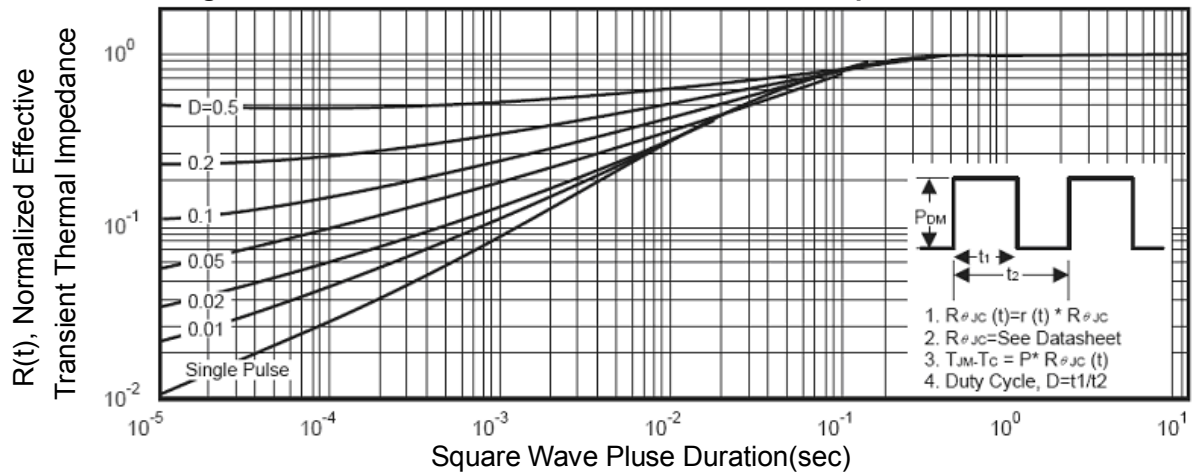
Figure5. VGS(th) vs Junction Temperature

Figure6. Rdson 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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