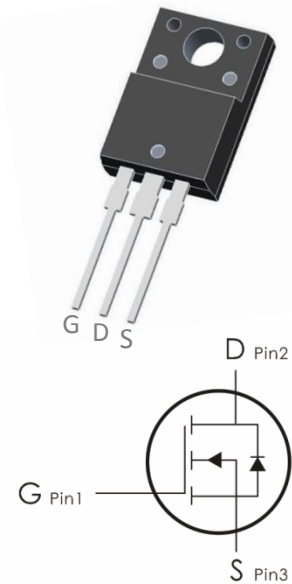


Description:

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) $V_{DS}=700V, I_D=7A, R_{DS(ON)} < 1.7 \Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Absolute Maximum Ratings: ($T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	700	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Continuous Drain Current- $T_J=25^\circ\text{C}$	7	A
	Continuous Drain Current- $T_J=100^\circ\text{C}$	3.9	
E_{AS}	Single Pulse Avalanche Energy(note1)	300	mJ
I_{AR}	Avalanche Current (note2)	7	A
P_D	Power Dissipation	40	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$
TL	Maximum lead temperature for soldering purpose, 1/8" from case for 5 seconds	300	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	3.2	$^\circ\text{C}/\text{W}$

R_{θJA}	Thermal Resistance, Junction to Ambient	62.5	°C/W
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Electrical Characteristics: (T_C=25°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 μA	700	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =700V	---	---	1	μA
		V _{DS} =560V, T _J =125°C	---	---	10	
I_{GSS}	Gate-Source Leakage Current	V _{GS} =±30V, V _{DS} =0A	---	---	±100	nA
On Characteristics						
V_{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μA	2	---	4	V
R_{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =3A	---	---	1.7	Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	980	---	pF
C_{oss}	Output Capacitance		---	105	---	
C_{rss}	Reverse Transfer Capacitance		---	13	---	
Switching Characteristics						
t_{d(on)}	Turn-On Delay Time	V _{DD} =350V, I _D =6A R _G =25 Ω. (Note3,4)	---	13	35	ns
t_r	Rise Time		---	45	100	ns
t_{d(off)}	Turn-Off Delay Time		---	25	60	ns
t_f	Fall Time		---	35	80	ns
Q_g	Total Gate Charge	V _{GS} =10V, V _{DS} =560V I _D =6A. (Note3,4)	---	30	40	nC
Q_{gs}	Gate-Source Charge		---	3.5	---	nC
Q_{gd}	Gate-Drain "Miller" Charge		---	6.5	---	nC
Drain-Source Diode Characteristics						

V_{SD}	Source-Drain Diode Forward Voltage	I _D =7A	---	---	1.25	V
I_S	Max. Diode Forward Current	---	---	---	7	A
I_{SM}	Max. Pulsed Forward Current	---	---	---	24	A
T_{rr}	Reverse Recovery Time	I _S =7A, V _{GS} =0V	---	310	---	ns
q_{rr}	Reverse Recovery Charge	diF/dt=100A/μs (Note3)	---	2.1	---	μC

Notes:

- 1, L=27.5mH, IAS=7A, VDD=50V, RG=25Ω, Starting T_J =25°C
- 2, Repetitive Rating : Pulse width limited by maximum junction temperature
- 3, Pulse Test : Pulse Width ≤ 300 μ s, Duty Cycle ≤ 2%
- 4, Essentially Independent of Operating Temperature

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

Figure 1. On-Region Characteristics

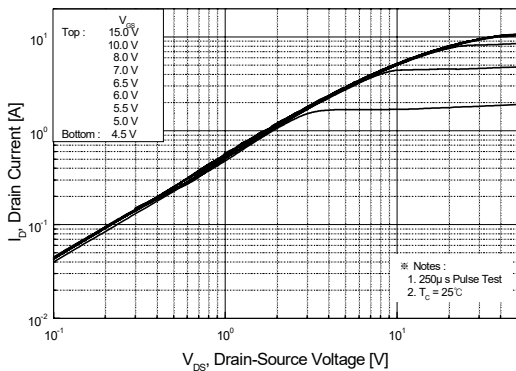


Figure 2. Transfer Characteristics

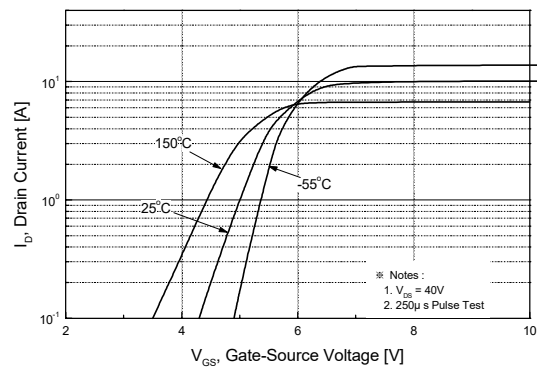


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

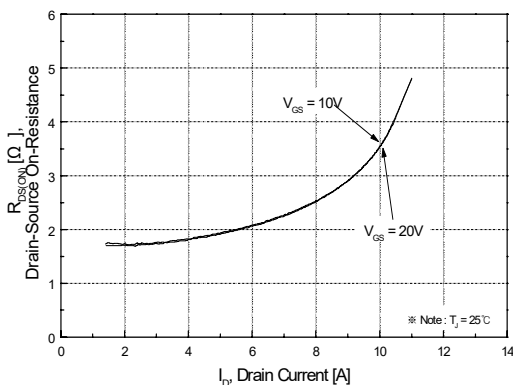


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

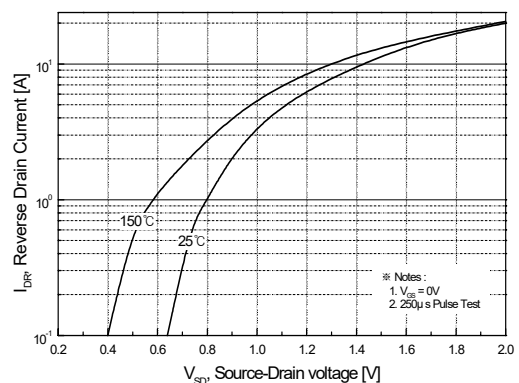


Figure 5. Capacitance Characteristics

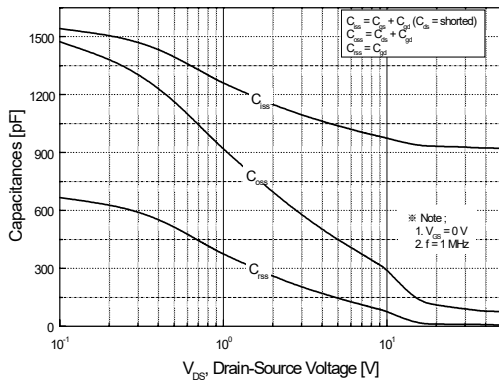


Figure 6. Gate Charge Characteristics

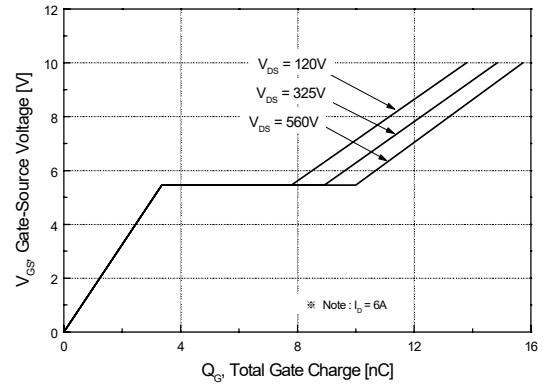


Figure 7. Breakdown Voltage Variation vs. Temperature

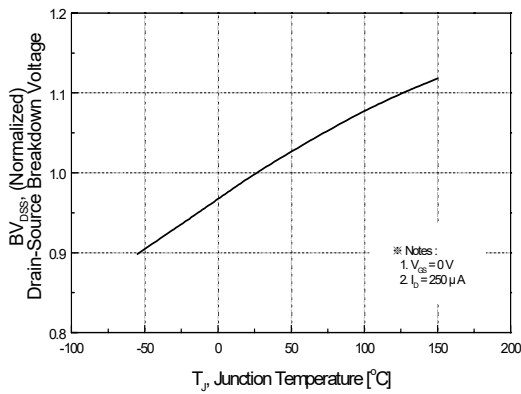


Figure 8. On-Resistance Variation vs. Temperature

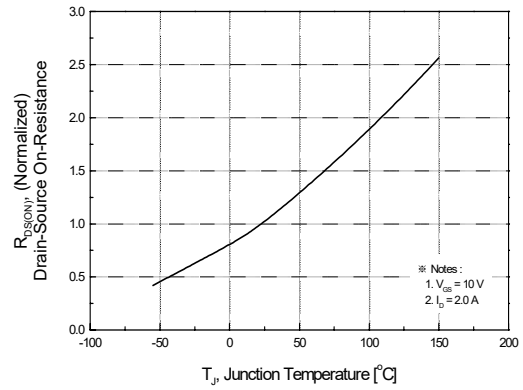


Figure 9. Maximum Safe Operating Area

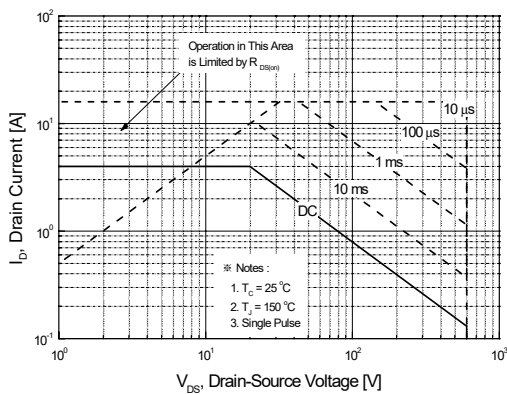


Figure 10. Maximum Drain Current vs. Case Temperature

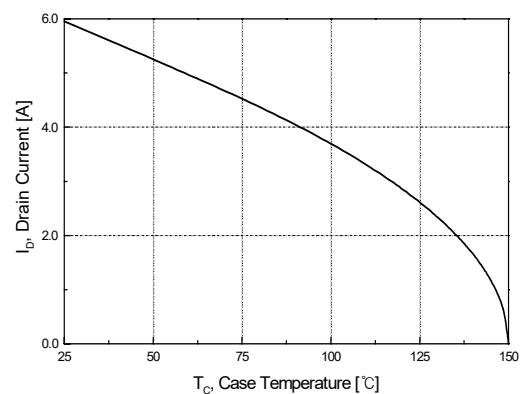
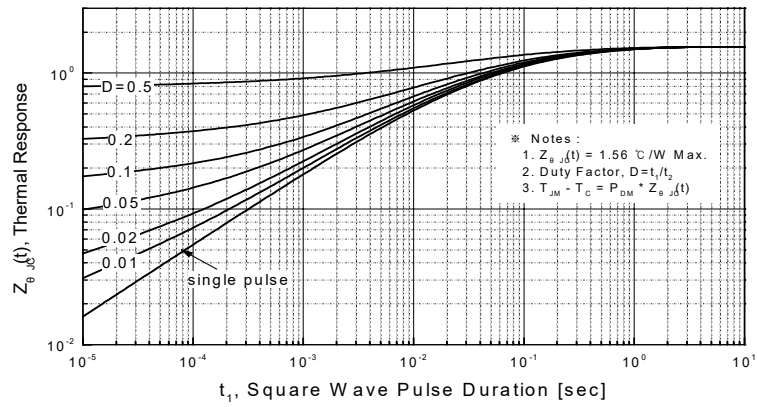


Figure 11 Transient Thermal Response Curve



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