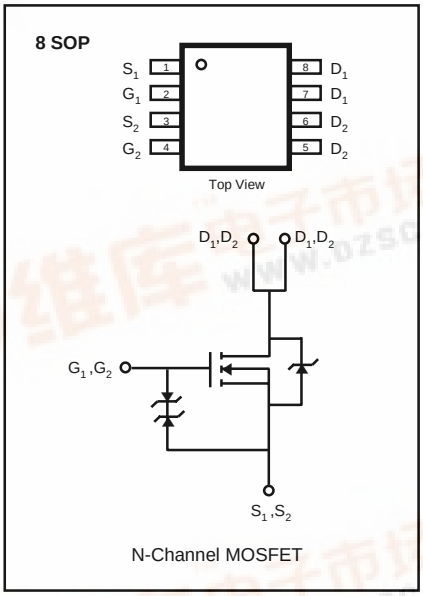
Dual N-CHANNEL POWER MOSFET

SSD2007A

FEATURES

- ❑ Extremely Lower $R_{DS(ON)}$
- ❑ Improved Inductive Ruggedness
- ❑ Fast Switching Times
- ❑ Rugged Polysilicon Gate Cell Structure
- ❑ Low Input Capacitance
- ❑ Extended Safe Operating Area
- ❑ Improved High Temperature Reliability
- ❑ Surface Mounding Package : **8SOP**



Absolute Maximum Ratings

Symbol	Characteristic	Value	Units
V_{DSS}	Drain-to-Source Voltage(1)	50	V
V_{DGR}	Drain-Gate Voltage(R_{GS}=1.0MΩ)(1)	50	V
V_{GS}	Gate-to-Source Voltage	±20	V
I_D	Continuous Drain Current T_A=25℃	2.0	A
I_D	Continuous Drain Current T_A=100℃	1.6	A
I_{DM}	Drain Current-Pulsed (2)	8.0	V
P_D	Total Power Dissipation T_A=25℃ T_A=70℃	2.0 1.3	W
T_J , T_{STG}	Operating and Storage Junction Temperature Range	- 55 to +150	℃
T_L	Maximum Lead Temp. for Soldering Purposes, 1/16" from case for 5 seconds	300	

Notes ;

(1) T_J= 25℃ to 150℃

(2) Repetitive Rating : Pulse Width Limited by Max. Junction Temperature

FAIRCHILD SEMICONDUCTOR®

Rev. A

Electrical Characteristics (T_A=25℃ unless otherwise specified)

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
BV_{DSS}	Drain-Source Breakdown Voltage	600	--	--	V	V_{GS}=0V,I_D=250μA
$V_{GS(th)}$	Gate Threshold Voltage	2.0	--	4.0	V	V_{DS}= V_{GS} ,I_D=250μA
I_{GSS}	Gate-Source Leakage , Forward	--	--	1.0	μA	V_{GS}=20V
	Gate-Source Leakage , Reverse	--	--	-1.0	μA	V_{GS}=-20V
I_{DSS}	Drain-to-Source Leakage Current	--	--	2	μA	V_{DS}=50V
		--	--	25		V_{DS}=40V,T_J=55℃
I_{DON}	On-State Drain-Source Current(2)	8.0	--	--	A	V_{GS}=10V,V_{DS}=5V
$R_{DS(on)}$	Static Drain-Source			0.3	Ω	V_{GS}=10V,I_D=1.5A
	On-State Resistance(2)			0.5		V_{GS}=5.0V,I_D=0.6A
g_{fs}	Forward Transconductance	--	2.5	--	S	V_{DS} ≥15V,I_D=2.0A
$t_{d(on)}$	Turn-On Delay Time	--	--	40	ns	V_{DD}=30V,I_D=0.6A, Z_0=6.0Ω,
t_r	Rise Time	--	--	70		
$t_{d(off)}$	Turn-Off Delay Time	--	--	100		
t_f	Fall Time	--	--	70		
Q_g	Total Gate Charge	--	--	15	nC	V_{DS}=25V,V_{GS}=10V, I_D=1.3A
Q_{gs}	Gate-Source Charge	--	1.0	--		
Q_{gd}	Gate-Drain (“Miller”) Charge	--	2.0	--		

Thermal Resistance

Symbol	Characteristic	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient	--	62.5	℃/W

Notes ;

(1) T_J= 25℃ to 150℃

(2) Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

Source-Drain Diode Ratings and Characteristics

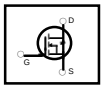
Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
I_S	Continuous Source Current (Body Diode)	--	--	1.8	A	Modified MOSFET Symbol Showing the Integral Reverse P-N Junction Rectifier 
		--	--			
		--	--			
V_{SD}	Diode Forward Voltage(2)	--	--	1.2	V	T_J=25℃,I_S=1.25A,V_{GS}=0V
t_{rr}	Reverse Recovery Time	--	--	100	ns	T_J=25℃,I_F=2.5A,di_F/dt=100A/μs

Fig 1. Output Characteristics

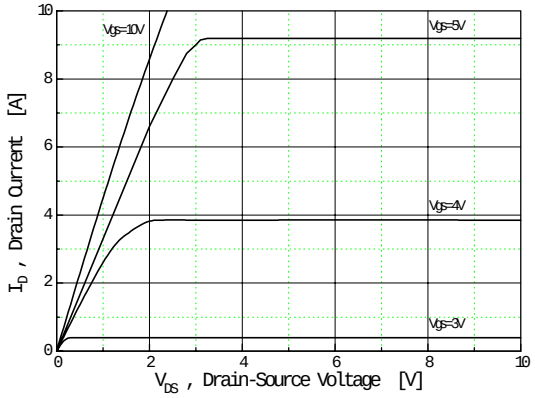


Fig 2. Transfer Characteristics

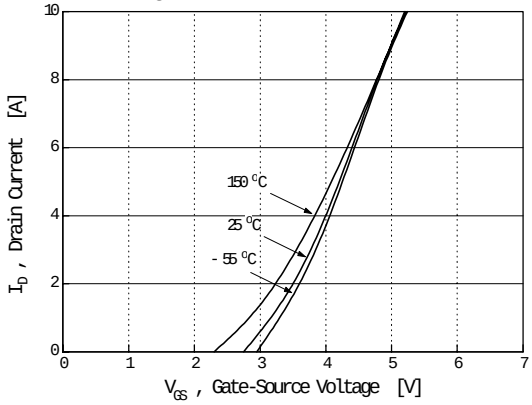


Fig 3. On-Resistance vs. Drain Current

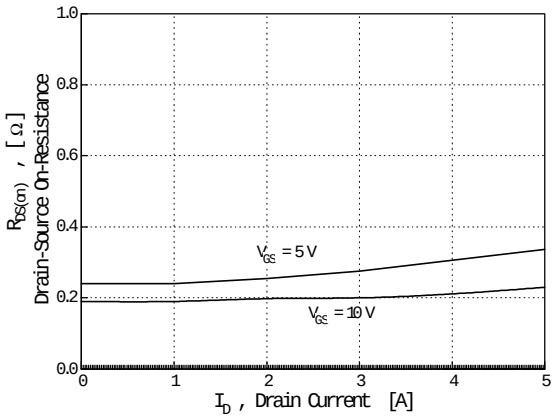


Fig 4. Capacitance vs. Drain-Source Voltage

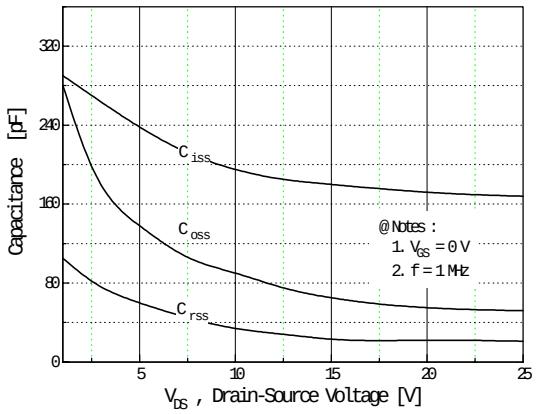


Fig 5. Breakdown Voltage vs. Temperature

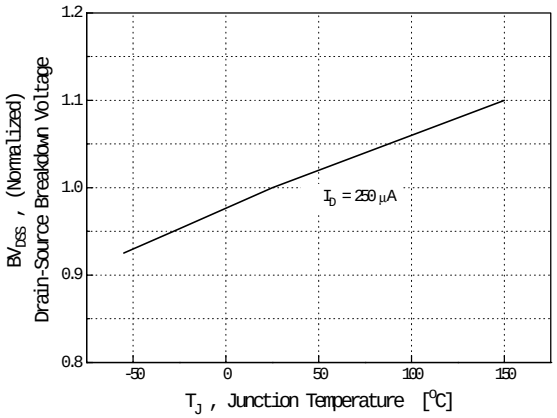


Fig 6. Nomalized On-Resistance vs. Temperature

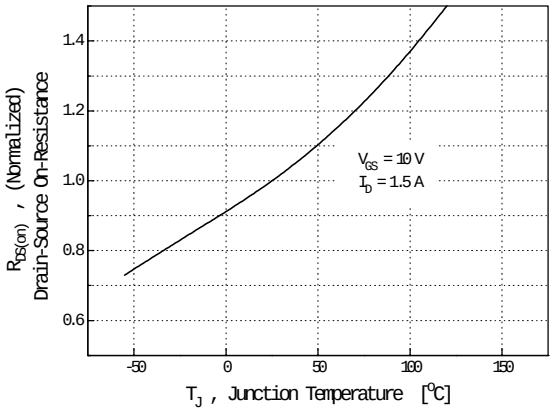


Fig 7. Nomalized Effective Transient Thermal Impedance, Junction-to-Amdient

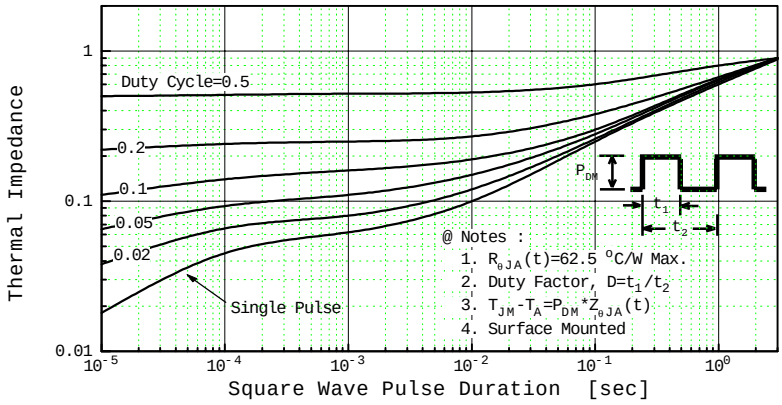


Fig 8. Source-Drain Diode Forward Voltage

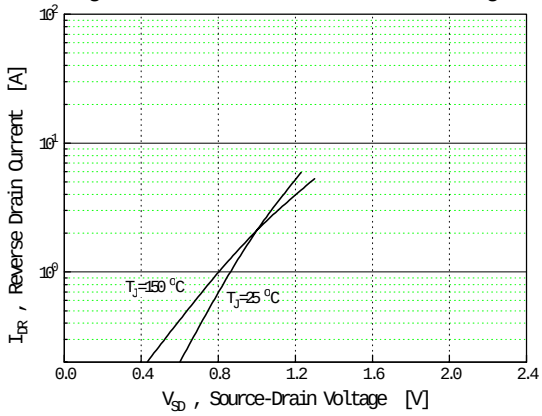


Fig 9. Gate Charge vs. Gate-Source Voltage

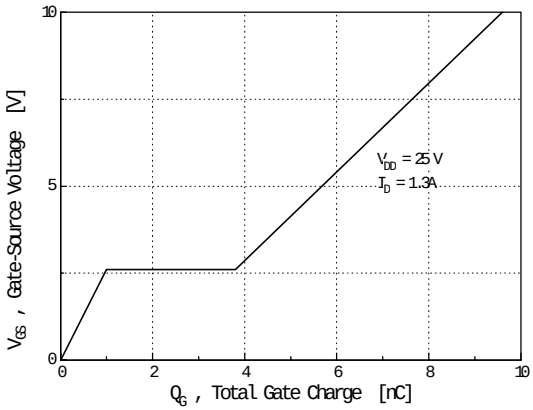
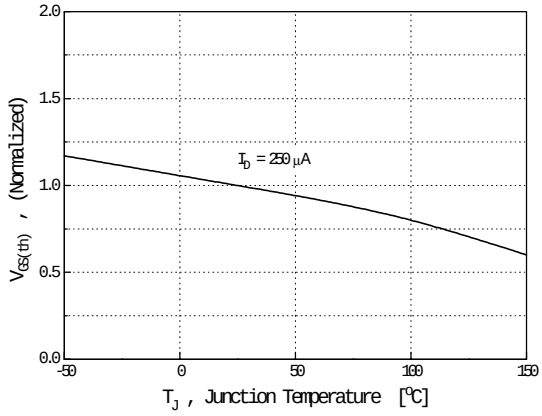


Fig 10. Threshold Voltage



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