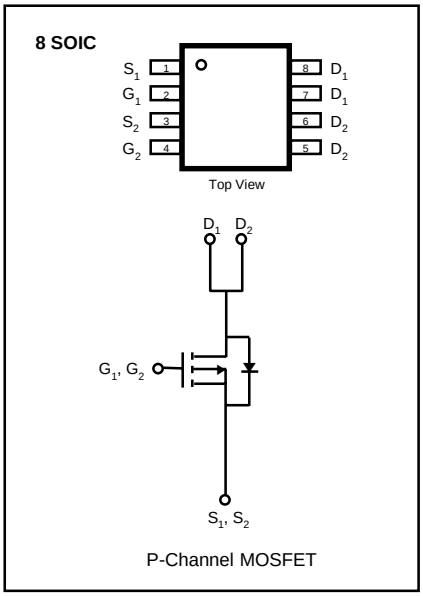
Dual P-CHANNEL POWER MOSFET SSD2019A

FEATURES

- ❑ Lower $R_{DS(ON)}$
- ❑ Improved Inductive Ruggedness
- ❑ Fast Switching Times
- ❑ Low Input Capacitance
- ❑ Extended Safe Operating Area
- ❑ Improved High Temperature Reliability



Product Summary

Part Number	BV_{DSS}	R_{DS}(on)	I_D
SSD2019A	**-20V**	**0.11Ω**	**-3.4A**

Absolute Maximum Ratings

Symbol	Characteristic	Value	Units
V_{DSS}	Drain-to-Source Voltage	-20	V
I_D	Continuous Drain Current T_A=25℃	-3.4	A
	Continuous Drain Current T_A=70℃	-2.7	
I_{DM}	Drain Current-Pulsed ①	-8.0	A
V_{GS}	Gate-to-Source Voltage	±12	V
P_D	Total Power Dissipation (T_A=25℃)	2.0	W
	(T_A=70℃)	1.3	
T_J , T_{STG}	Operating and Junction Storage Temperature Range	- 55 to +150	℃

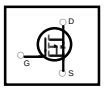
Thermal Resistance

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

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
BV_{DSS}	Drain-Source Breakdown Voltage	-20	--	--	V	V_{GS}=0V,I_D=-250μA
$V_{GS(th)}$	Gate Threshold Voltage	-0.8	--	--	V	V_{DS}= -5V ,I_D=-250μA
I_{GSS}	Gate-Source Leakage , Forward	--	--	-100	nA	V_{GS}=-12V
	Gate-Source Leakage , Reverse	--	--	100	nA	V_{GS}=12V
I_{DSS}	Drain-to-Source Leakage Current	--	--	-1.0	μA	V_{DS}=-16V
		--	--	-5.0		V_{DS}=-10V,T_C=55℃
I_{DON}	On-State Drain-Source Current	-8.0	--	--	A	V_{DS}=-5V ,V_{GS}=-4.5V
$R_{DS(on)}$	Static Drain-Source On-State Resistance ②	--	0.086	0. 11	Ω	V_{GS}=-4.5V,I_D=-3.2A
		--	0.103	0.15		V_{GS}=-3.0V,I_D=-2.0A
		--	0.108	0.19		V_{GS}=-2.7V,I_D=-1.0A
g_{fs}	Forward Transconductance ②	--	8.0	--	S	V_{DS} =-9.0V,I_D=-3.4A
$t_{d(on)}$	Turn-On Delay Time	--	18	40	ns	V_{DD}=-6.0V,I_D=-1.0A, V_{GS}=-4.5V, ②③
t_r	Rise Time	--	17	80		
$t_{d(off)}$	Turn-Off Delay Time	--	49	70		
t_f	Fall Time	--	17	40		
Q_g	Total Gate Charge	--	13	20	nC	V_{DS}=-6.0V,V_{GS}=-4.5V, I_D=-3.2A ②③
Q_{gs}	Gate-Source Charge	--	3.4	--		
Q_{gd}	Gate-Drain (“Miller”) Charge	--	4.6			

Source-Drain Diode Ratings and Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
I_S	Continuous Source Current (Body Diode)	--	-- -- --	-1.25	A	Modified MOSFET Symbol Showing the Integral Reverse P-N Junction Rectifier 
V_{SD}	Diode Forward Voltage ②	--	--	-1.2	V	T_A=25℃,I_S=-3.4A,V_{GS}=0V
t_{rr}	Reverse Recovery Time ②	--	75	100	ns	T_A=25℃,I_F=-3.4A,di_F/dt=100A/μs

Notes ;

① Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature

② Pulse Test : Pulse Width = 250μs, Duty Cycle ≤ 2%

③ Essentially Independent of Operating Temperature

Fig 1. Output Characteristics

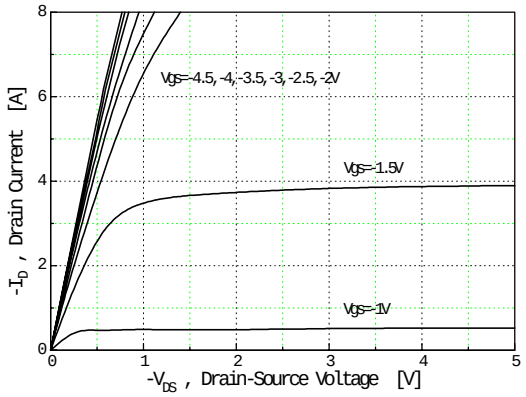


Fig 2. Transfer Characteristics

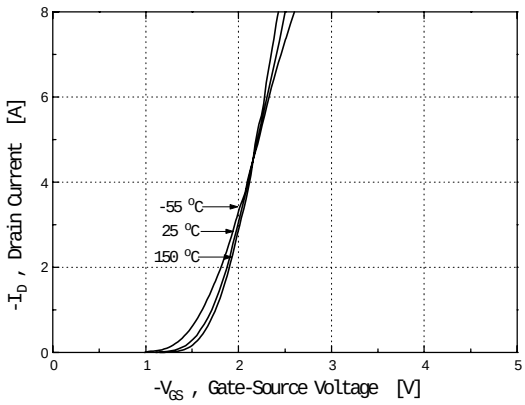


Fig 3. On-Resistance vs. Drain Current

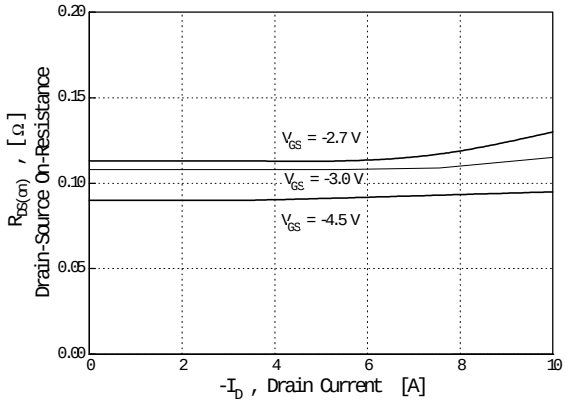


Fig 4. Source-Drain Forward Voltage

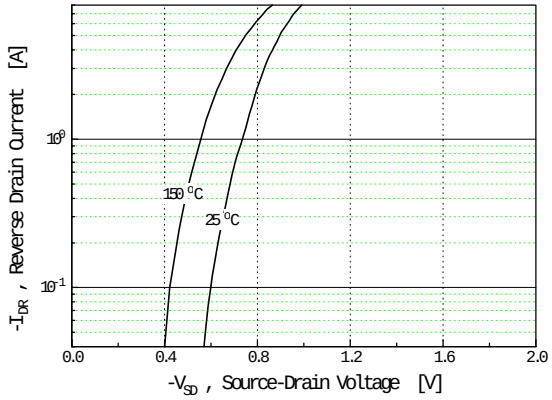


Fig 5. Capacitance vs. Drain-Source Voltage

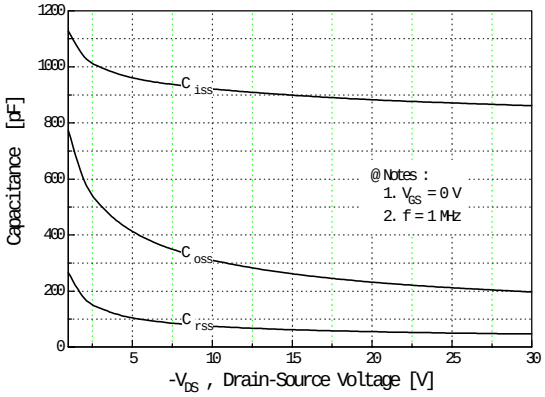


Fig 6. Gate Charge vs. Gate-Source Voltage

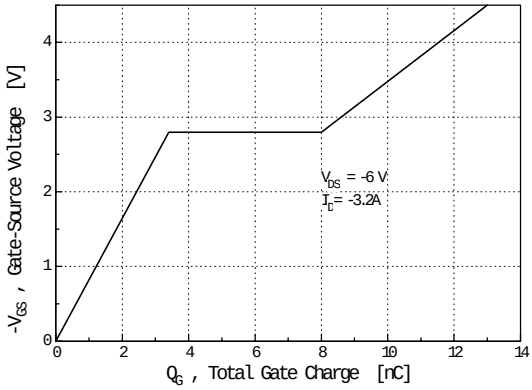


Fig 7. Breakdown Voltage vs. Temperature

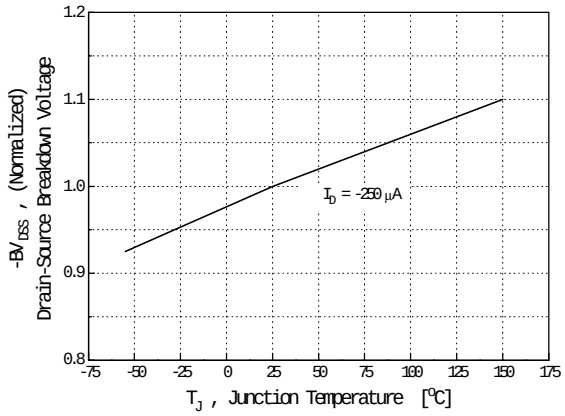


Fig 8. On-Resistance vs. Temperature

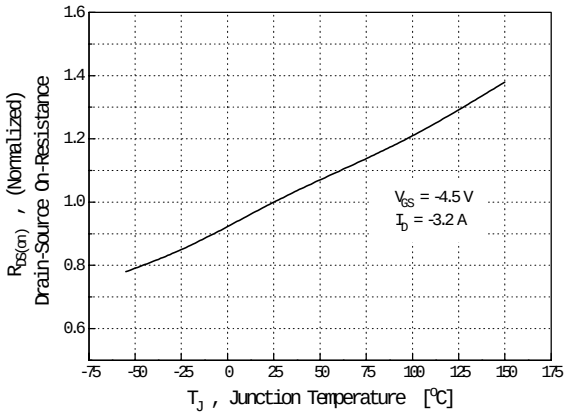
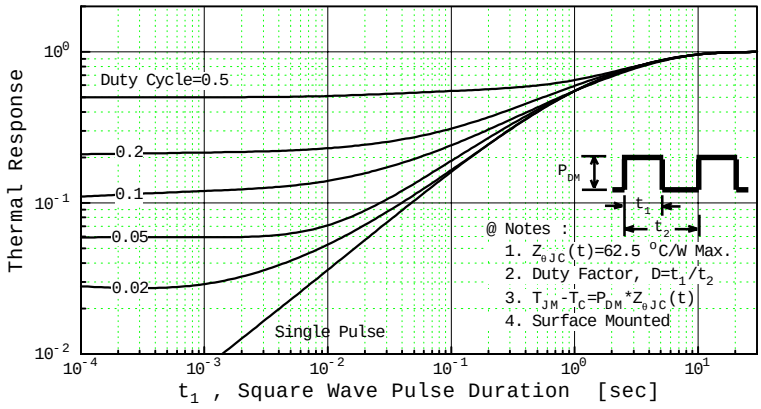


Fig 9. Nomalized Effective Transient Thermal Impedance, Junction-to-Ambient



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