

Dual P-CHANNEL POWER MOSFET

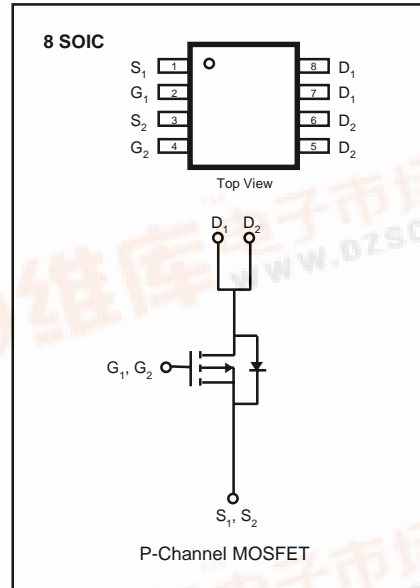
SSD2011A

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
SSD2011A	- 60V	0.280 Ω	- 2.0A



Absolute Maximum Ratings

Symbol	Characteristic	Value	Units
V_{DSS}	Drain-to-Source Voltage	- 60	V
I_D	Continuous Drain Current $T_A=25^\circ\text{C}$	- 2.0	A
	Continuous Drain Current $T_A=70^\circ\text{C}$	- 1.6	
I_{DM}	Drain Current-Pulsed (2)	- 10.0	A
V_{GS}	Gate-to-Source Voltage	± 20	V
P_D	Total Power Dissipation ($T_A=25^\circ\text{C}$) ($T_A=70^\circ\text{C}$)	2.0	W
		1.3	
T_J, T_{STG}	Operating and Junction Storage Temperature Range	- 55 to +150	$^\circ\text{C}$

Thermal Resistance

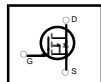
Symbol	Characteristic	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient	--	62.5	$^\circ\text{C/W}$



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

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
BV_{DSS}	Drain-Source Breakdown Voltage	-60	--	--	V	$V_{GS}=0V, I_D=-250\mu A$
$V_{GS(th)}$	Gate Threshold Voltage	-1.0	--	--	V	$V_{DS}=-5V, I_D=-250\mu A$
I_{GSS}	Gate-Source Leakage, Forward	--	--	-100	nA	$V_{GS}=-20V$
	Gate-Source Leakage, Reverse	--	--	100	nA	$V_{GS}=20V$
I_{DSS}	Drain-to-Source Leakage Current	--	--	-2.0	μA	$V_{DS}=-40V$
		--	--	-25		$V_{DS}=-40V, T_J=55^\circ\text{C}$
I_{DON}	On-State Drain-Source Current	-10	--	--	A	$V_{DS}=-5V, V_{GS}=-10V$
$R_{DS(on)}$	Static Drain-Source	--	--	0.28	Ω	$V_{GS}=-10V, I_D=-2.0A$
	On-State Resistance ⁽²⁾	--	--	0.5		$V_{GS}=-4.5V, I_D=-1.6A$
g_{fs}	Forward Transconductance ⁽²⁾	--	5.0	--	S	$V_{DS}=-15V, I_D=-2.0A$
$t_{d(on)}$	Turn-On Delay Time	--	7.0	25	ns	$V_{DD}=-30V, I_D=-1.0A,$ $R_0=6.0\Omega,$
t_r	Rise Time	--	16	30		
$t_{d(off)}$	Turn-Off Delay Time	--	37	60		
t_f	Fall Time	--	17	40		
Q_g	Total Gate Charge	--	16	30	nC	$V_{DS}=-30V, V_{GS}=-10V,$ $I_D=-2.0A$ ^{(2) (3)}
Q_{gs}	Gate-Source Charge	--	2.2	--		
Q_{gd}	Gate-Drain ("Miller") Charge	--	4.0	--		

Source-Drain Diode Ratings and Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
I_S	Continuous Source Current (Body Diode)	--	--	-2.0	A	Modified MOSFET Symbol Showing the Integral Reverse P-N Junction Rectifier 
V_{SD}	Diode Forward Voltage ⁽²⁾	--	--	-1.2	V	$T_A=25^\circ\text{C}, I_S=-2.0A, V_{GS}=0V$
t_{rr}	Reverse Recovery Time ⁽²⁾	--	100	--	ns	$T_A=25^\circ\text{C}, I_F=-2.0A, di_F/dt=100A/\mu s$

Notes ;

- ① Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature
- ② Pulse Test : Pulse Width = 250 μs , Duty Cycle $\leq 2\%$
- ③ Essentially Independent of Operating Temperature

Fig 1. Output Characteristics

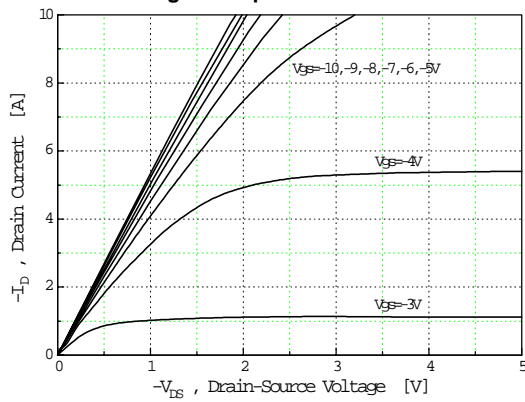


Fig 2. Transfer Characteristics

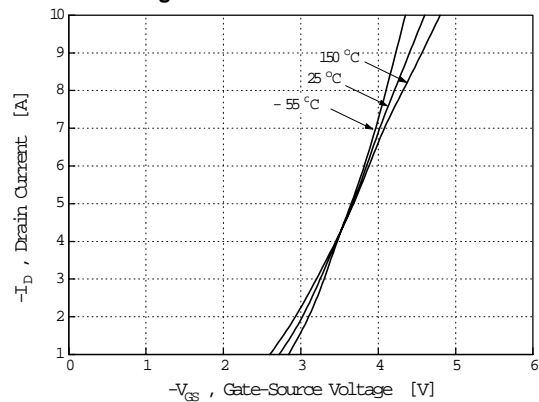


Fig 3. On-Resistance vs. Drain Current

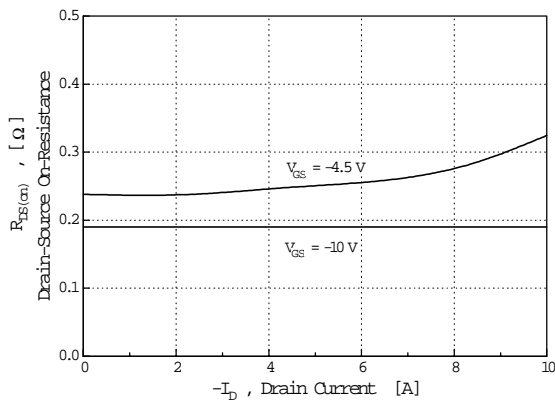


Fig 4. Source-Drain Forward Voltage

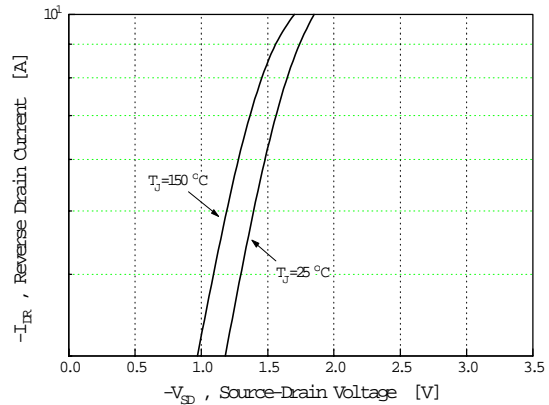


Fig 5. Capacitance vs. Drain-Source Voltage

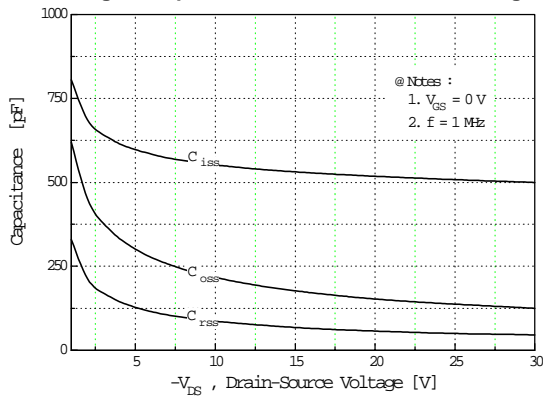


Fig 6. Gate Charge vs. Gate-Source Voltage

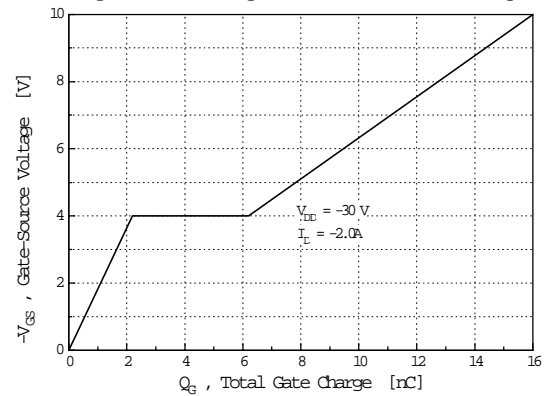


Fig 7. Breakdown Vltage vs. Temperature

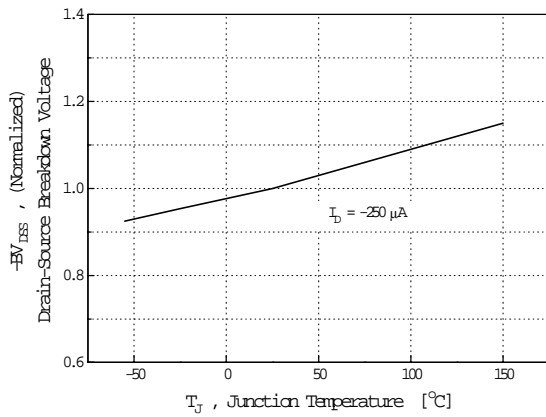


Fig 8. On-Resistance vs. Temperature

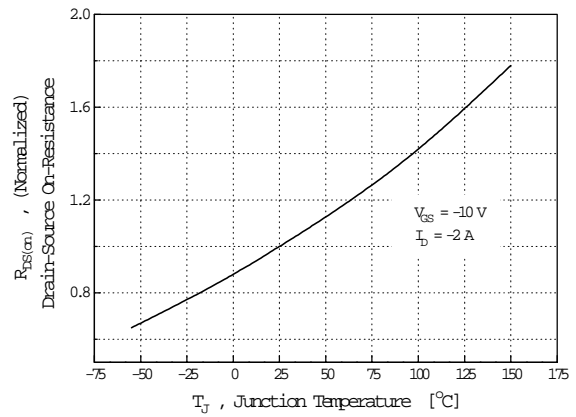
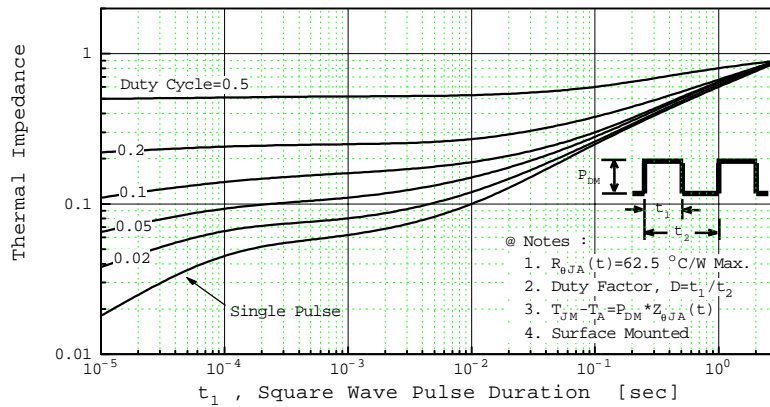


Fig 9. Normalized Effective Transient Thermal Impedance, Junction-to-Ambient



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DOME™	HiSeC™	Power247™	SuperSOT™-3	
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E ² CMOS™	ISOPLANAR™	QFET™	SuperSOT™-8	
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