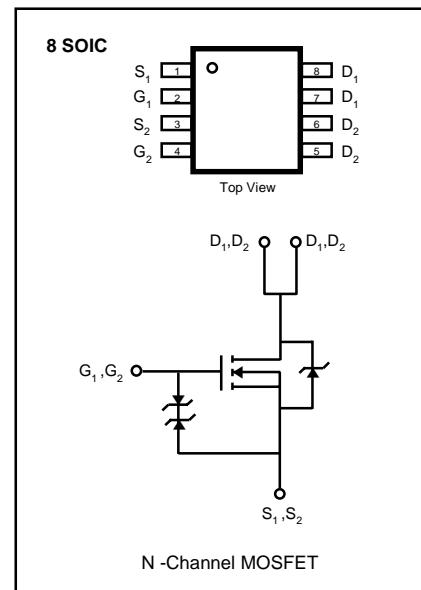


FEATURES

- 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
SSD2025	60V	0.10Ω	3.3A



Absolute Maximum Ratings

Symbol	Characteristic	Value	Units
V_{DSS}	Drain-to-Source Voltage	60	V
I_D	Continuous Drain Current $T_A=25^\circ\text{C}$	3.3	A
	Continuous Drain Current $T_A=70^\circ\text{C}$	2.6	
I_{DM}	Drain Current-Pulsed	10.0	A
V_{GS}	Gate-to-Source Voltage	± 20	V
P_D	Total Power Dissipation ($T_A=25^\circ\text{C}$)	2.0	W
	($T_A=70^\circ\text{C}$)	1.3	
T_J, T_{STG}	Operating and Junction Storage Temperature Range	- 55 to +150	°C

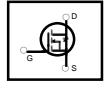
Thermal Resistance

Symbol	Characteristic	Typ.	Max.	Units
$R_{\theta JA}$	Junction-to-Ambient	--	62.5	°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	$\text{V}_{\text{GS}}=0\text{V}, \text{I}_D=250\mu\text{A}$
$\text{V}_{\text{GS(th)}}$	Gate Threshold Voltage	1.0	--	--	V	$\text{V}_{\text{DS}}=5\text{V}, \text{I}_D=250\mu\text{A}$
I_{GSS}	Gate-Source Leakage, Forward	--	--	100	nA	$\text{V}_{\text{GS}}=20\text{V}$
	Gate-Source Leakage, Reverse	--	--	-100	nA	$\text{V}_{\text{GS}}=-20\text{V}$
I_{DSS}	Drain-to-Source Leakage Current	--	--	1.0	μA	$\text{V}_{\text{DS}}=48\text{V}$
		--	--	25	μA	$\text{V}_{\text{DS}}=48\text{V}, \text{T}_C=55^\circ\text{C}$
I_{DON}	On-State Drain-Source Current	10	--	--	A	$\text{V}_{\text{DS}}=5\text{V}, \text{V}_{\text{GS}}=10\text{V}$
$\text{R}_{\text{DS(on)}}$	Static Drain-Source On-State Resistance ⁽²⁾	--	0.065	0.1	Ω	$\text{V}_{\text{GS}}=10\text{V}, \text{I}_D=3.3\text{A}$
	On-State Resistance ⁽²⁾	--	0.084	0.2	Ω	$\text{V}_{\text{GS}}=4.5\text{V}, \text{I}_D=2.5\text{A}$
g_{FS}	Forward Transconductance ⁽²⁾	--	7.0	--	S	$\text{V}_{\text{DS}}=15\text{V}, \text{I}_D=3.3\text{A}$
$\text{t}_{\text{d(on)}}$	Turn-On Delay Time	--	16	25	ns	$\text{V}_{\text{DD}}=30\text{V}, \text{I}_D=1.0\text{A}, \text{R}_0=6.0\Omega,$ ⁽²⁾⁽³⁾
t_r	Rise Time	--	18	30		
$\text{t}_{\text{d(off)}}$	Turn-Off Delay Time	--	40	50		
t_f	Fall Time	--	23	40		
Q_g	Total Gate Charge	--	18	30	nC	$\text{V}_{\text{DS}}=30\text{V}, \text{V}_{\text{GS}}=10\text{V}, \text{I}_D=3.3\text{A}$ ⁽²⁾⁽³⁾
Q_{gs}	Gate-Source Charge	--	2.3	--		
Q_{gd}	Gate-Drain ("Miller") Charge	--	4.7	--		

Source-Drain Diode Ratings and Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Condition
I_s	Continuous Source Current (Body Diode)	--	--	1.7	A	Modified MOSFET Symbol Showing the Integral Reverse P-N Junction Rectifier 
V_{SD}	Diode Forward Voltage ⁽²⁾	--	--	1.2	V	$\text{T}_A=25^\circ\text{C}, \text{I}_s=1.7\text{A}, \text{V}_{\text{GS}}=0\text{V}$
t_{rr}	Reverse Recovery Time ⁽²⁾	--	70	100	ns	$\text{T}_A=25^\circ\text{C}, \text{I}_F=1.7\text{A}, \text{dI}_F/\text{dt}=100\text{A}/\mu\text{s}$

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

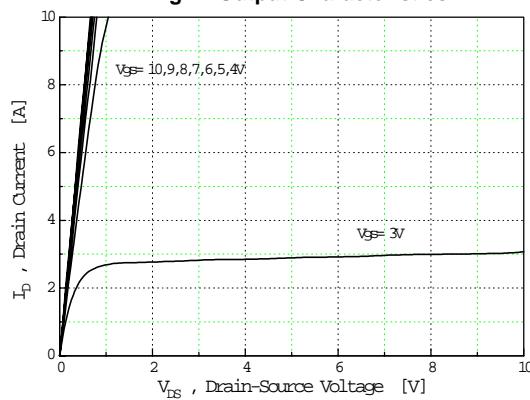


Fig 2. Transfer Characteristics

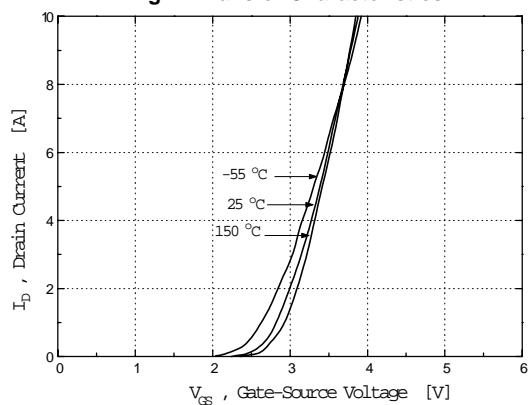


Fig 3. On-Resistance vs. Drain Current

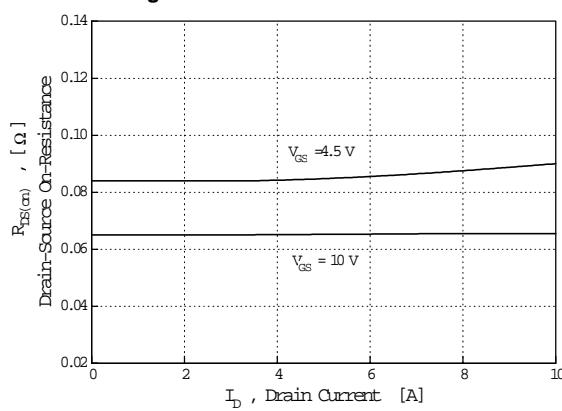


Fig 4. Source-Drain Forward Voltage

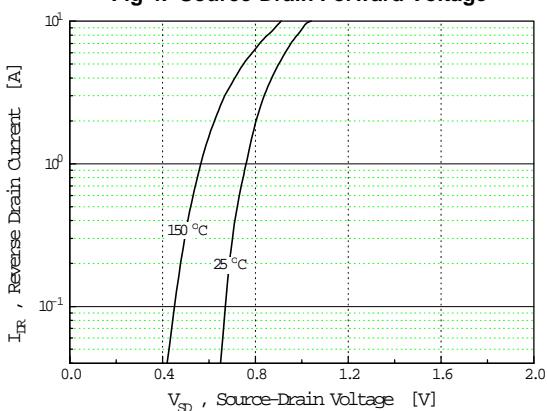


Fig 5. Capacitance vs. Drain-Source Voltage

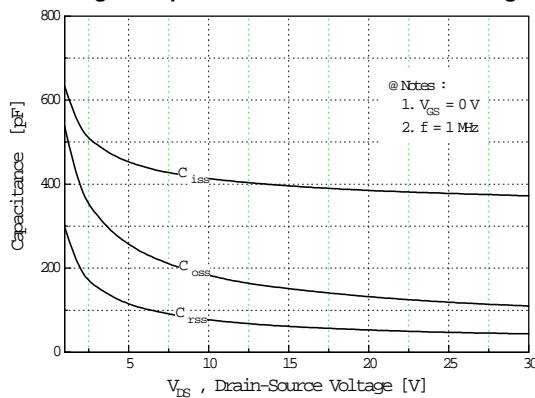


Fig 6. Gate Charge vs. Gate-Source Voltage

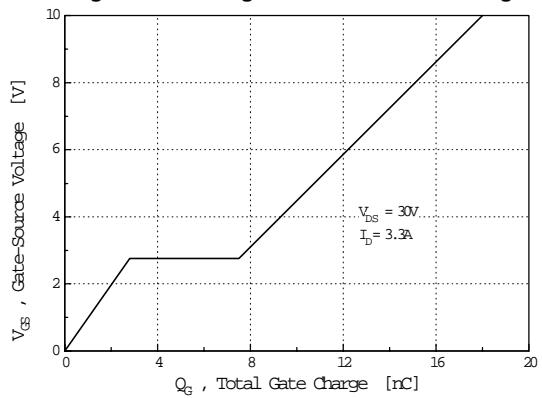


Fig 7. Breakdown Voltage vs. Temperature

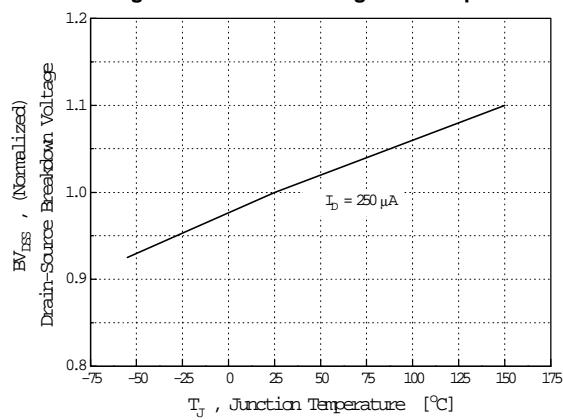


Fig 8. On-Resistance vs. Temperature

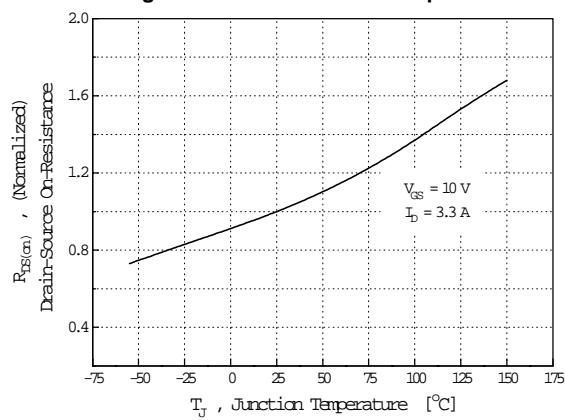
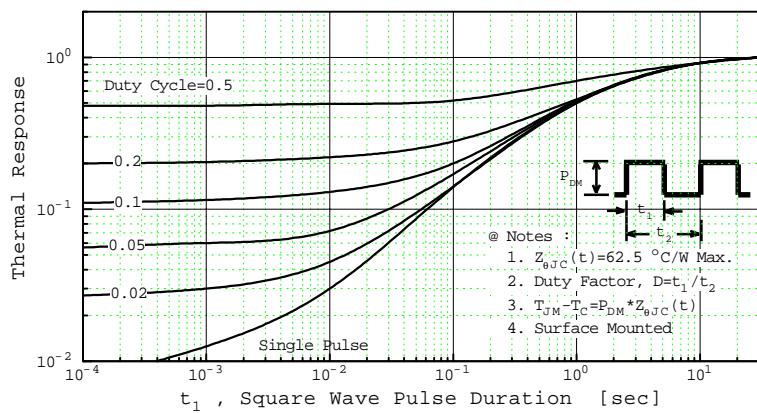


Fig 9. Normalized Effective Transient Thermal Impedance, Junction-to-Ambient



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