Prisemi®

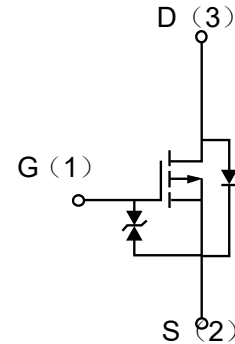## Description

The enhancement mode MOS is extremely high density cell and low on-resistance.

MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(\Omega)$	$I_D(A)$
-20	0.037 @ V_{GS}=-4.5V	-4

D（3）

G（1）

S（2）

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Drain Current Continuous	I_D	-4	A
Pulsed Drain Current (Note 1)	I_{DM}	-30	A
Total Power Dissipation	P_D	1.4	W
Junction and Storage Temperature Range	T_J,T_{STG}	-55 to +150	℃

Thermal resistance

Parameter	Symbol	Typ.	Units
Maximum Junction-to-Ambient (Note 2)	$R_{\theta JA}$	89.3	℃/W

Electrical characteristics per line@25℃(unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	I_D =-250μA,V_{GS}=0V	-20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-20V,V_{GS}=0V	-	-	-1.0	μA
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=±10V,V_{DS}=0V	-	-	±10	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.4	-0.65	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D =-4A	-	0.037	0.047	Ω
		V_{GS}=-2.5V, I_D =-4A	-	0.049	0.060	Ω
Forward Trans conductance	g_{FS}	V_{DS}=-5V, I_D =-4A	8	-	-	S
Total Gate Charge	Qg	I_D =-4A, V_{DS} =-10V, V_{GS} =-4.5V	-	17		nC
Gate-to-Source Charge	Qgs		-	1.2		
Gate-to-Drain(Miller) Charge	Qgd		-	4.3		
Input Capacitance	C_{ISS}	V_{GS}=0V, V_{DS} =-10V, f=1MHz	-	1250		pF
Output Capacitance	C_{DSS}		-	200		pF
Reverse Transfer Capacitance	C_{RSS}		-	155		pF
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-10V, V_{GS}=-4.5V, R_L=2.5Ω, R_{GEN}=3Ω	-	9.3	-	ns
Rise Time	t_r		-	15	-	
Turn-Off Delay Time	$t_{d(off)}$		-	80	-	
Fall Time	t_f		-	25	-	
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V, I_S=-1A			-1.2	V
Diode Forward Current (Note 2)	I_S				-2.2	A

Note1: Repetitive Rating: Pulse width limited by maximum junction temperature.

Note2: Surface Mounted on FR4 Board, t≤10sec.

Note3: Pulse Test Pulse Width ≤300μs, Duty Cycle ≤2%.
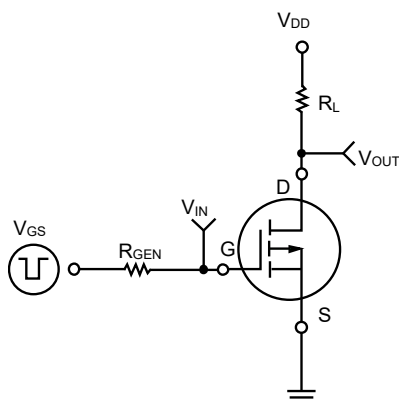
Typical Characteristics
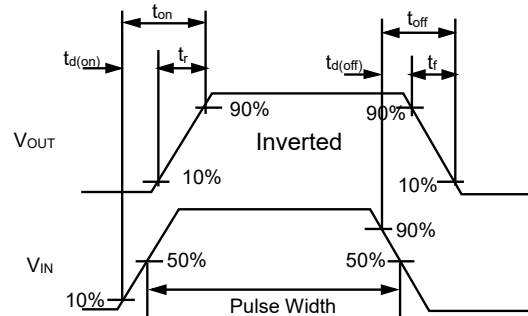

Figure 1. Switching Test Circuit
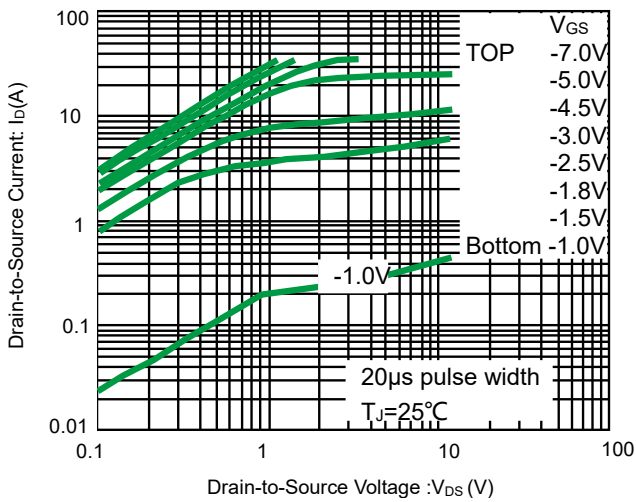

Figure 2. Switching Waveforms
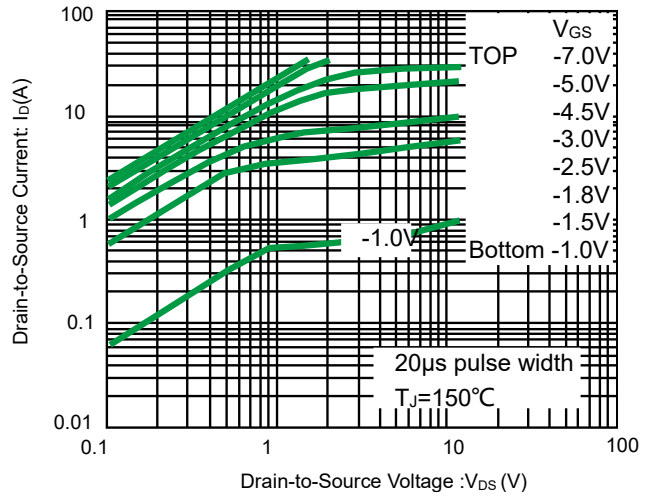
Fig 3. Typical output characteristics

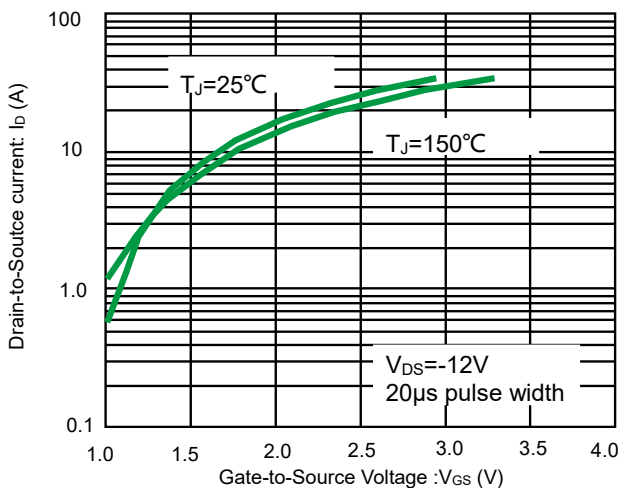Fig 4. Typical output characteristics
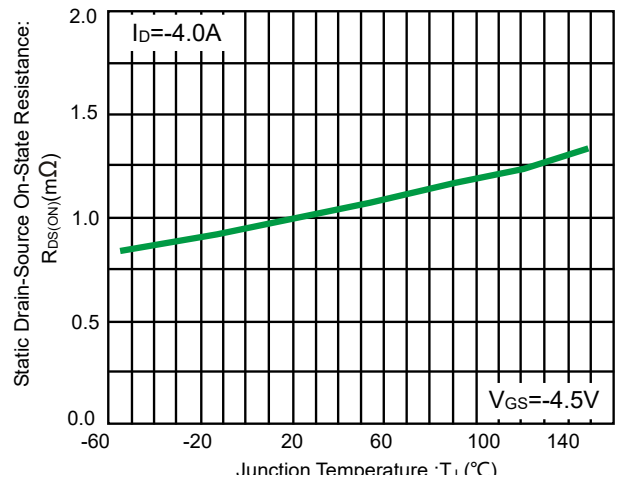

Fig 5. Typical transfer characteristics

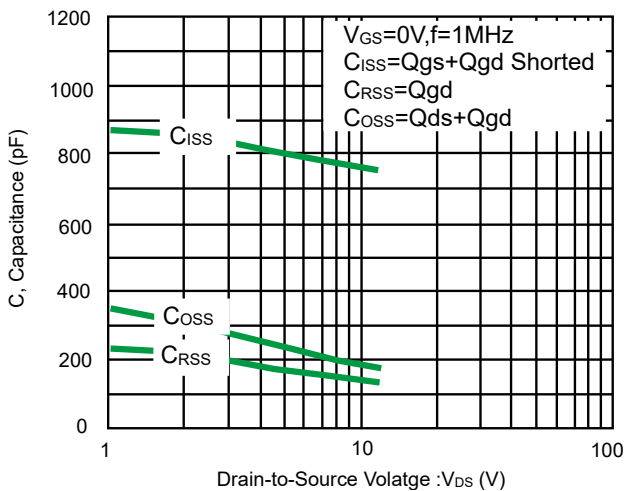Fig 6. Normalized On-Resistance vs, Temperature

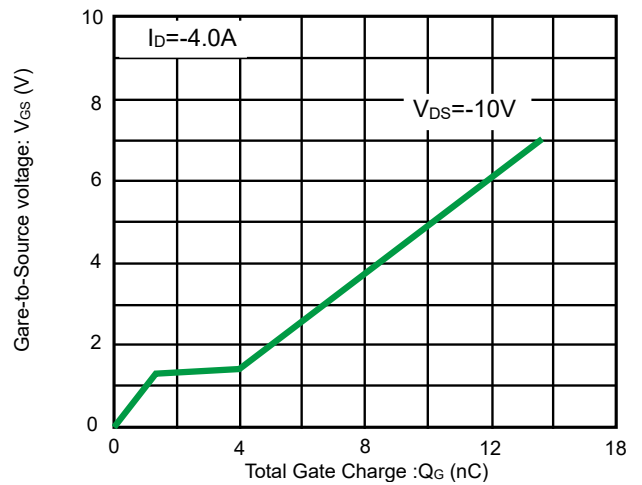Fig 7. Typical Capacitance vs. Drain-to-Source

voltage

Fig 8. Typical Gate Charge vs. Gate-to-Source
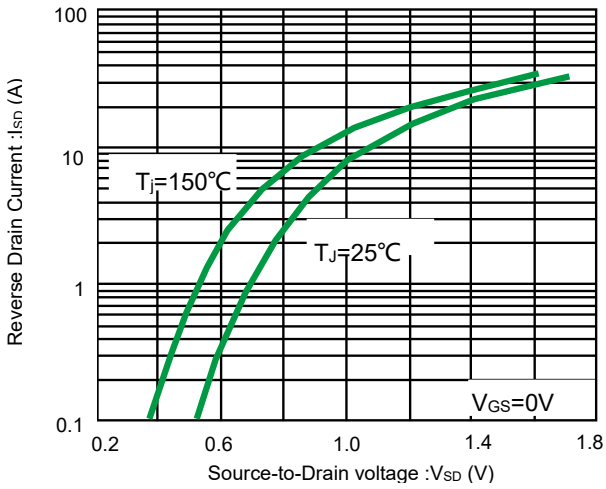
voltage

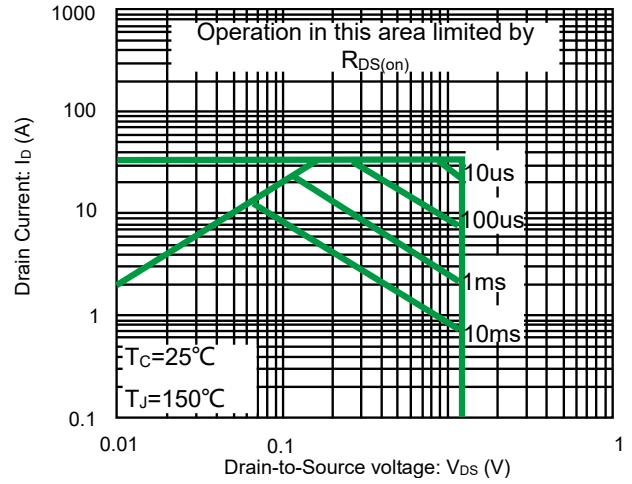Fig 9. Typical Source-Drain Diode Forward Voltage

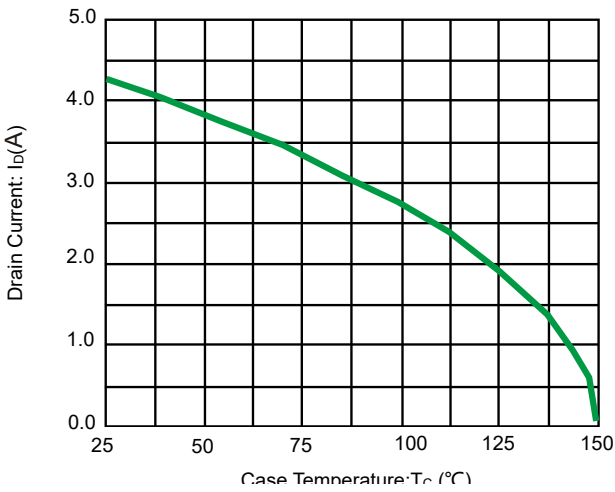Fig 10. Maximum Safe Operating Area

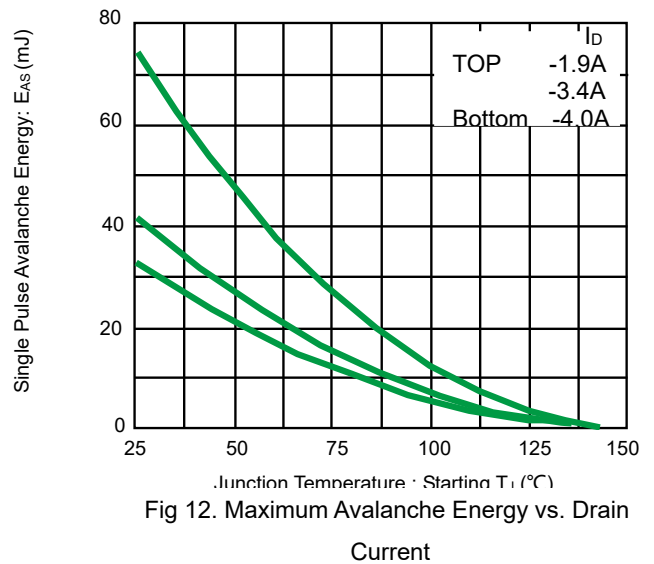Fig 11. Maximum Drain Current vs. Case Temperature
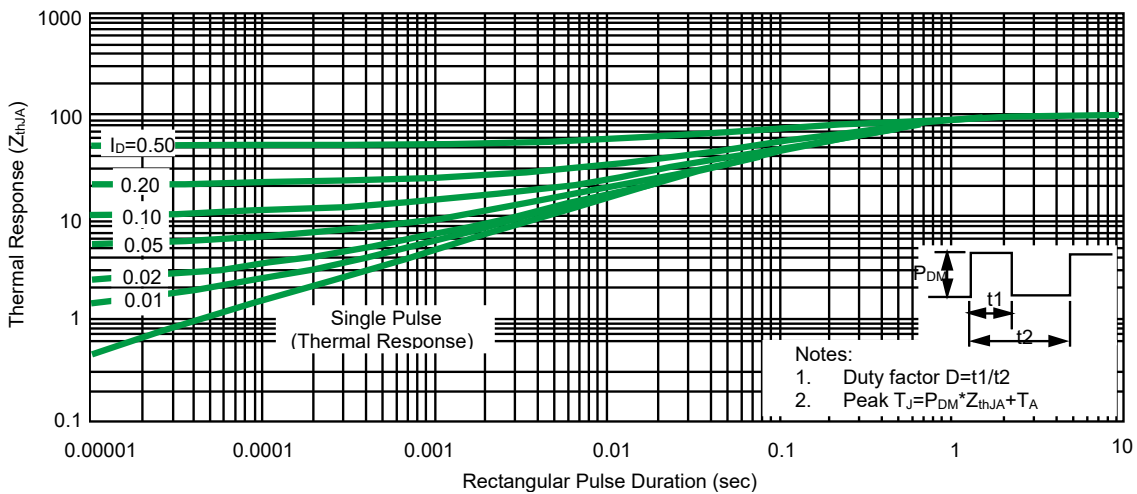
Fig 12. Maximum Avalanche Energy vs. Drain Current

Fig 13. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient
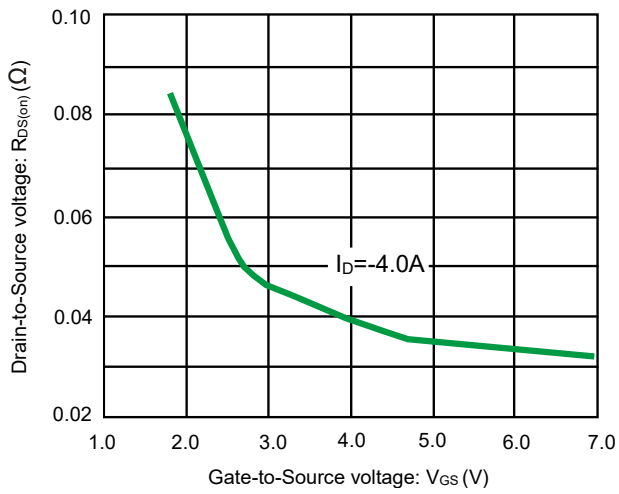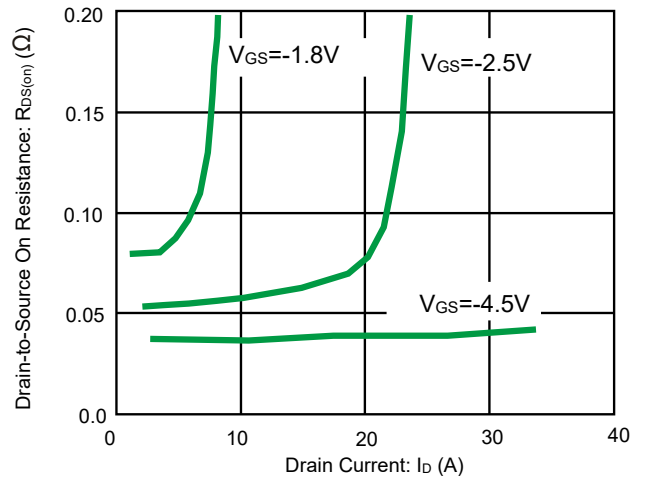
Fig 14. Typical On-Resistance vs. Gate Voltage

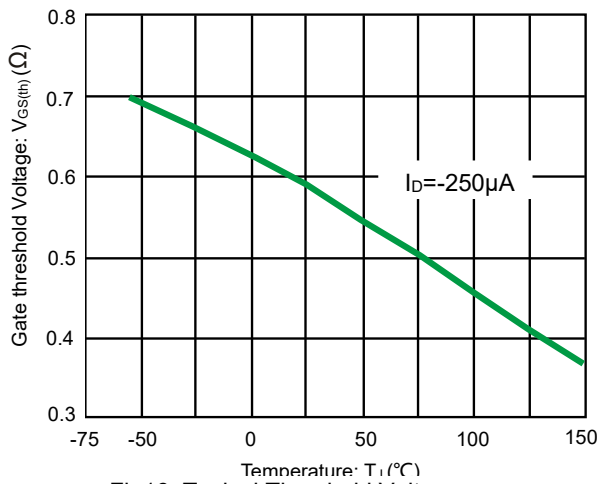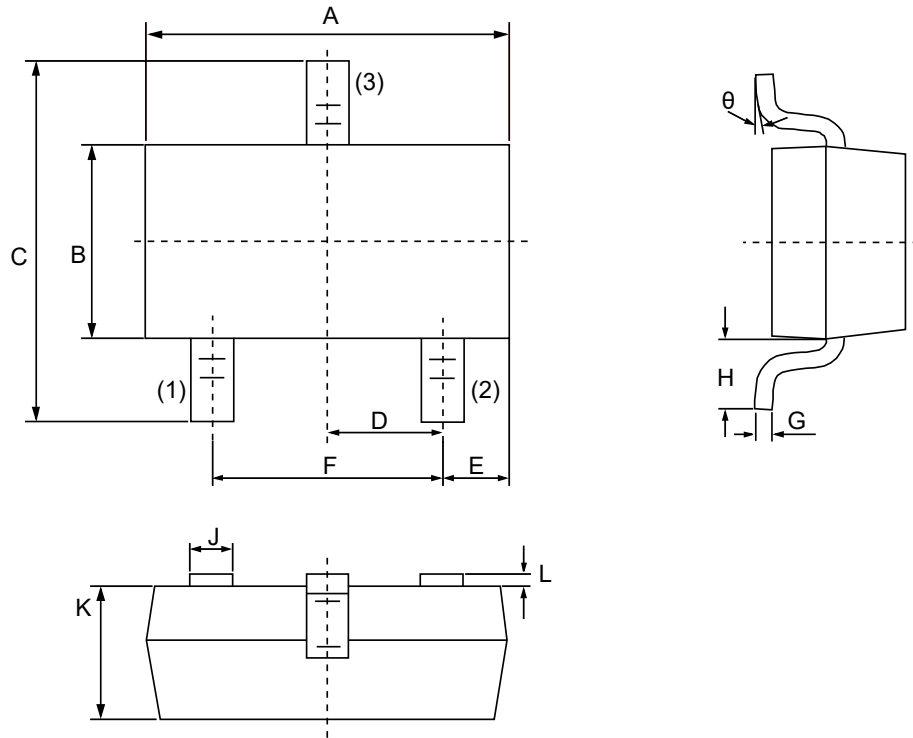Fig 15. Typical On-Resistance vs. Drain Current

Fig16. Typical Threshold Voltage vs.

Junction Temperature

Product dimension(SOT-23)

Dim	Millimeters		Inches	
	MIN	**MAX**	**MIN**	**MAX**
A	2.80	3.00	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	2.10	2.50	0.0830	0.0984
D	0.89	1.02	0.0350	0.0401
E	0.45	0.60	0.0177	0.0236
F	1.78	2.04	0.0701	0.0807
G	0.085	0.177	0.0034	0.0070
H	0.45	0.60	0.0180	0.0236
J	0.37	0.50	0.0150	0.0200
K	0.89	1.11	0.0350	0.0440
L	0.013	0.100	0.0005	0.0040
θ	0°	10°	0°	10°

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