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SI2300A

N-Channel Enhancement Mode Field Effect Transistor

www.sot23.com.tw

General Features

- 20V,4A
- $R_{DS(on)}$=Typ 23mΩ@V_{GS}= 4.5V
- $R_{DS(on)}$=Typ 28m Ω@V_{GS}= 2.5V
- SOT23

Application

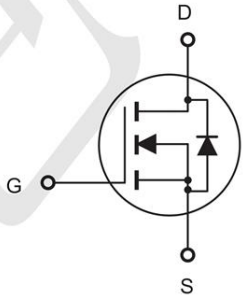
- Battery protection
- Load switch
- Power management

Package and Pin Configuration

SOT-23

MARKING =2300S Or 2300

Circuit diagram



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current @25℃ (note 1)	I_D	4.0	A
Power Dissipation @25℃ (note 1)	P_D	1.0	W
Storage Temperature	T_{STG}	-55 ~ +150	℃

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ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	20			V
Gate-Threshold Voltage(Note 2)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	0.7	0.9	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=± 10V, V_{DS}=0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Drain-Source On-Resistance(Note 2)	$R_{DS(on)}$	V_{GS}=4.5V, I_D=4.5A		23	25	mΩ
		V_{GS}=2.5V, I_D=4.0A		28	38	
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=4.5A	5.0			S
Dynamic Characteristics(Note 3)						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V, f=1MHz		482		pF
Output Capacitance	C_{oss}			85		
Reverse Transfer Capacitance	C_{rss}			52		
Switching Characteristics(Note 3)						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=10V,R_L=2.8Ω,V_{GS}=4.5V, I_D=1A , R_{GEN}=6Ω		13		ns
Turn-On Rise Time	t_r			54		
Turn-Off Delay Time	$t_{d(off)}$			18		
Turn-Off Fall Time	t_f			11		
Total Gate Charge	Q_g	V_{DS}=10V,I_D=4.5A,V_{GS}=4.5V		4.2		nC
Gate-Source Charge	Q_{gs}			0.9		
Gate-Drain Charge	Q_{gd}			1.4		
Source-Drain Diode characteristics						
Drain-Source Diode Forward Current	I_S	V_{GS}=0V,I_S=1A			4.0	A
Diode Forward voltage	V_{SD}	V_{GS}=0V,I_S=1A		0.8	1.2	V

Curve Characteristics

Fig. 1 - Output Characteristics

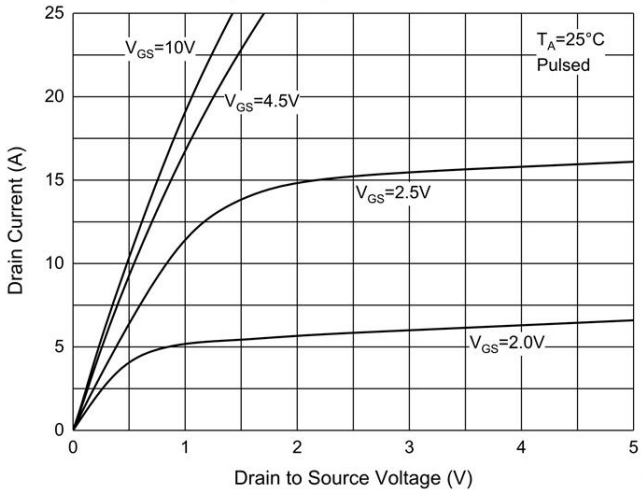


Fig. 2 - Transfer Characteristics

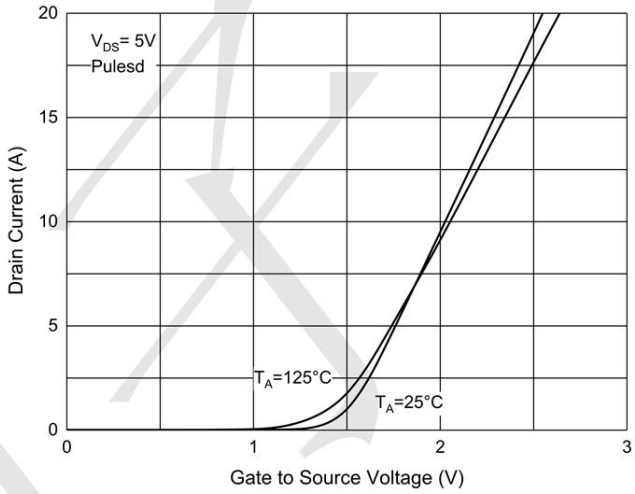


Fig. 3 - Capacitance Characteristics

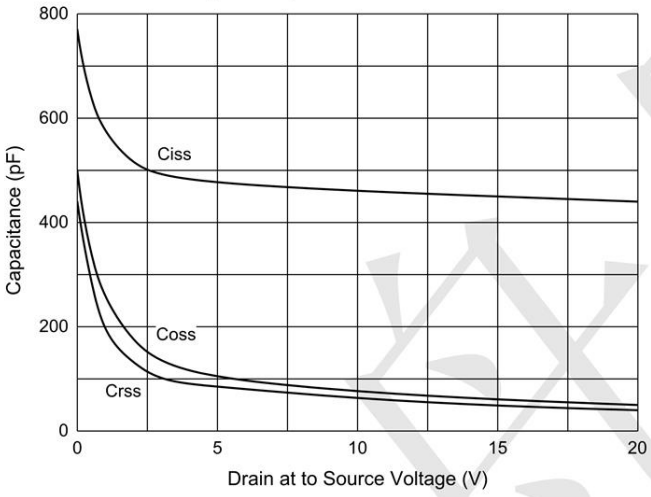


Fig. 4 - $R_{DS(ON)}$—Temperature

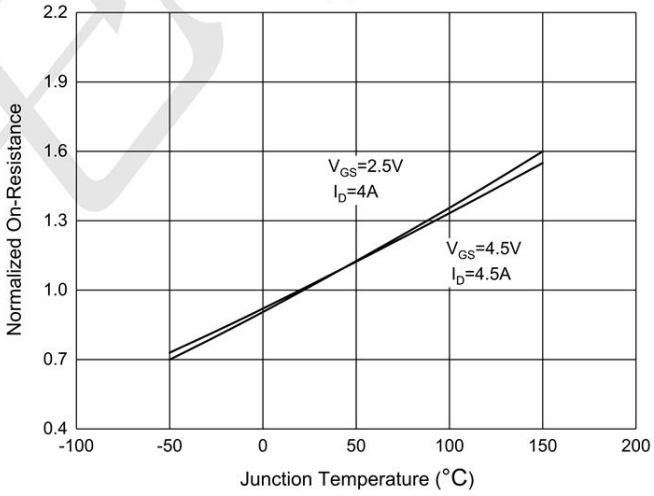


Fig. 5 - Threshold Voltage

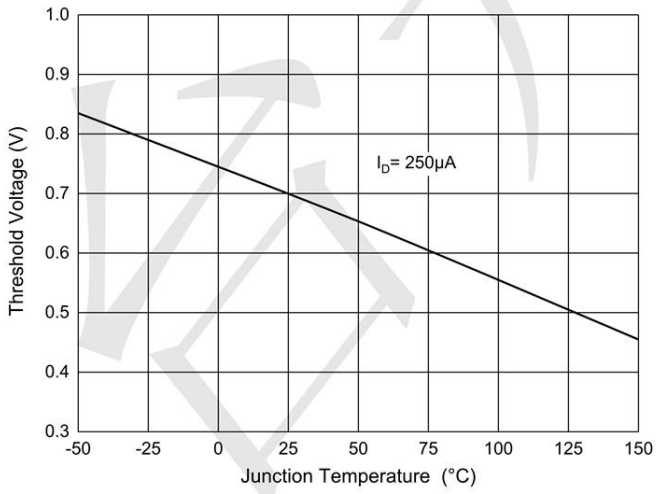
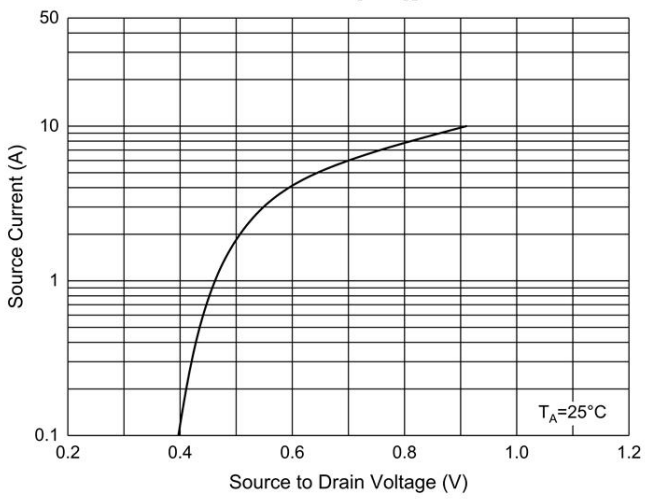


Fig. 6 - I_S—V_{SD}



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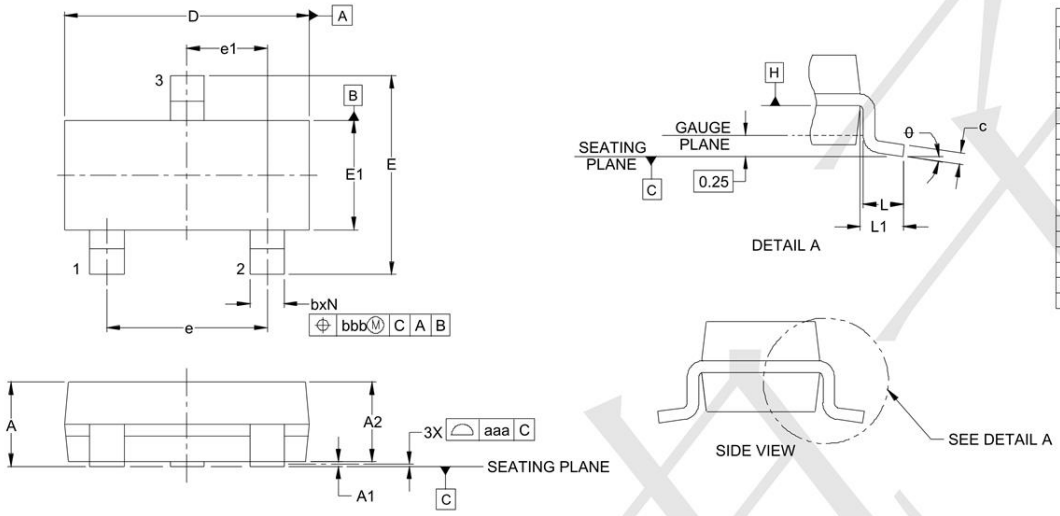
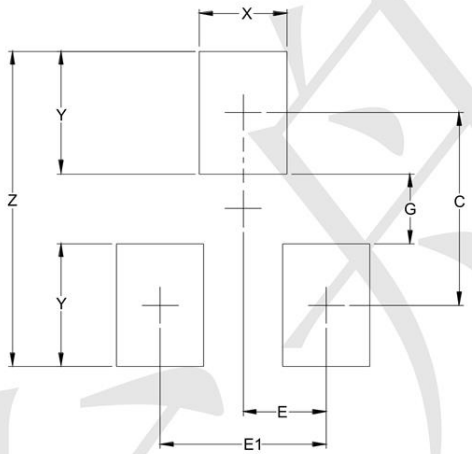
Outline Drawing - SOT23



DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.044	0.89	-	1.12
A1	.000	-	.004	0.01	-	0.10
A2	.035	.037	.040	0.88	0.95	1.02
b	.012	-	.020	0.30	-	0.51
c	.003	-	.007	0.08	-	0.18
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e	.075			1.90 BSC		
e1	.037			0.95 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1	.022			(0.55)		
N	3			3		
θ	0°	-	8°	0°	-	8°
aaa	.004			0.10		
bbb	.008			0.20		

Land Pattern - SOT23



DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.087)	(2.20)
E	.037	0.95
E1	.075	1.90
G	.031	0.80
X	.039	1.00
Y	.055	1.40
Z	.141	3.60