SI2302

DATASHEET

Specification Revision History:

Version	Date	Description
V1.0	2021/11	New
V1.1	2022/06	Modify Ordering Information
V1.2	2024/02	Modify Ordering Information
V1.3	2025/05	Add application precautions and overall typesetting.

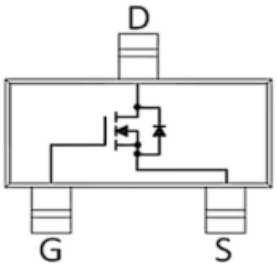
Features & Applications

※TrenchFET Power MOSFET.

※Super high dense cell design.

※Battery management,High speed switch,low power DC to DC converter.

The appearance of the product



SOT-23

Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
SI2302-GM	SOT-23	A2SHB	REEL	3000PCS/REEL

Absolute Maximum Ratings(Ta=25°C)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±10	V
I_D	Continuous Drain Current	2.3	A
I_S	Continuous Source-Drain Current(Diode Conduction)	0.6	A
P_D	Power Dissipation	400	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient (t≤5s)	300	°C/W
T_J, T_{stg}	Operation Junction And Storage Temperature Range	-55~+150	°C

Electrical Characteristics (Ta=25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
Static						
$V_{(BR)DSS}$	Drain-source breakdown voltage	V_{GS}=0, I_D=10μA	20			V
$V_{GS(th)}$	Gate-threshold voltage	V_{DS}= V_{GS}, I_D=250μA	0.6		1.1	V
I_{GSS}	Collector cut-off current	V_{DS}=0, V_{GS}=±10V			100	nA
I_{DSS}	Collector cut-off current	V_{DS}=20V, V_{GS}=0V			1	μA
$R_{DS(on)}$	Drain-source on-resistance[a]	V_{GS}=4.5V, I_D=2A		50	60	mΩ
		V_{GS}=2.5V, I_D=1A		65	85	mΩ
g_{FS}	Forward transconductance[a]	V_{DS}=5V, I_D=2.5A		10		S
V_{SD}	Diode forward voltage	I_S=1A,V_{GS}=0V			1.2	V
Dynamic						
Q_g	Total gate charge	V_{DS}=10V, V_{GS}=4.5V, I_D=2.5A		5.0	10	nC
Q_{gs}	Gate-source charge			0.65		
Q_{gd}	Gate-drain charge			1.5		
C_{iss}	Input capacitance[b]	V_{DS}=10V, V_{GS}=0V, f=1MHz		340		pF
C_{oss}	Output capacitance[b]			120		
C_{rss}	Reverse transfer capacitance[b]			80		
Switching[b]						
$t_{d(on)}$	Turn-on delay time	V_{DS}=10V, RL=5.5Ω, I_D≈2.5A, V_{GEN}=4.5V, Rg=6Ω		12		nS
t_r	Rise time			36		
$t_{d(off)}$	Turn-off delay time			34		
t_f	Fall time			10		

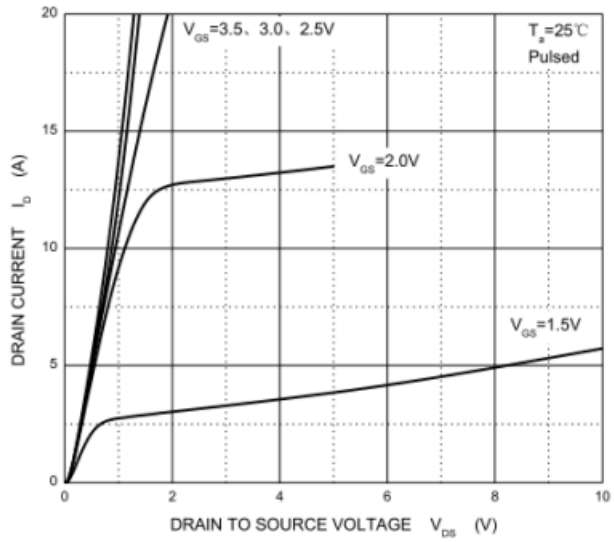
Notes :

a. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.

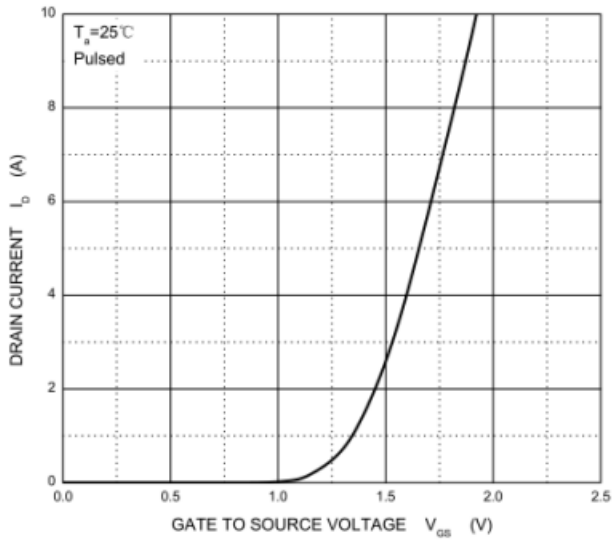
b. These parameters have no way to verify.

Typical Characteristics

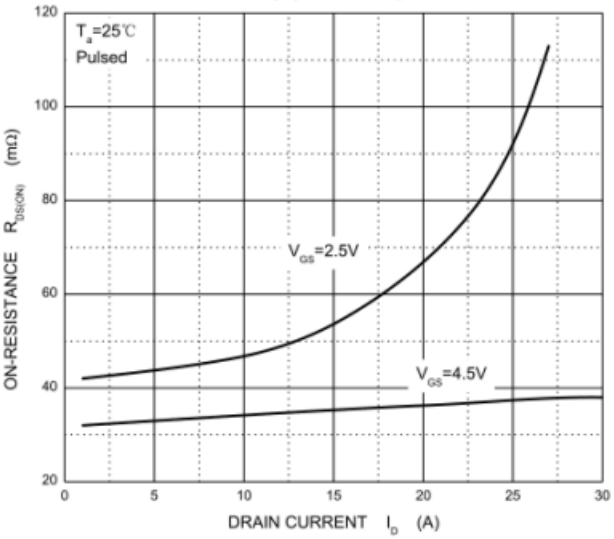
Output Characteristics



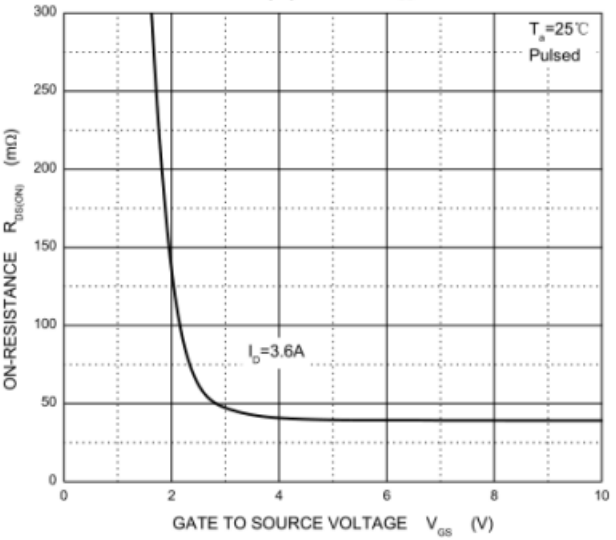
Transfer Characteristics



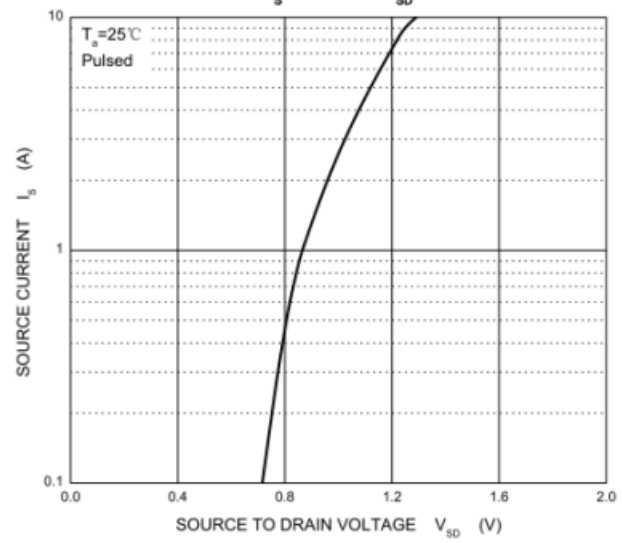
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}

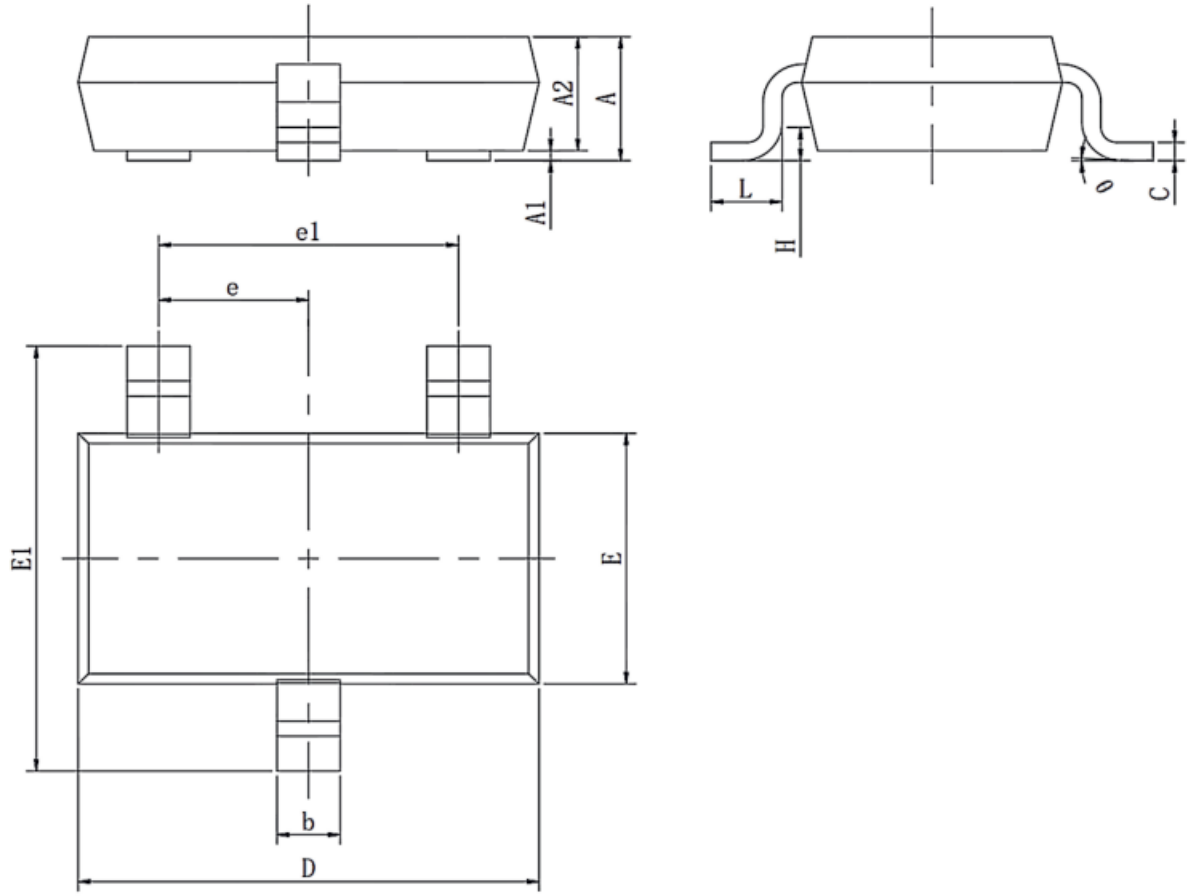


I_S — V_{SD}



Outline Dimensions

SOT-23 Unit : mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
C	0.080	0.200	0.003	0.008
D	2.800	3.020	0.110	0.119
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95 (BSC)		0.037(BSC)	
e1	1.90 (BSC)		0.075(BSC)	
L	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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