BORN SEMICONDUCTOR

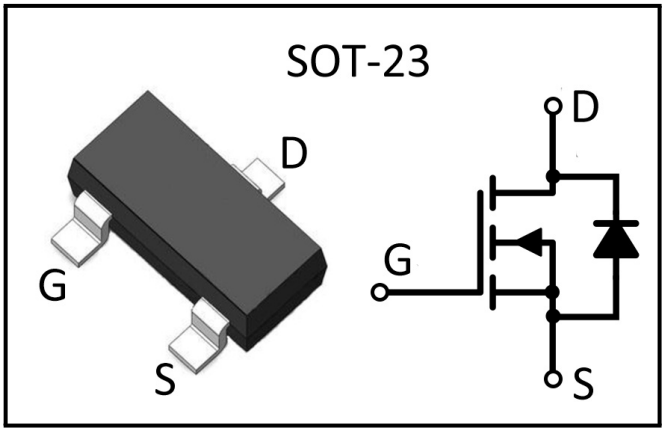
SI2310A

N-Channel MOSFET

Features

- $V_{DS(V)}$=60V
- I_D=3A
- $R_{DS(ON)}$@$V_{GS(V)}$=10V,TYP=80mΩ
- $R_{DS(ON)}$@$V_{GS(V)}$=4.5V,TYP=90mΩ

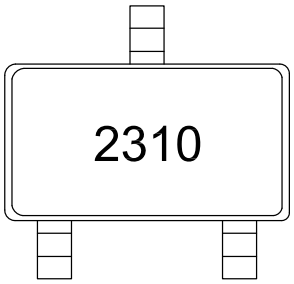
Package



General Description

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- SOT-23 for Surface Mount Package.

Marking



Ordering information

Order code	Package	Marking	Base qty	Delivery mode
SI2310A	SOT-23	2310	3K	Tape and reel

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

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	3	A
I_{DM}	Pulsed drain current	10	A
P_D	Power dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	357	°C/W
T_J	Operating Junction Temperature	150	°C
T_{stg}	Storage Temperature Range	-55 to +150	°C

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Electrical Characteristics @T_A=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250uA	60	–	–	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 60V, V_{GS} = 0V	–	–	1	uA
I_{GSS}	Gate Body Leakage Current	V_{GS} = ±20V, V_{DS} = 0V	–	–	±0.1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS}, I_D = 250uA	0.8	1.5	2	V
$R_{DS(on)}$	Drain-Source On-State Resistance(1)	V_{GS} = 10V, I_D = 3A	–	80	105	mΩ
		V_{GS}=4.5V, I_D =3A	–	90	125	
Dynamic Characteristics(2)						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=30V,f=1MHz	–	247	–	pF
C_{oss}	Output Capacitance		–	34	–	
C_{rss}	Reverse Transfer Capacitance		–	22	–	
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=30V,I_D=1.5A, V_{GEN}=10V,R_{GEN}=1Ω	–	6	–	nS
t_r	Turn-On Rise Time		–	15	–	
$t_{d(off)}$	Turn-Off Delay Time		–	15	–	
t_f	Turn-Off Fall Time		–	10	–	
Q_g	Total gate charge	V_{GS}=10V,V_{DS}=30V, I_D=3A	–	5.1	–	nC
Q_{gs}	Gate-source charge		–	1.3	–	
Q_{gd}	Gate-drain charge		–	1.7	–	
Source-Drain Diode Characteristics						
I_S	Diode forward Current(1)	–	–	–	3	A
V_{DS}	Diode forward voltage	V_{GS}=0V, I_s = 3A	–	0.85	1.25	V

Notes:

(1)Pulse test: Pulse width ≤300 μs, duty cycle ≤2%.

(2)Guaranteed by design, not subject to production testing.

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Typical Performance Characteristics(T_J = 25 °C, unless otherwise noted)

Figure 1 :Output Characteristics

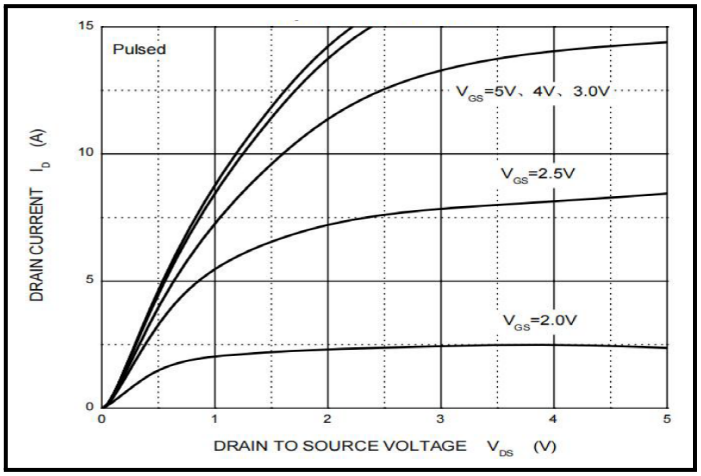


Figure 2 :Transfer Characteristics

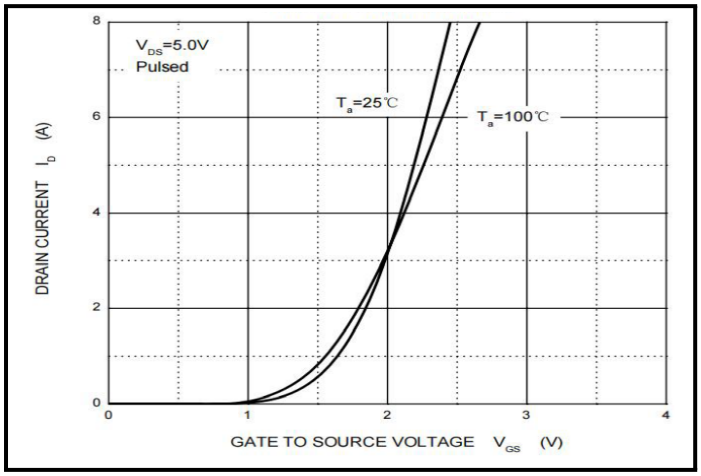


Figure 3 :$R_{DS(on)}$——I_D

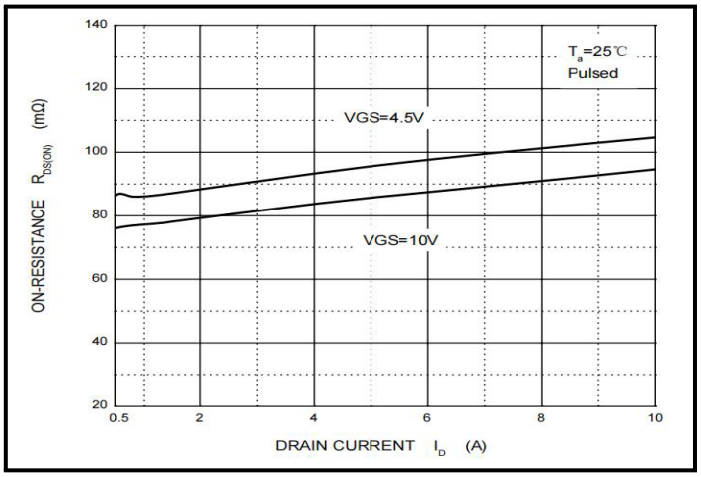


Figure 4 :$R_{DS(on)}$——V_{GS}

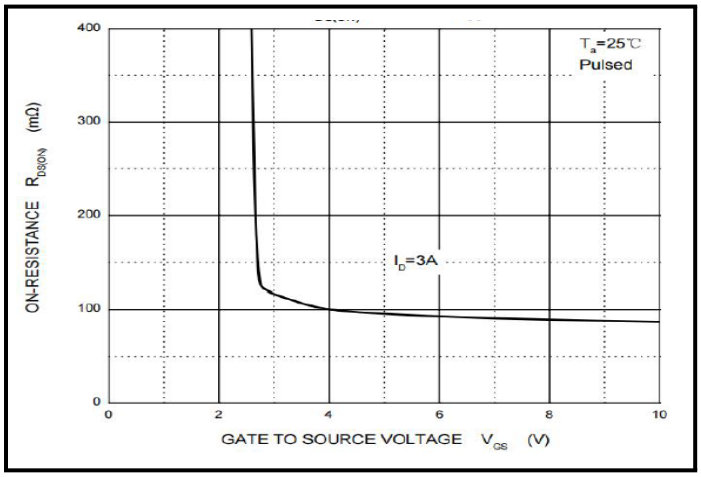


Figure 5 :I_S——V_{SD}

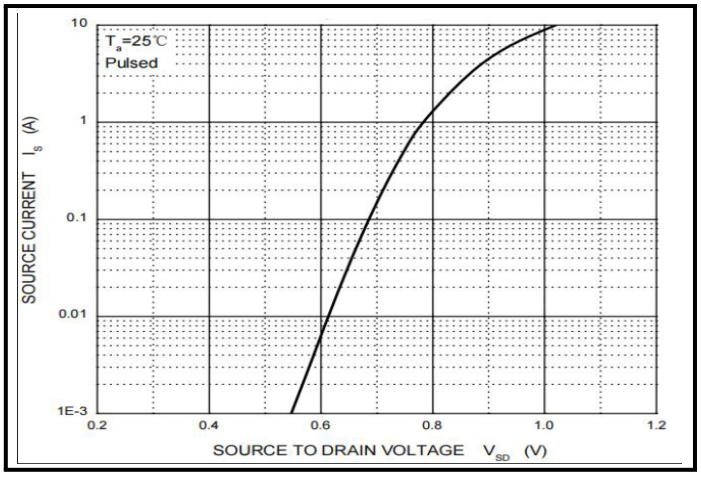
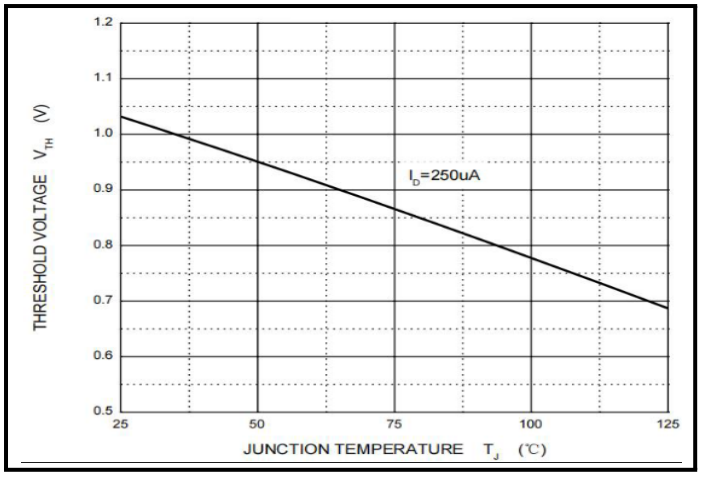


Figure 6 :Threshold Voltage



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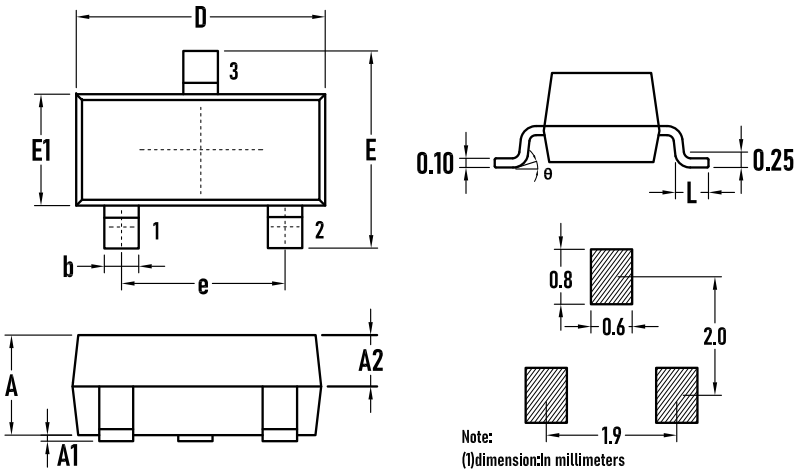
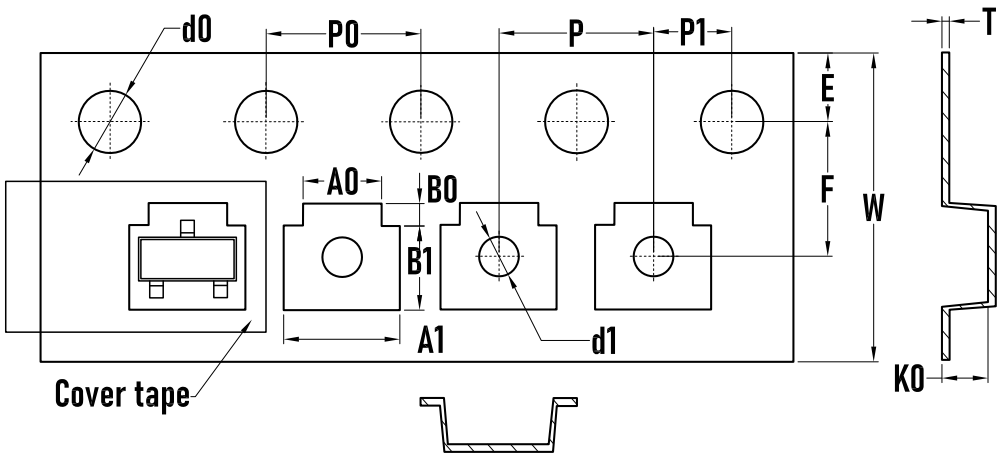
Outline Drawing - SOT-23



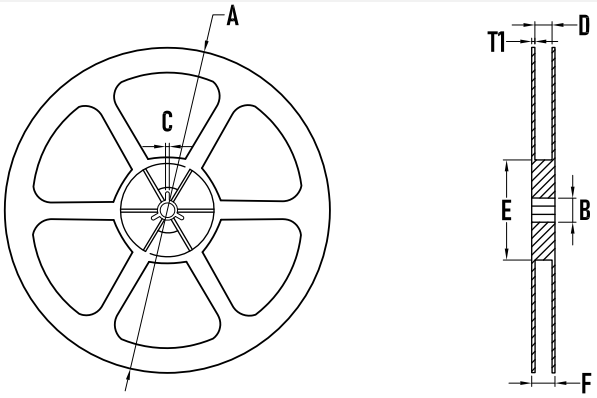
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.90	1.00	1.10
A1	0.01	–	0.10
A2	0.50	0.60	0.70
D	2.80	2.90	3.00
b	0.25	0.35	0.45
E	2.10	2.30	2.50
E1	1.20	1.30	1.40
e	1.80	1.90	2.00
L	0.25	0.35	0.45
θ	0	–	8°

Packaging Tape - SOT-23



SYMBOL	MILLIMETER
A0	2.10±0.10
A1	3.10±0.10
B0	0.65±0.10
B1	2.75±0.10
d0	1.55±0.10
d1	1.00±0.05
E	1.75±0.10
F	3.50±0.10
K0	1.10±0.10
P	4.00±0.10
P0	4.00±0.10
P1	2.00±0.10
W	8.00±0.30
T	0.20 ±0.05

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	3.1
C	13.50
D	9.6±0.3
E	75±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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