

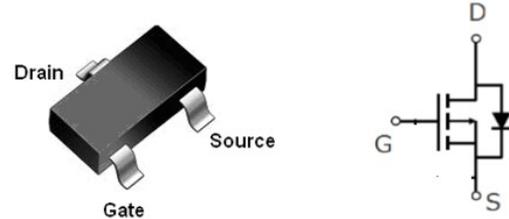
Features

- Low $R_{DS(on)}$ @ $V_{GS} = -4.5V$
- Recommended control Voltage : 2.5V or above
- P Channel SOT23 Package
- Pb-Free, RoHS Compliant

Key Items	PMOS	Unit
BVDSS	-20	V
ID	-2.8	A
$R_{DS(on)}$ @-4.5V	75	m Ω
$R_{DS(on)}$ @-2.5V	95	m Ω

Applications

- DC Fan
- Charger, Fast switch
- Optimized for Power Management Applications for Portable Products, such as H-bridge, Inverters Car Charger and Others


Order Information

Product	Package	Marking	Packing	Min Unit Quantity
SP2301S	SOT23	A1SHB	3000PCS/Reel	45000PCS

Absolute Maximum Ratings

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Symbol	Parameter	Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)			
V_{GS}	Gate-Source Voltage	± 10	V
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	-20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 150	°C
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested ^②	$T_C = 25^\circ C$	-10 A
I_D	Continuous Drain Current($V_{GS} = -10V$)	$T_C = 25^\circ C$	-2.8 A
		$T_C = 70^\circ C$	-2 A
P_D	Maximum Power Dissipation	$T_C = 25^\circ C$	1.2 W
		$T_C = 70^\circ C$	0.6 W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	125	°C/W

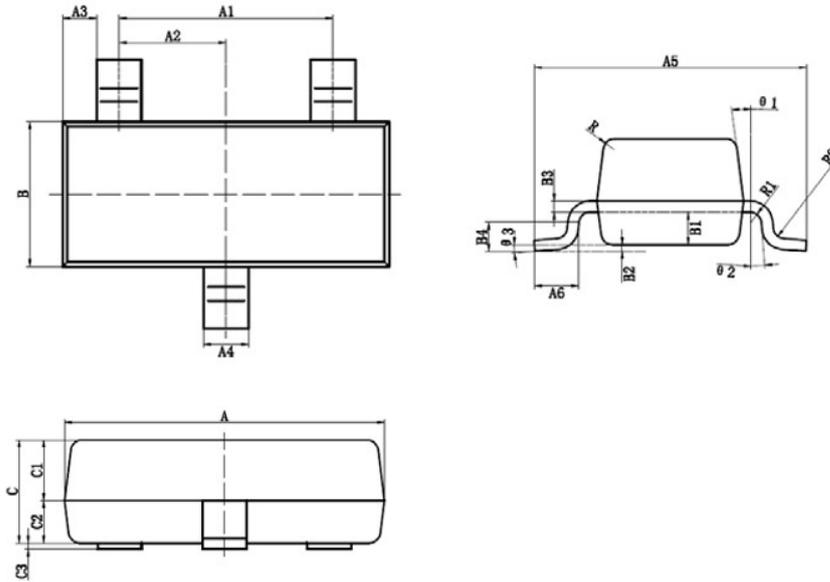
Electrical Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-20	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(Tc=25°C)	V _{DS} =-20V, V _{GS} =0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(Tc=125°C)	V _{DS} =-16V, V _{GS} =0V	--	--	-100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V, V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.40	-0.8	-1.0	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-3A	--	75	95	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-3.3V, I _D =-1.5A	--	95	125	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz	--	860	--	pF
C _{oss}	Output Capacitance		--	115	--	pF
C _{rss}	Reverse Transfer Capacitance		--	80	--	pF
Q _g	Total Gate Charge	V _{DS} =-10V I _D =-2A, V _{GS} =-4.5V	--	13	--	nC
Q _{gs}	Gate Source Charge		--	1.8	--	nC
Q _{gd}	Gate Drain Charge		--	2.8	--	nC
Switching Characteristics						
t _{d(on)}	Turn on Delay Time	V _{DD} =-5V, I _D =-2A, R _G =3.3Ω, V _{GS} =-4.5V	--	6	--	ns
t _r	Turn on Rise Time		--	20	--	ns
t _{d(off)}	Turn Off Delay Time		-	40	--	ns
t _f	Turn Off Fall Time		--	12	--	ns
Source Drain Diode Characteristics						
I _{SD}	Source drain current(Body Diode) ^①	T _c =25°C	--	--	-2	A
V _{SD}	Forward on voltage	T _J =25°C, I _{SD} =-2A, V _{GS} =0V	--	-0.83	-1.2	V

Notes:

- ① Pulse test ; Pulse width≤300μs, duty cycle≤2%.
- ② Pulse width limited by maximum allowable junction temperature

SOT23 Mechanical Data



Symbol \ Size	Min. (mm)	Max. (mm)	Symbol	Min. (mm)	Max. (mm)
A	2.800	3.000	B4	0.254	0.254
A1	1.800	2.000	C	0.900	0.975
A2	0.95TYP.	1.000	C1	0.535	0.585
A3	0.200	0.400	C2	0.325	0.375
A4	0.300	0.500	C3	0.010	0.110
A5	2.340	2.500	R	0.1TYP.	
A6	0.300	0.600	R1	0.1TYP.	
B	1.275	1.325	R2	0.1TYP.	
B1	0.265	0.315	theta 1	7°±1°	
B2	0.010	0.110	theta 2	5°REF	
B3	0.100	0.100	theta 3	4°±3°	