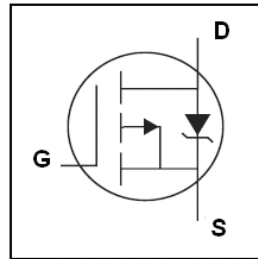


Features

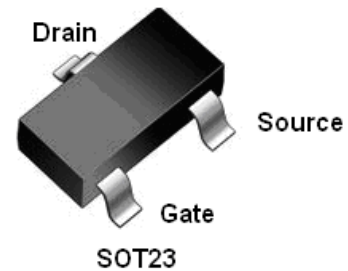
- ◆ Ron(typ.)=95mΩ
- ◆ Low On-Resistance
- ◆ 150°C Operating Temperature
- ◆ Fast Switching
- ◆ Lead-Free, RoHS Compliant



$V_{DS} \geq -20V$
 $R_{DS(on)} = 95m\Omega @ V_{GS} = -4.5V$
 $R_{DS(on)} = 130m\Omega @ V_{GS} = -2.5V$
 $I_D = -1.8A @ V_{GS} = -4.5V$

Description

VS2301BC designed by the trench processing techniques to achieve extremely low on-resistance. And fast switching speed and improved transfer effective. These features combine to make this design an extremely efficient and reliable device for variety of DC-DC applications.



Absolute Maximum Ratings

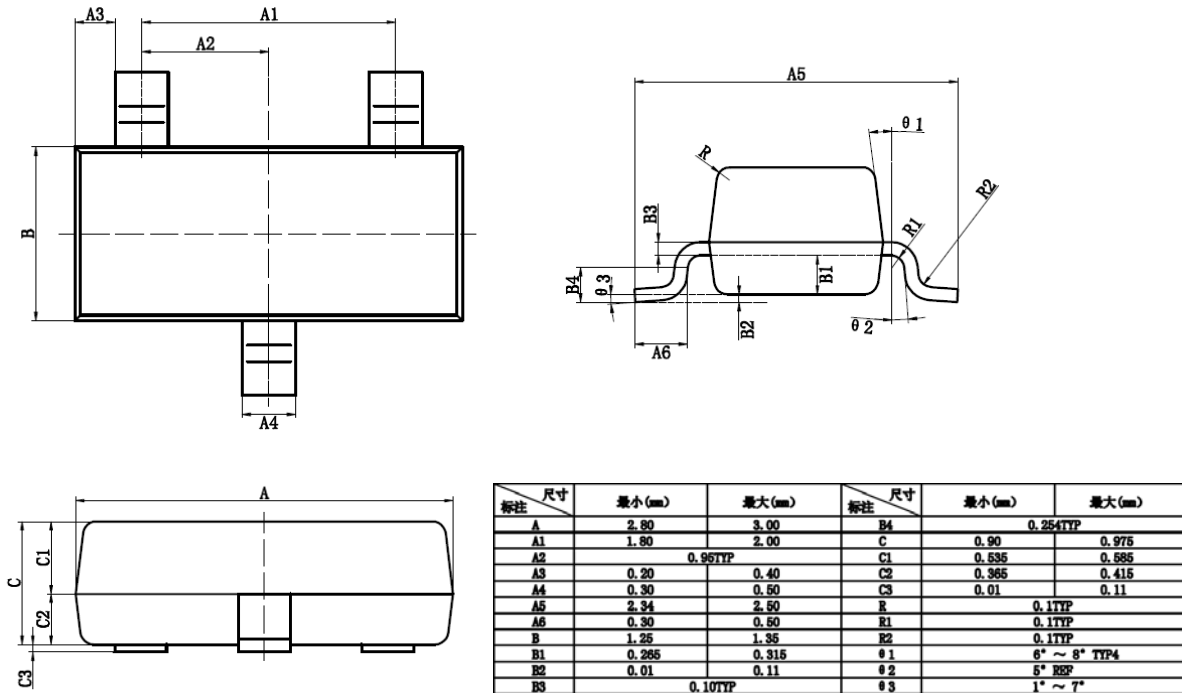
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only; and functional operation of the device at these or any other condition beyond those indicated in the specifications is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions. Ambient temperature (TA) is 25°C, unless otherwise specified.

Symbol	Parameter		Rating	Unit
Common Ratings (T _c =25°C Unless Otherwise Noted)				
V _{GS}	Gate-Source Voltage		±12	V
V _{(BR)DSS}	Drain-Source Breakdown Voltage		-20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
I _S	Diode Continuous Forward Current	T _C =25°C	-1.8 ^①	A
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested	T _C =25°C	-7.2	A
I _D	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	-1.8 ^①	A
		T _C =100°C	-1.2	
P _D	Maximum Power Dissipation	T _C =25°C	1.05	W
R _{θJA}	Thermal Resistance Junction-Ambient		120	°C/W

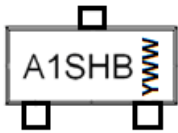
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-20	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current (T _C =25°C)	V _{DS} =-20V,V _{GS} =0V	--	--	-1	μA
	Zero Gate Voltage Drain Current (T _C =125°C)	V _{DS} =-20V,V _{GS} =0V	--	--	-10	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V,V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =-250μA	-0.6	-1.0	-1.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-1.8A	--	95	115	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-3.3V, I _D =-1.5A	--	105	130	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-2.5V, I _D =-1.0A	--	130	190	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =-10V,V _{GS} =0V, f=1MHz	--	610	--	pF
C _{oss}	Output Capacitance		--	70	--	pF
C _{rss}	Reverse Transfer Capacitance		--	35	--	pF
Q _g	Total Gate Charge	V _{DS} =-10V,I _D =-1.0A, V _{GS} =-4.5V	--	6.0	--	nC
Q _{gs}	Gate-Source Charge		--	1.0	--	nC
Q _{gd}	Gate-Drain Charge		--	1.5	--	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =-10V, I _D =-1A, R _G =6Ω, V _{GS} =-4.5V, R _L =5Ω,	--	7	--	nS
t _r	Turn-on Rise Time		--	5	--	nS
t _{d(off)}	Turn-Off Delay Time		--	19	--	nS
t _f	Turn-Off Fall Time		--	10	--	nS
Source- Drain Diode Characteristics						
I _{SD}	Source-drain current(Body Diode)	T _C =25°C	--	--	-2.8 ^①	A
V _{SD}	Forward on voltage	T _J =25°C,I _{SD} =-1A, V _{GS} =0V	--	-0.8	-1.3	V

Notes: ① Pulse test ; Pulse width≤300μs, duty cycle≤2%.

SOT23 mechanical data



Marking



Part Name Code:A1SHB

Lot Code: YWW(Year and Weekly)

Order Information

Product	Marking	Package	Packaging	Min Unit Quantity
VS2301BC	A1SHB	SOT23	3000/Reel	6000

Customer Service

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