DESCRIPTION

The AM2301A is available in SOT-23S package.

FEATURES

- V_{DS} =-20V
- $R_{DS(ON)}$,V_{GS}@-4.5V,I_{DS}@-4.7A=70mΩ
- $R_{DS(ON)}$,V_{GS}@-2.5V,I_{DS}@-1.0A=110mΩ
- Available in SOT-23S Package

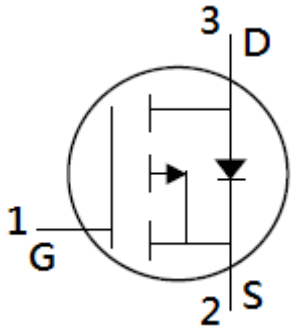
ORDERING INFORMATION

Package Type	Part Number	
SOT-23S	E3S	AM2301AE3SR
		AM2301AE3SVR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products Suffix " V " means Halogen free Package		

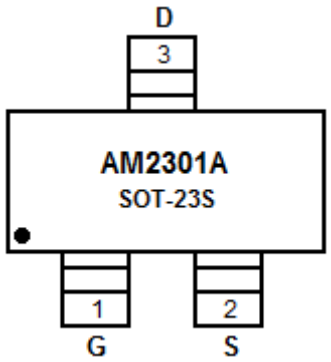
APPLICATION

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- ESD Rating of Class 0 (<100V) per Human Body Model

PIN DESCRIPTION



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	G	Gate
2	S	Source
3	D	Drain

ABSOLUTE MAXIMUM RATINGS

T_A= 25

V_{DSS}, Drain-to-Source Voltage		-20V
V_{GS}, Gate-to-Source Voltage		±12V
I_D, Continuous Drain Current		-4.7A
I_{DM}, Pulsed Drain Current[NOTE1]		-20A
P_D, Maximum Power Dissipation	T_A=25°C	1.1W
	T_A=70°C	0.70W
T_J, T_{STG}, Operation and Storage Temperature Range		–55 ~ +150℃
$R_{\theta JA}$, Thermal Resistance-Junction to Ambient [NOTE2]		110℃/W

Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1: Repetitive Rating: Pulse width limited by the Maximum junction temperature

NOTE2: 1-in² 2oz Cu PCB board

ELECTRICAL CHARACTERISTICS

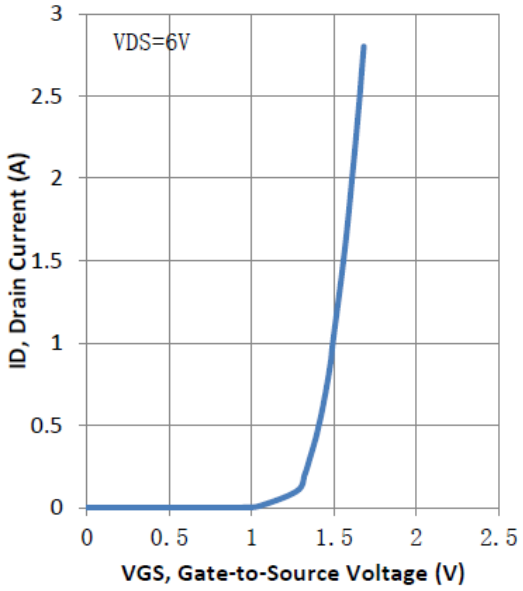
T_A=25℃

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
STATIC						
Drain−to−Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D=-250uA	-0.6	-0.85	-1.4	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0	-	-	-1	uA
Gate−to−Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V	-	-	±100	nA
Drain−to−Source On Resistance[NOTE3]	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-4.7A	-	58	70	mΩ
		V_{GS}=-2.7V, I_D=-3.8A	-	63	90	
		V_{GS}=-2.5V, I_D=-1A	-	75	110	
Forward Diode Voltage	V_{SD}	V_{GS}=0V, I_{SD}=-1.7A	-	-	-1.2	V
DYNAMIC						
Total Gate Charge	Q_g	V_{GS} =-10V,V_{DS}=-4.7V, I_D=-4.5A	-	24	36	nC
Gate−to−Source Gate Charge	Q_{gs}		-	18	-	
Gate−to−Drain Charge	Q_{gd}		-	2.7	-	
Turn−On Delay Time	$t_{d(on)}$	V_{DD}=-10V, R_L=10Ω, I_D=−1A, V_{GEN}=-4.5V, R_G=6Ω	-	22	35	ns
Rise Time	t_r		-	35	55	
Turn−Off Delay Time	$t_{d(off)}$		-	45	70	
Fall Time	t_f		-	25	40	
Forward Transconductance	g_{FS}	V_{DS} =-10 V, I_D=-4.7A	-	8	-	S

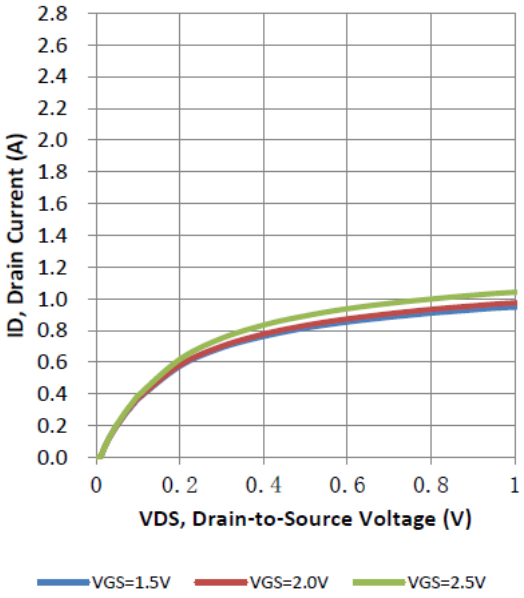
NOTE3: Pulse Test: Pulse width≤300μs, duty cycle ≤2%.

TYPICAL CHARACTERISTICS

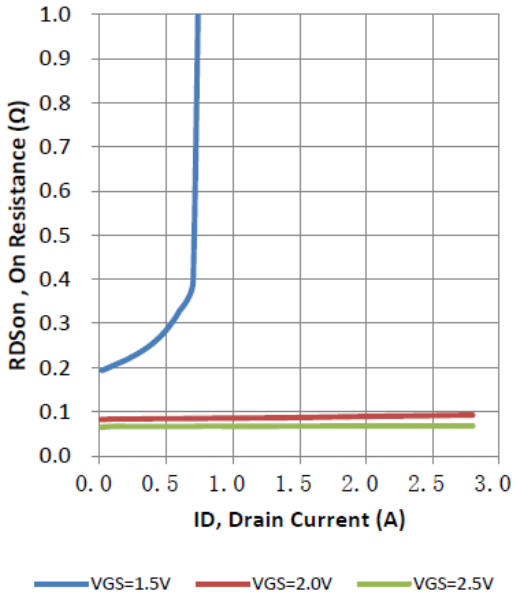
1. Transfer Characteristics



2. On-Region Characteristics

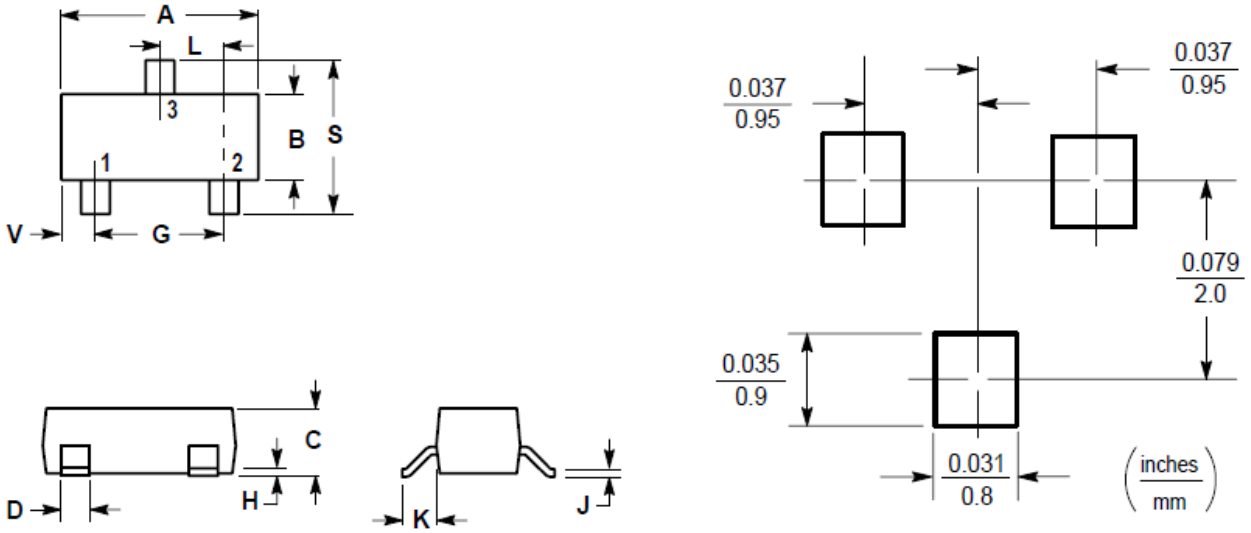


3. On-Resistance Versus Drain Current



PACKAGE INFORMATION

Dimension in SOT-23S Package (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.800	3.040	0.1102	0.1197
B	1.200	1.400	0.0472	0.0551
C	0.890	1.110	0.0350	0.0440
D	0.370	0.500	0.0150	0.0200
G	1.780	2.040	0.0701	0.0807
H	0.013	0.100	0.0005	0.0040
J	0.085	0.177	0.0034	0.0070
K	0.350	0.690	0.0140	0.0285
L	0.890	1.020	0.0350	0.0401
S	2.100	2.640	0.0830	0.1039
V	0.450	0.600	0.0177	0.0236

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