ACE2301B

P-Channel Enhancement Mode MOSFET

Description

ACE2301B is produced with high cell density DMOS trench technology, which is especially used to minimize on-state resistance. This device particularly suits low voltage applications such as portable equipment, power management and other battery powered circuits, and low in-line power dissipation are needed in a very small outline surface mount package with excellent thermal and electrical capabilities.

Features

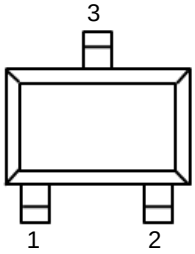
- V_{DS}=-20V, V_{GS} 8V, I_D=-2.3A
- $R_{DS(ON)}$ @V_{GS}=-4.5V/I_D -2.8A, 100mR(Typ.)
- $R_{DS(ON)}$ @V_{GS}=-2.5V/I_D -2A, 120mR(Typ.)

Absolute Maximum Ratings

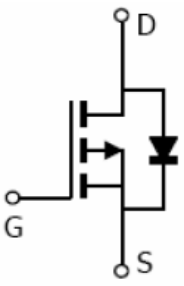
Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current	Continuous	I_D	-2.3	A
	Pulsed(1)		-10	
Power Dissipation	25 °C	P_D	750	mW
	70 °C		480	
Operating and Storage Temperature Range		T_J,T_{STG}	-55 to 150	°C

Packaging Type

SOT-23-3



SOT-23-3	Description
1	Gate
2	Source
3	Drain



Ordering information

ACE2301B XX + H

- Halogen - free
- Pb - free
- BM : SOT-23-3

Electrical Characteristics

T_A=25 °C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-20			V
Drain Cut-off Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±100	nA
On characteristics						
Drain-Source On-state Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-2.8A		100	130	mR
	$R_{DS(ON)}$)	V_{GS}=-2.5V, I_D=-2A		120	200	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-0.45	-0.75	-1.5	V
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-2.8A		6.5		S
Switching characteristics(3)						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=-6V,R_L=6R I_D=-1A, V_{GEN}=-4.5V RG=6R		13	25	ns
Turn-Off Delay Time	$t_{d(off)}$			42	70	
Dynamic characteristics(3)						
Input Capacitance	C_{iss}	V_{DS}=-6V, V_{GS}=0V f=1.0MHz		415		pF
Output Capacitance	C_{oss}			223		
Feedback Capacitance	C_{rss}			87		
Drain-source diode characteristics and maximum ratings						
Diode Forward Voltage	V_{SD}	I_S=-1.6A,V_{GS}=0V	-0.5		-1.2	V

Note: 1. Pulse width limited by maximum junction temperature

2. Pulse test: PW≦300us, duty cycle≦2%

3. For design AID only, not subject to production testing

4. Switching time is essentially independent of operating temperature

Typical Performance Characteristics

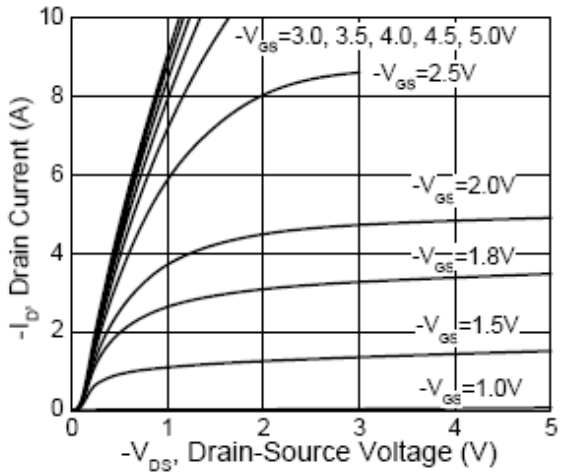


Figure 1. Output Characteristics

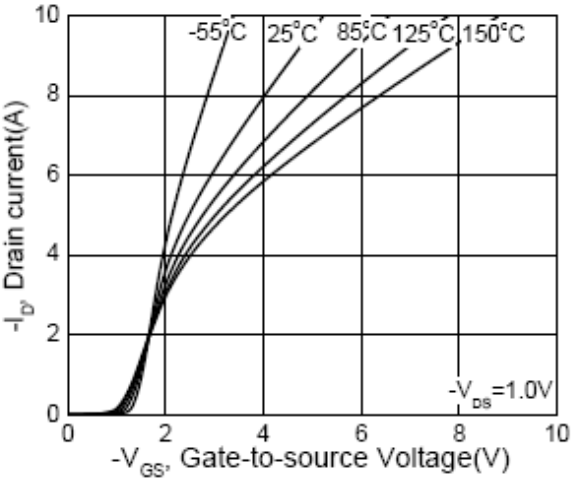


Figure 2. Transfer Characteristics

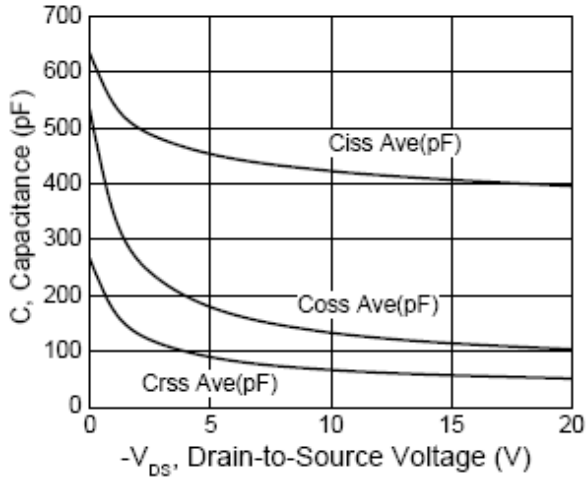


Figure 3. Capacitance

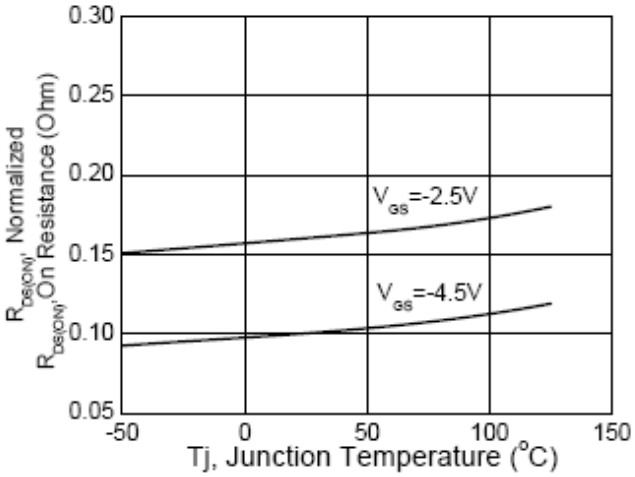


Figure 4. On Resistance Vs. Temperature

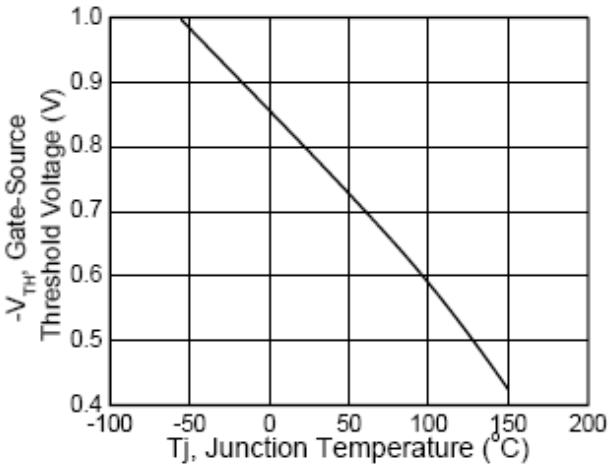


Figure 5. Gate Thershold Vs. Temperature

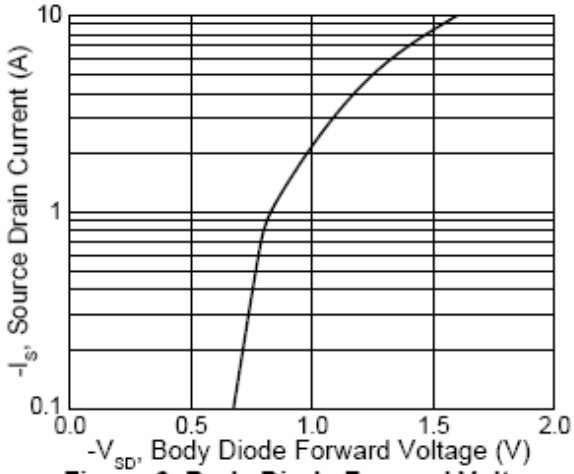
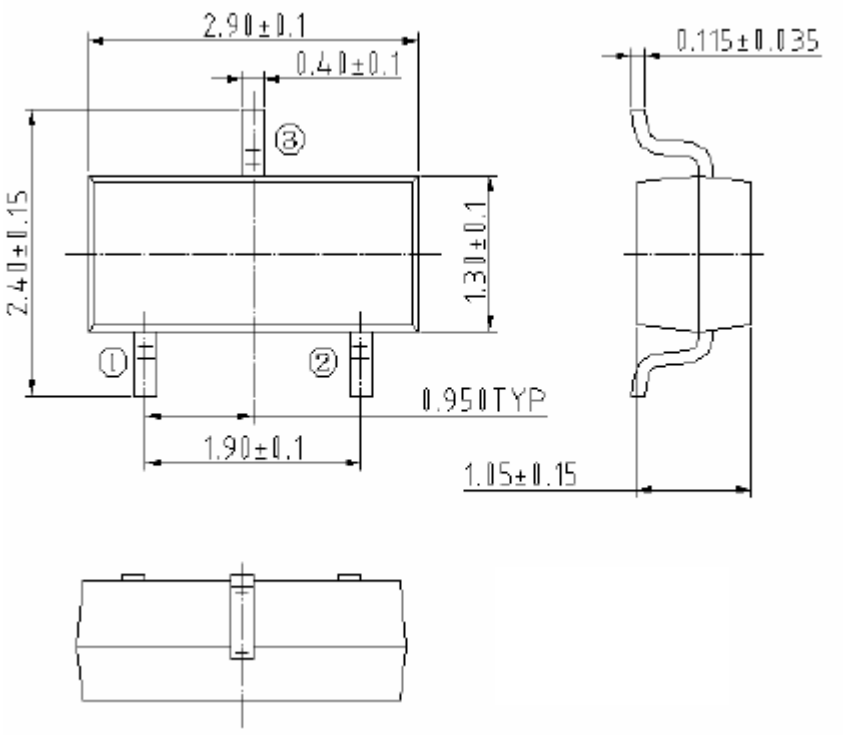


Figure 6. Body Diode Forward Voltage Vs. Source Current

Packing Information

SOT-23-3



Unit: mm

Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Electronics Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and shoes failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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