ACE2303B

P-Channel Enhancement Mode Field Effect Transistor

Description

This P-Channel enhancement mode power FETs are produced with high cell density, DMOS trench technology, which is especially used to minimize on-state resistance. This device is particularly suited for low voltage application such as portable equipment, power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

Features

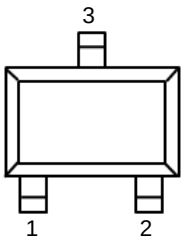
- V_{DS}=-30V
- I_D=-3.6A
- $R_{DS(ON)}$ 58mΩ @ V_{GS}=-10V
- $R_{DS(ON)}$ 87mΩ @ V_{GS}=-4.5V
- High density cell design for low $R_{DS(ON)}$

Absolute Maximum Ratings

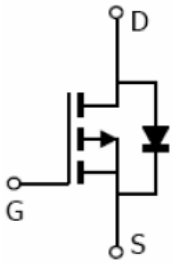
Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	-3.6	A
	Pulsed(1)		-10	
Power Dissipation	25 °C	P_D	1.4	W
Operating and Storage Temperature Range		T_J,T_{STG}	-55 to 150	°C

Packaging Type

SOT-23-3L



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



Ordering information

ACE2303B XX + H

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

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	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	uA
Gate-Body Leakage, Forward	I_{GSSF}	V_{GS}=+20V, V_{DS}=0V			100	nA
Gate-Body Leakage, Reverse	I_{GSSR}	V_{GS}=-20V, V_{DS}=0V			-100	nA
On characteristics(2)						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-3A		69	87	mΩ
		V_{GS}=-10V, I_D=-4.1A		48	58	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-1	-1.6	-2.0	V
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-2.8A	4	6		S
Switching characteristics(3)						
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=-6V,R_L=6Ω I_D=-1A, V_{GEN}=-4.5V R_G=6Ω			20	ns
Turn-On Rise Time	t_f				10	
Turn-Off Delay Time	$t_{d(off)}$				65	
Turn-Off Fall Time	t_f				45	
Dynamic characteristics(3)						
Input Capacitance	C_{iss}	V_{DS}=-6V, V_{GS}=0V f=1.0MHz		680		pF
Output Capacitance	C_{oss}			72		
Feedback Capacitance	C_{rss}			58		
Drain-source diode characteristics and maximum ratings						
Drain-Source Diode Forward Current(4)	I_S				-1.35	A
Drain-Source Diode Forward Voltage(2)	V_{SD}	I_S=-1A,V_{GS}=0V	-0.6	-0.8	-1	V

Note: 1. Pulse width limited by maximum junction temperature

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

3. Guaranteed by design, not subject to production testing.

4. Surface Mounted on FR4 Board, t < 5 sec.

Typical Performance Characteristics

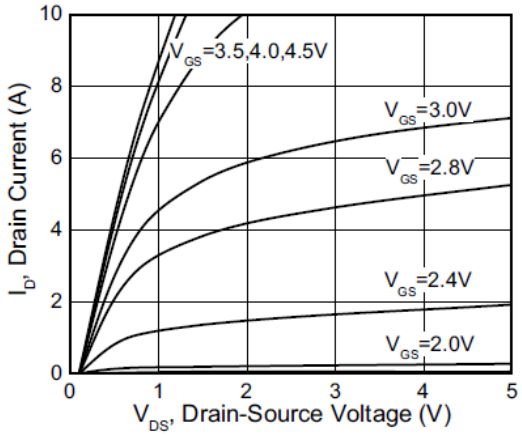


Figure 1. Output Characteristics

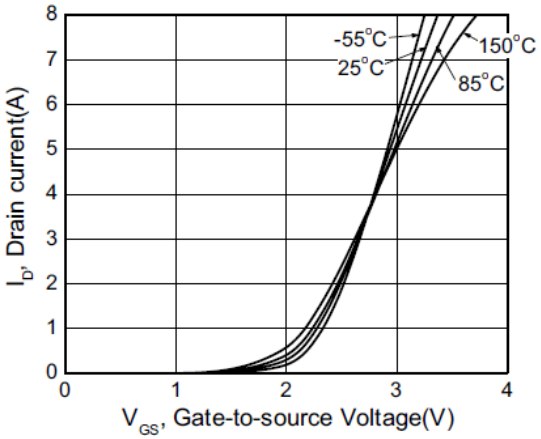


Figure 2. Transfer Characteristics

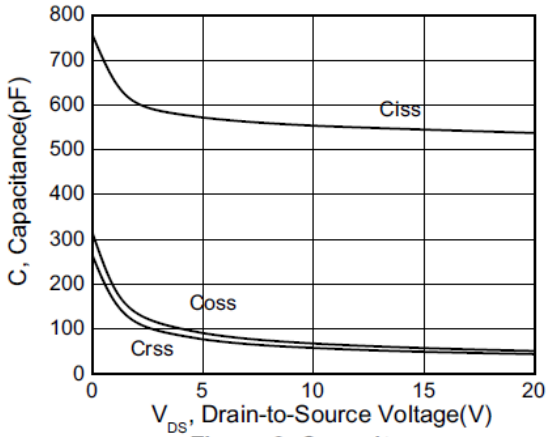


Figure 3. Capacitance

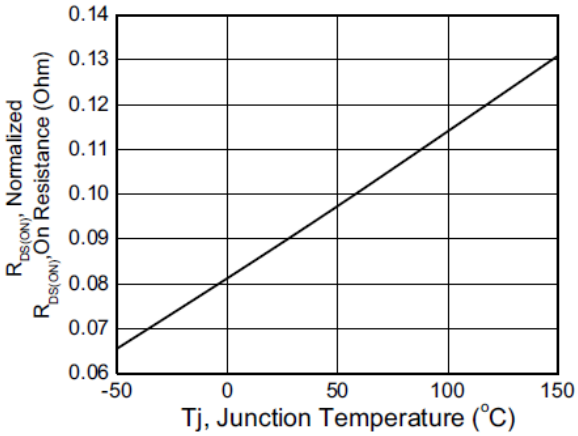


Figure 4. On Resistance Vs. Temperature

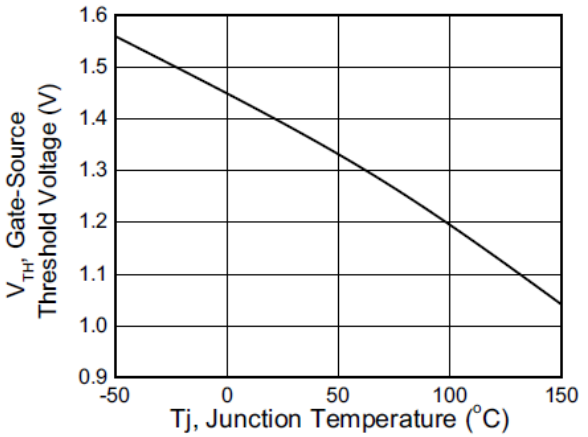


Figure 5. Gate Thershold Vs. Temperature

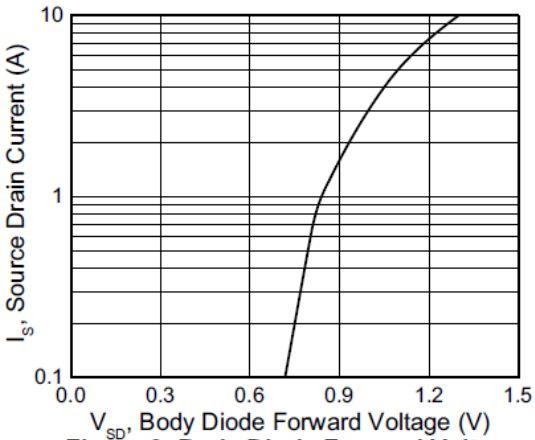
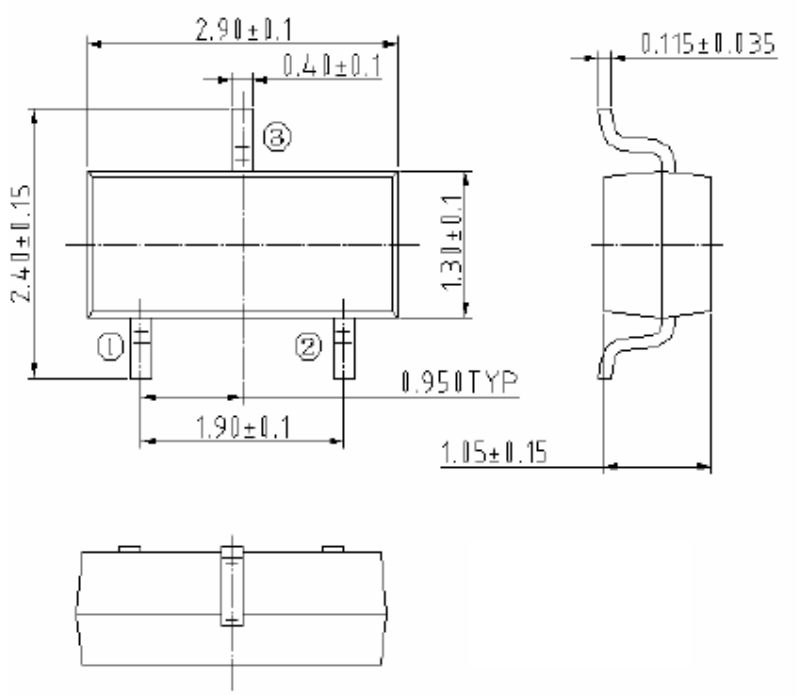


Figure 6. Body Diode Forward Voltage Vs. Source Current

Packing Information

SOT-23-3L



Unit: mm

Notes

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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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