ACE2304B

N-Channel Enhancement Mode MOSFET

Description

The ACE2304BBM+ uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. This device is suitable for use as a load switch or in PWM applications.

Features

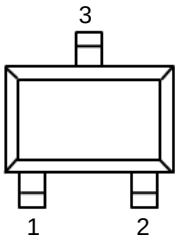
- 30V/5A
- $R_{DS(ON)}$=26mΩ (typ.) @ V_{GS}=10V
- $R_{DS(ON)}$=37mΩ (typ.) @ V_{GS}=4.5V

Absolute Maximum Ratings

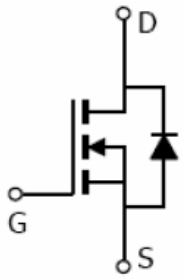
Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current (Continuous)	T_A=25℃	I_D	5	A
	T_A=70℃		4.1	
Drain Current (Pulsed)		I_{DM}	20	A
Power Dissipation	T_A=25℃	P_D	1.4	W
	T_A=70℃		1	
Operating temperature / storage temperature		T_J/T_{STG}	-55~150	℃

Packaging Type

SOT-23-3L



SOT-23-3L	Description	Function
1	G	Gate
2	S	Source
3	D	Drain



Ordering information

ACE2304B XX + H

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

Electrical Characteristics

T_A=25℃, unless otherwise specified.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	30	34		V
Zero gate voltage drain current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	μA
Gate threshold voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_{DS}=250μA	1	1.4	2	V
Gate leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			100	nA
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=5.8A		26	31.5	mΩ
		V_{GS}=4.5V, I_D=5A		37	44	mΩ
Forward transconductance	g_{FS}	V_{DS}=5V, I_D=5A		15		S
Diode forward voltage	V_{SD}	I_{SD}=1A, V_{GS}=0V		0.77	1.0	V
Maximum body-diode continuous current	I_S				3	A
Switching						
Total gate charge	Qg	V_{GS}=10V, V_{DS}=15V, I_D=5A		7.6	9.9	nC
Gate-source charge	Qgs			1.3	1.7	nC
Gate-drain charge	Qgd			1.7	2.2	nC
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V, V_{DD}=15V, I_D=1A R_L=15Ω, R_G=6Ω		10.1	20.3	ns
Turn-on rise time	Tr			3.2	6.3	ns
Turn-off delay time	$t_{d(off)}$			22.2	44.4	ns
Turn-off fall time	Tf			3	6	ns
Dynamic						
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=15V, f=1.0MHz		391		pF
Output capacitance	Coss			86.2		pF
Reverse transfer capacitance	Crss			59.4		pF
Gate resistance	Rg	V_{GS}=0V, V_{DS}=0V, f=1MHz		1.4	2	Ω

Typical Performance Characteristics

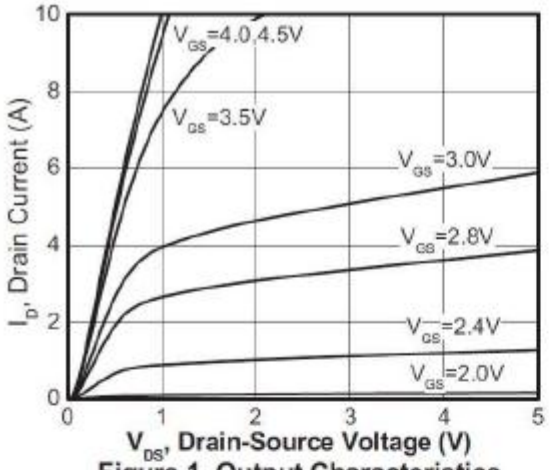


Figure 1. Output Characteristics

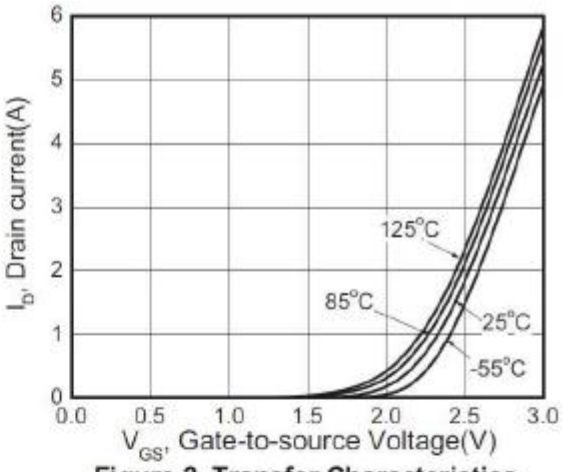


Figure 2. Transfer Characteristics

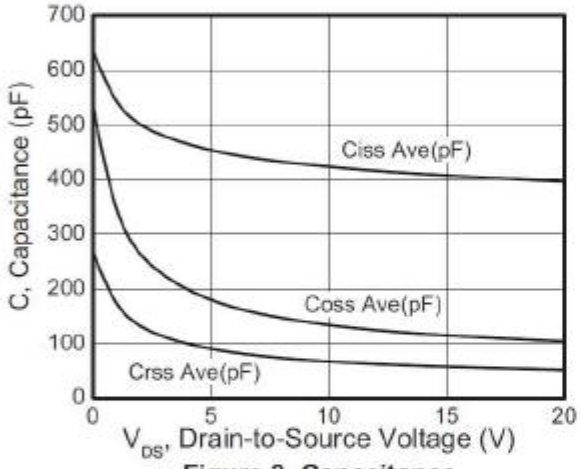


Figure 3. Capacitance

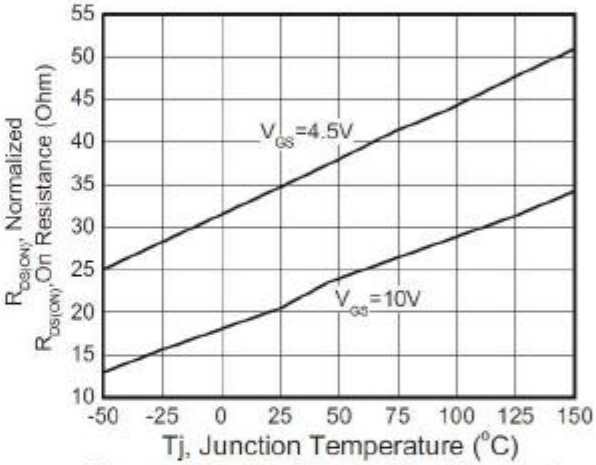


Figure 4. On Resistance Vs. Temperature

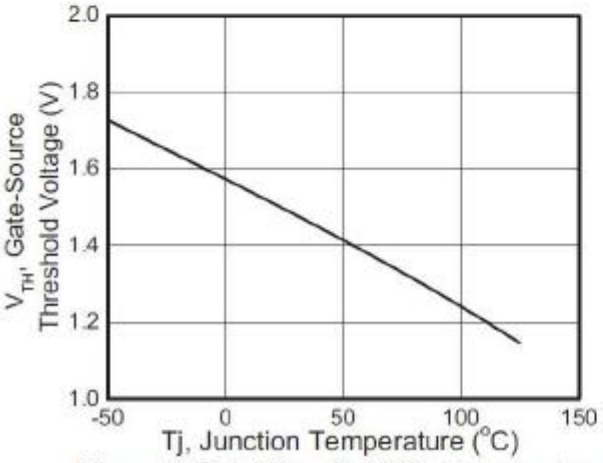


Figure 5. Gate Thershold Vs. Temperature

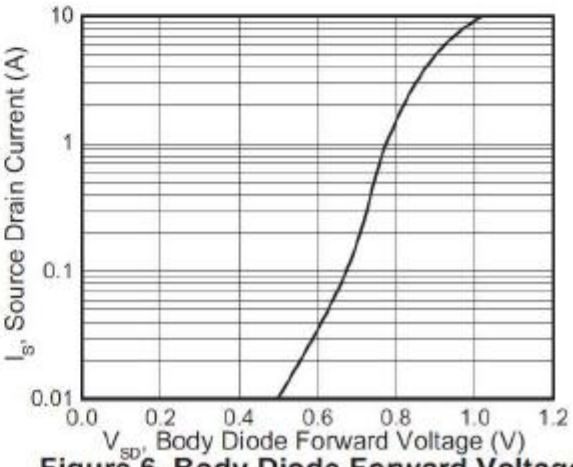
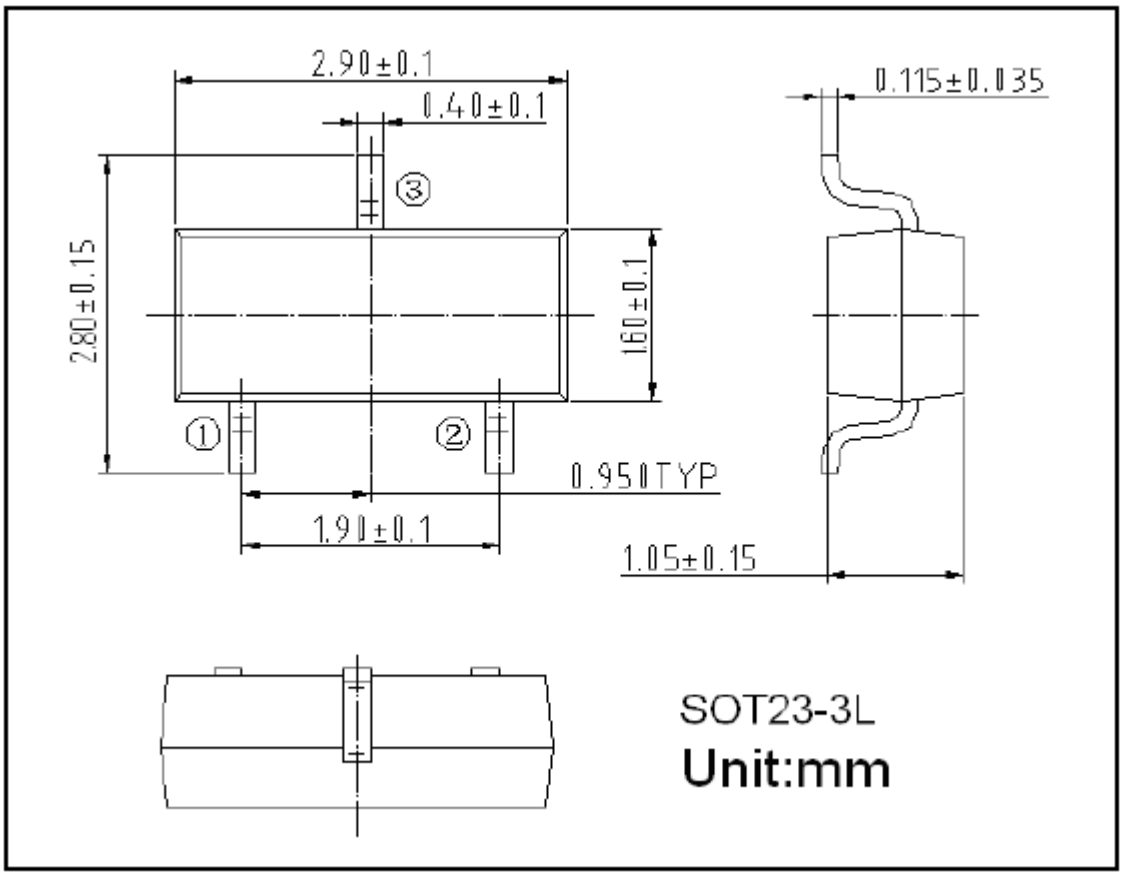


Figure 6. Body Diode Forward Voltage Vs. Source Current

Packing Information

SOT-23-3L



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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