ACE1933B

N-Channel MOSFET

Description

The ACE1933B uses advanced trench technology to provide excellent RDS(ON) and low gate charge and operation with gate voltages as low as 1.8v. This device is suitable for use as a high switching applications.

Features

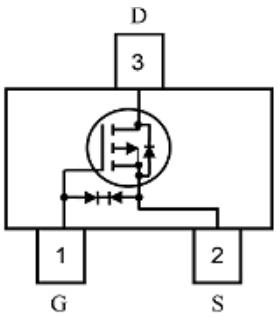
- V_{DS}=20V
- I_D=0.15A (V_{GS}=10V)
- $R_{DS(ON)}$ ≤3mΩ @ V_{GS}=4.5V
- $R_{DS(ON)}$ ≤6mΩ@ V_{GS}=1.8V

Absolute Maximum Ratings

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current (Continuous)	T_A=25℃	I_D	0.15	A
	T_A=70℃		0.12	
Drain Current (Pulsed)		I_{DM}	0.8	A
Power Dissipation	T_A=25℃	P_D	0.3	W
Operating temperature / storage temperature		T_J/T_{STG}	-55~150	℃

Packaging Type

SOT-23-3



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

Ordering information

ACE1933B XX + H

- Halogen - free
- Pb - free
- BM : SOT23-3

Electrical Characteristics

T_A=25℃, unless otherwise specified.

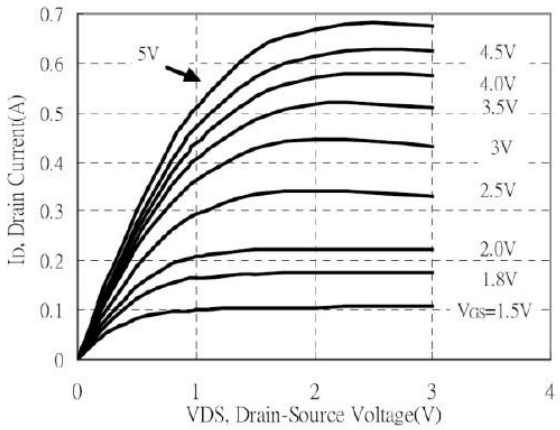
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON/OFF Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
Gate threshold voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_{DS}=250μA	0.4	0.7	1.0	V
Gate leakage current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±1	μA
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=0.1A			3000	mΩ
		V_{GS}=1.8V, I_D=0.02A			6000	
Diode forward voltage	V_{SD}	I_{SD}=0.2A, V_{GS}=0V			1	V
Maximum body-diode continuous current	I_S				0.2	A
Dynamic Characteristics						
Input capacitance	Ciss	V_{GS}=0V, V_{DS}=10V, f=1.0MHz		23	50	pF
Output capacitance	Coss			7.7	25	
Reverse transfer capacitance	Crss			5.8	12	

Note :

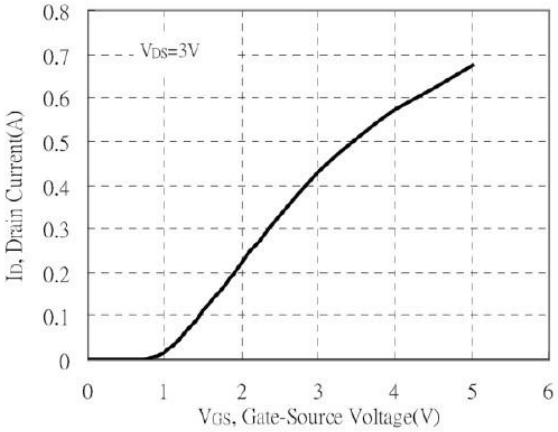
1. Pulse width limited by maximum junction temperature.
2. Pulse test: PW≤300μ s, duty cycle≤2%.
3. For design AID only, not subject to production testing.
4. Switching time is essentially independent of operating temperature.

Typical Performance Characteristics

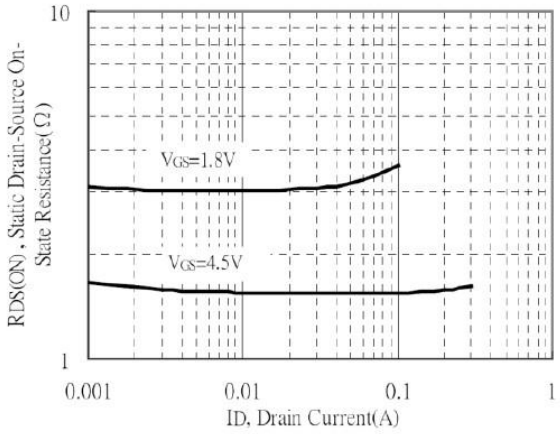
Typical Output Characteristics



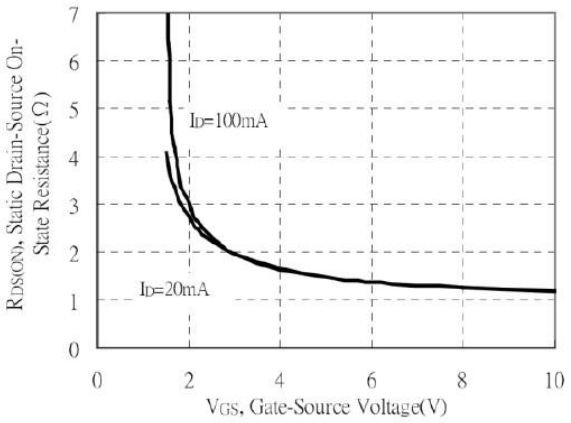
Typical Transfer Characteristics



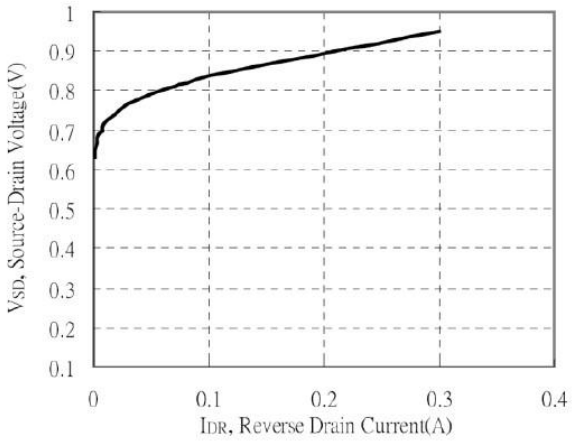
Static Drain-Source On-State resistance vs Drain Current



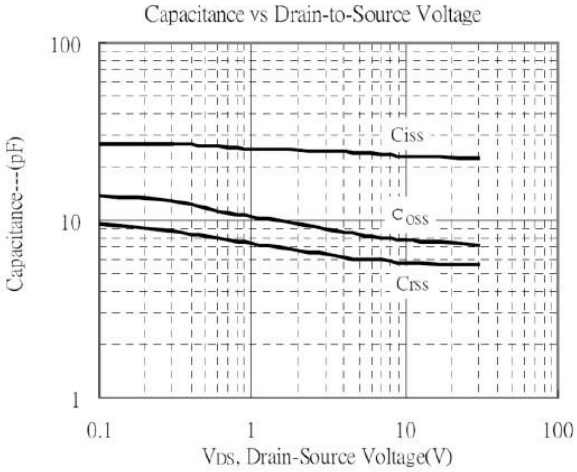
Static Drain-Source On-State Resistance vs Gate-Source Voltage

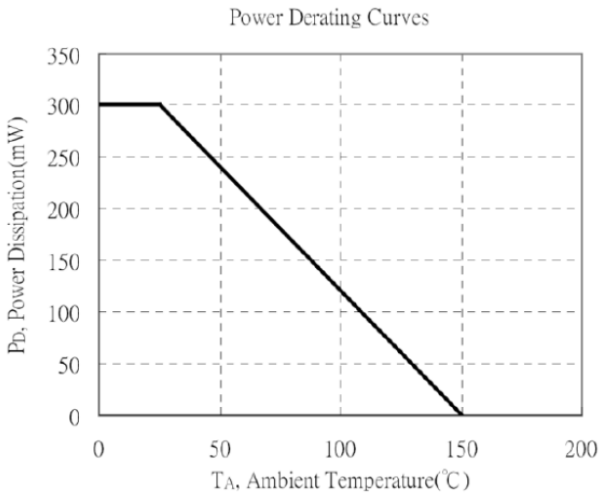


Reverse Drain Current vs Source-Drain Voltage



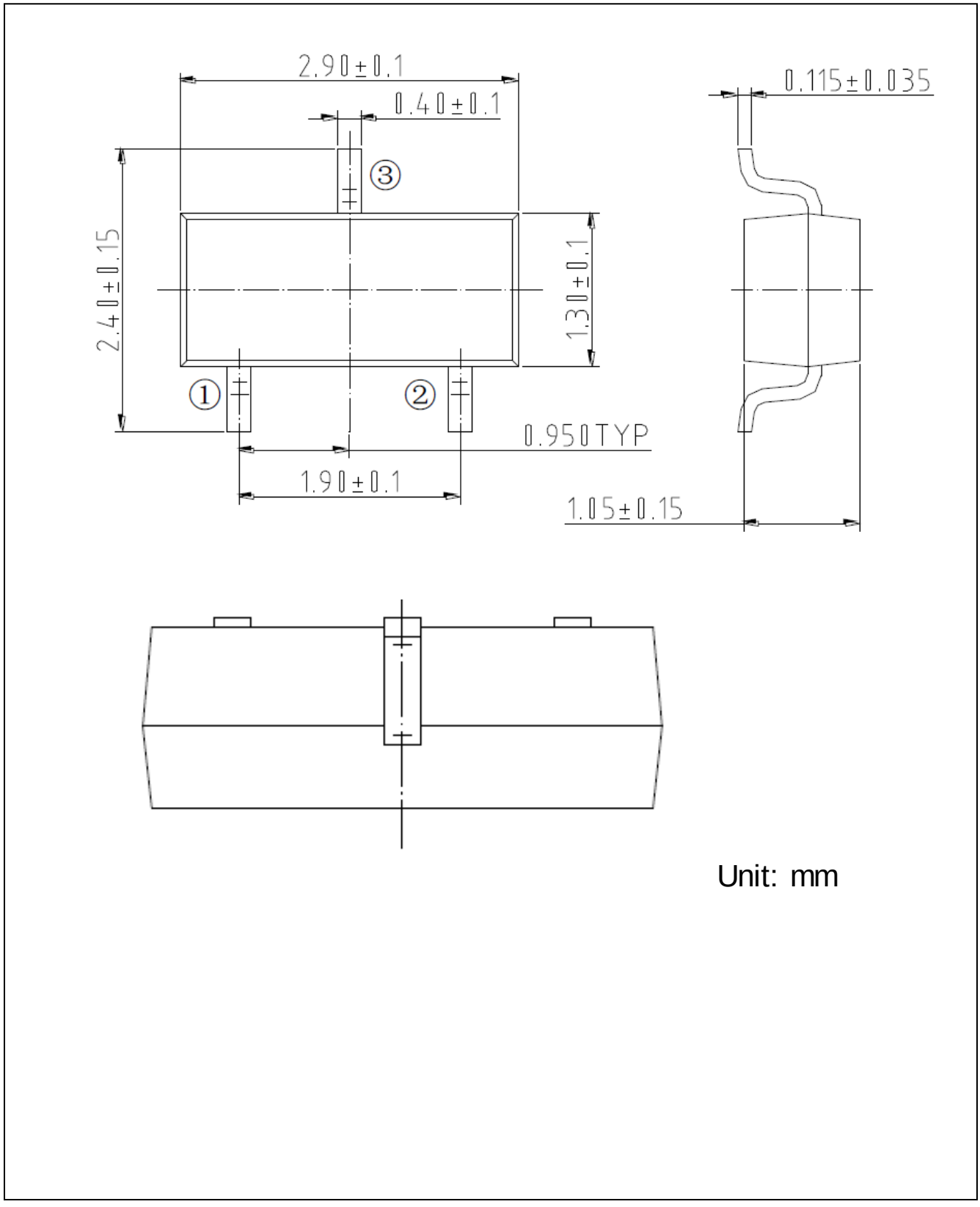
Capacitance vs Drain-to-Source Voltage




Power Derating Curves
350
300
250
200
150
100
50
0
PD, Power Dissipation(mW)
0
50
100
150
200
TA, Ambient Temperature(℃)

Packing Information

SOT-23-3



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.