ACE1561BE

P-Channel Enhancement Mode Field Effect Transistor

Description

The ACE1561BE 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

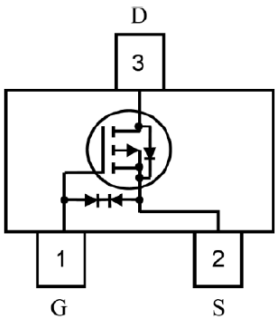
- V_{DS} (V) = -20V,I_D = -3A
- $R_{DS(ON)}$=90mΩ @ V_{GS}= -4.5V
- $R_{DS(ON)}$=110mΩ @ V_{GS}= -2.5V
- SOT23-3 Package

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	-3	A
	T_A=70℃		-2	
Drain Current (Pulsed)		I_{DM}	-12	A
Power Dissipation	T_A=25℃	P_D	1.3	W
Operating temperature / storage temperature		T_J/T_{STG}	-55~150	℃

Packaging Type

SOT-23-3



Ordering information

ACE1561BE XX+H

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

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	-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		-1	V
Gate leakage current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	nA
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-2.8A		90	110	mΩ
		V_{GS}=-2.5V, I_D=-2A		110	150	
Forward trans conductance	g_{FS}	V_{DS}=-5V, I_D=-2A		6.5		S
Diode forward voltage	V_{SD}	I_{SD}=1A, V_{GS}=0V		-0.7	-1.3	V
Switching						
Total gate charge	Q_g	V_{GS}=4.5V, V_{DS}=10V, I_D=6A		5.5		nC
Gate-source charge	Q_{gs}			1.5		
Gate-drain charge	Q_{gd}			1.3		
Turn-on delay time	$t_{d(on)}$	V_{DD}=-6V, R_L=6Ω I_D=-1A, V_{GEN}=-4.5V R_G=6Ω		8		ns
Turn-on rise time	T_r			11		
Turn-off delay time	$t_{d(off)}$			33		
Turn-off fall time	t_f			15		
Dynamic						
Input capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, f=1.0MHz		150		pF
Output capacitance	C_{oss}			53		
Reverse transfer capacitance	C_{rss}			17		

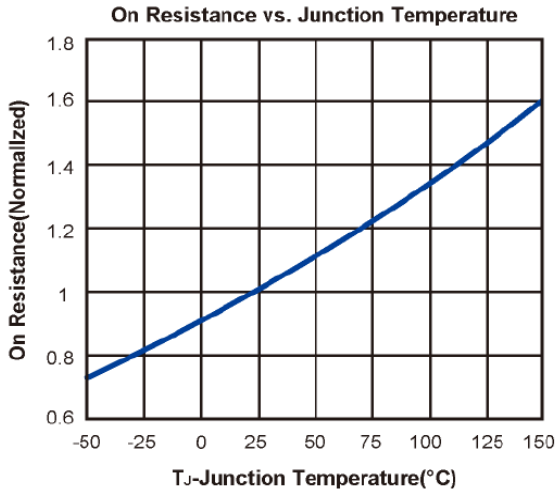
Note :

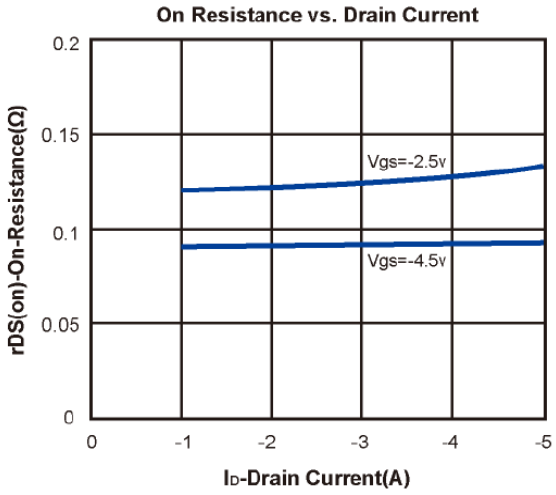
A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with TA =25°C. The value in any given application depends on the user's specific board design. The current rating is based on the t≤ 10s thermal resistance rating.

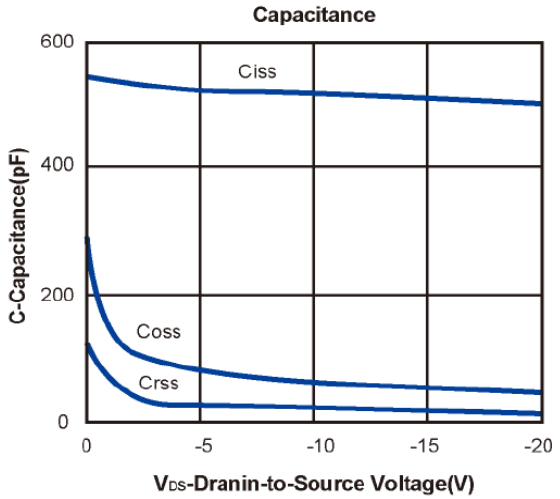
B: Repetitive rating, pulse width limited by junction temperature.

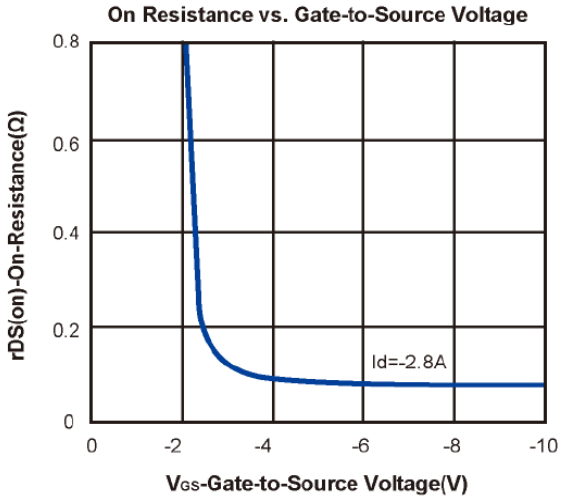
C: The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

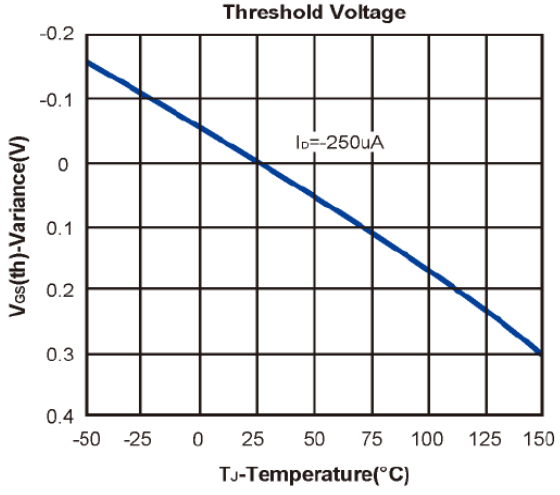
Typical Performance Characteristics

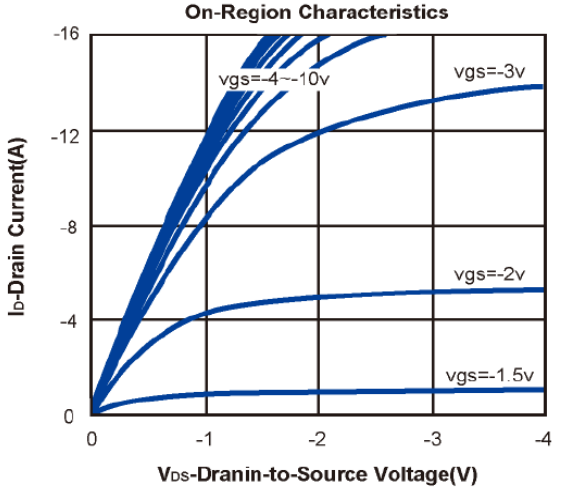


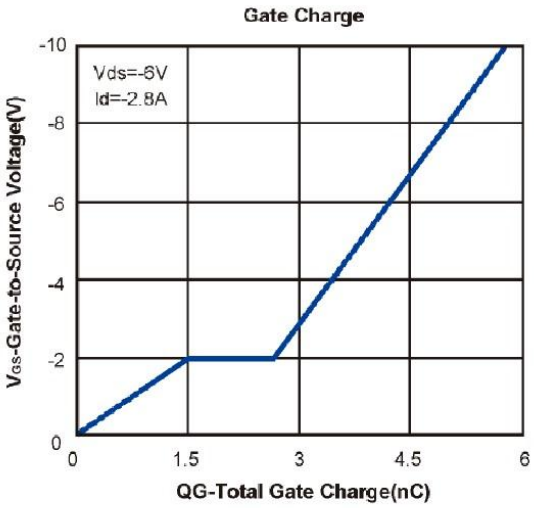


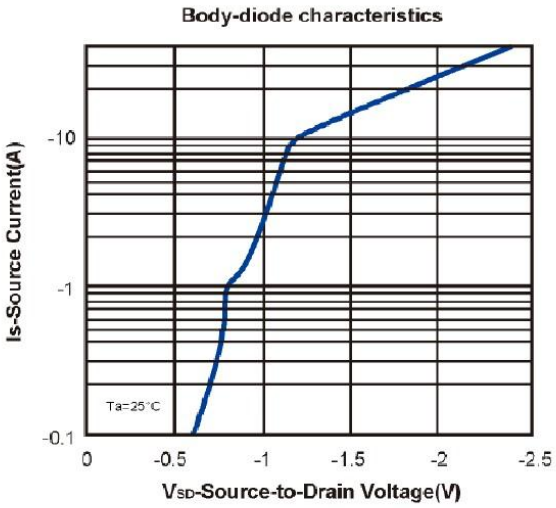






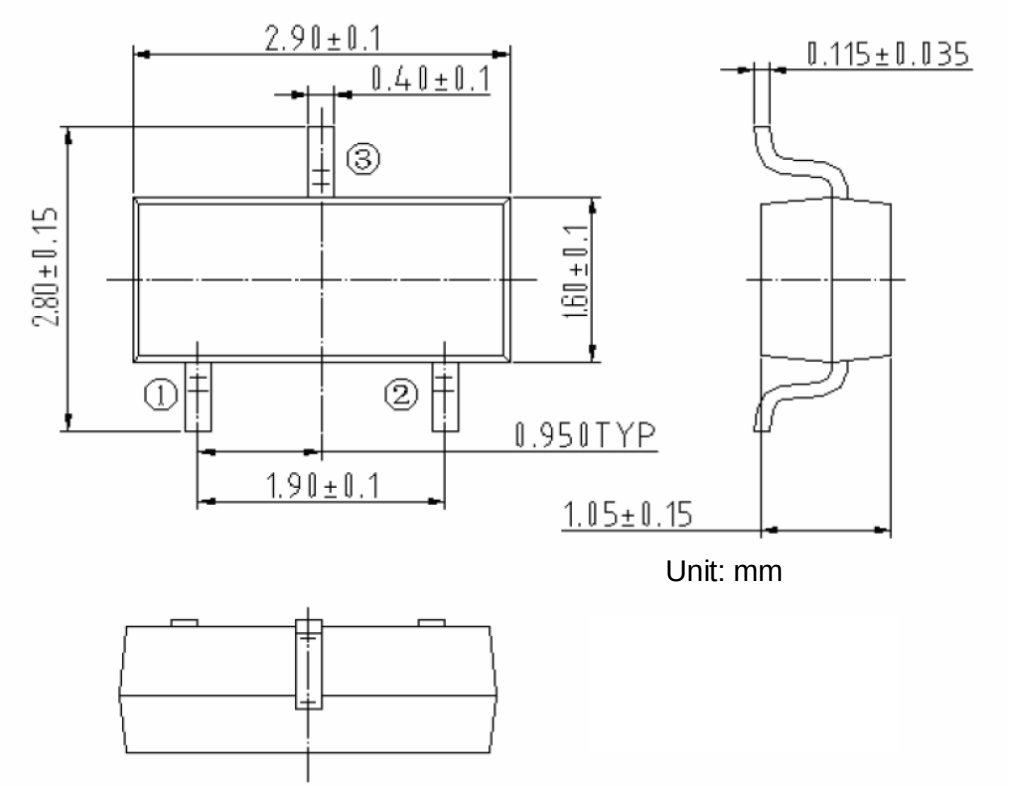



Gate Charge
Vds=-6V
Id=-2.8A
-10
-8
-6
-4
-2
0
0
1.5
3
4.5
6
VGS-Gate-to-Source Voltage(V)
QG-Total Gate Charge(nC)


Body-diode characteristics
-10
-1
-0.1
0
-0.5
-1
-1.5
-2
-2.5
Ta=25°C
Is-Source Current(A)
VSD-Source-to-Drain Voltage(V)

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.