ACE1710B

N-Channel Enhancement Mode MOSFET

Description

The ACE1710B uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications

Features

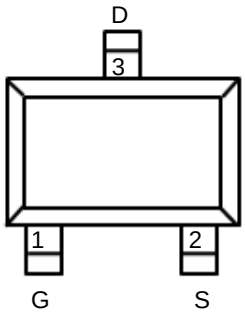
- 100V/1.5A
- $R_{DS(ON)}$ ＜280mΩ @ V_{GS} = 10V
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation
- SOT23 -3LPackage

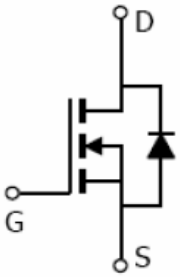
Absolute Maximum Ratings T_A=25℃ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current (Continuous)	T_A=25℃	I_D	1.5	A
	T_A=70℃		1.2	
Drain Current (Pulsed)		I_{DM}	5	A
Power Dissipation	T_A=25℃	P_D	1	W
Operating temperature / storage temperature		T_J/T_{STG}	-55~150	℃

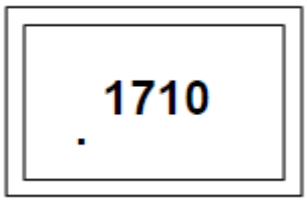
Packaging Type

SOT-23-3 L





Marking



Ordering information

ACE1710B XX + H

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

Electrical Characteristics

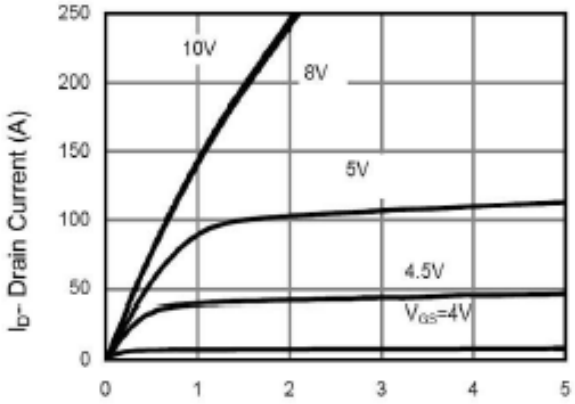
T_A=25℃, unless otherwise specified.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	100	110		V
Zero gate voltage drain current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
Gate threshold voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_{DS}=250μA	1.2	1.8	2.5	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=1A		250	280	mΩ
Forward transconductance	g_{FS}	V_{DS}=5V, I_D=1A	1.2			S
Diode forward voltage	V_{SD}	I_{SD}=1.3A, V_{GS}=0V			1.2	V
Maximum body-diode continuous current	I_S				1.6	A
Switching						
Total gate charge	Qg	V_{GS}=10V, V_{DS}=50V,I_D=1.3A		5.2		nC
Gate-source charge	Qgs			0.75		nC
Gate-drain charge	Qgd			1.4		nC
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V, R_L=39Ω,I_D=1.3A, V_{DS}=50V, R_G=1Ω		6		ns
Turn-on rise time	tr			10		ns
Turn-off delay time	$t_{d(off)}$			10		ns
Turn-off fall time	tf			6		ns
Dynamic						
Input capacitance	Ciss	V_{GS}=0V,V_{DS}=50V F=1.0MHz		190		pF
Output capacitance	Coss			22		pF
Reverse transfer capacitance	Crss			13		pF

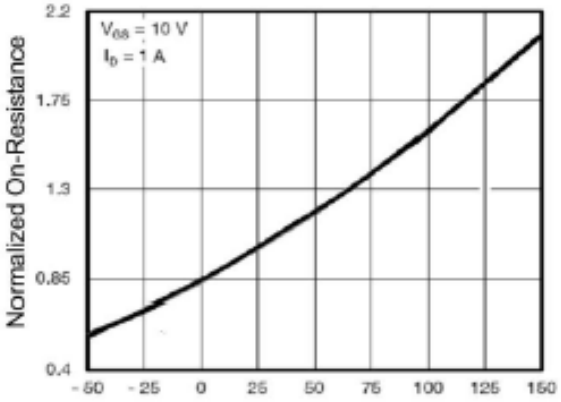
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board,t≤10sec.
3. Pulse Test: Pulse Width≤300 μ s,Duty Cycle≤2%.
4. Guaranteed by design,not subject to production

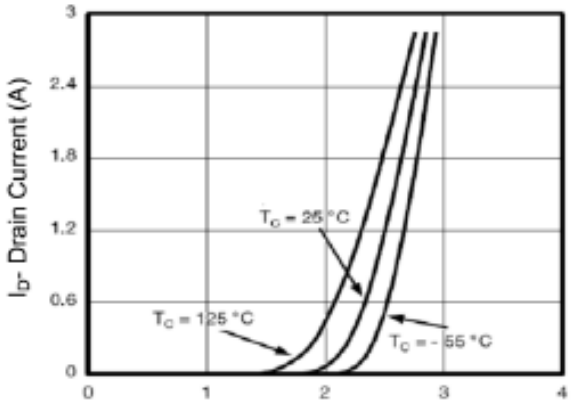
Typical Performance Characteristics



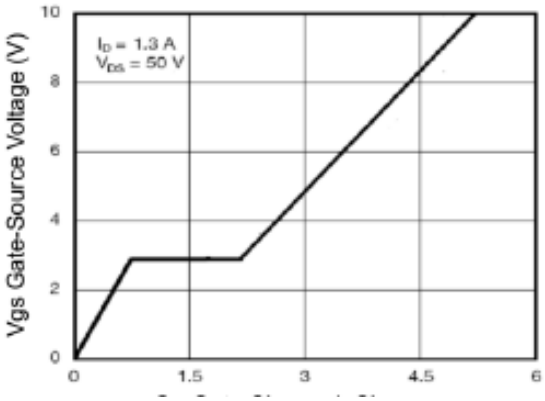
Vds Drain-Source Voltage(V)
Figure 1 Output Characteristics



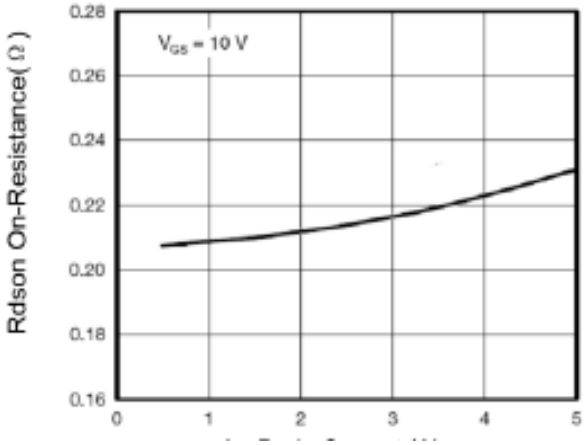
TJ -Junction Temperature (℃)
Figure 4 Rdson-Junction Temperature



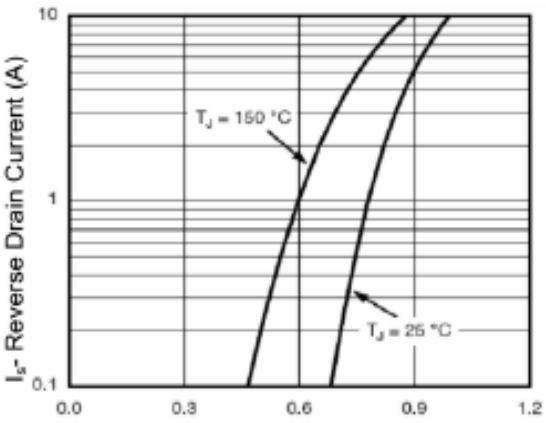
Vgs Gate-Source Voltage(V)
Figure 2 Transfer Characteristics



Qg Gate Charge(nC)
Figure 5 Gate Charge

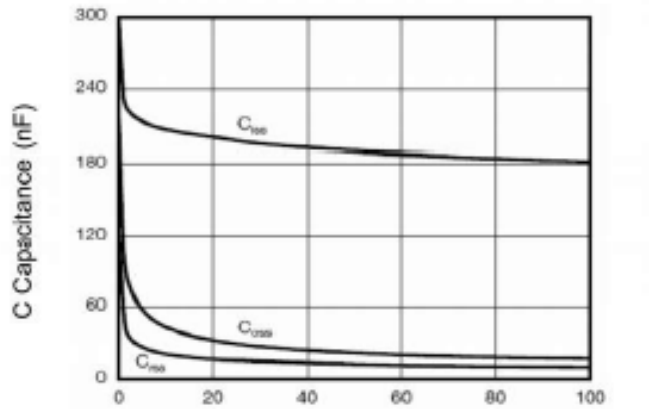


ID-Drain Current(A)
Figure 3 Rdson – Drain Current



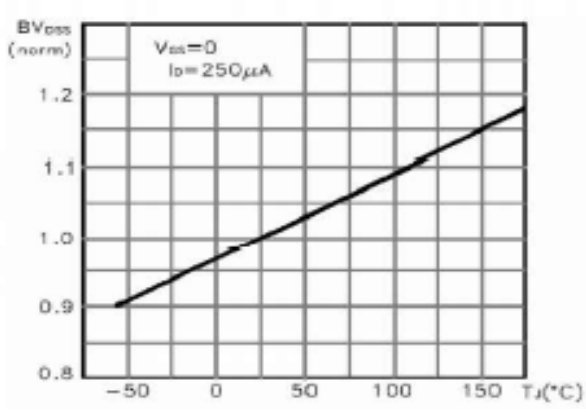
Vsd Source-Drain Voltage(V)
Figure 6 Source – Drain Diode Forward

Typical Performance Characteristics



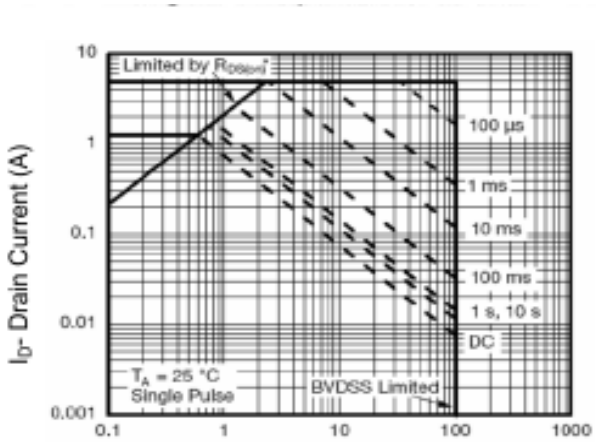
Vds Drain-Source Voltage(V)

Figure 7 Capacitance vs Vds



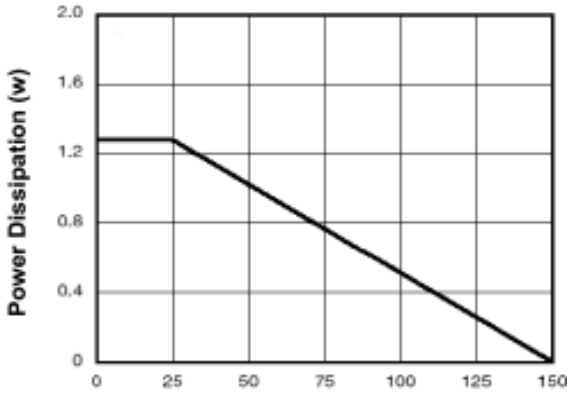
TJ -Junction Temperature (℃)

Figure 9 BVDSS vs Junction Temperature



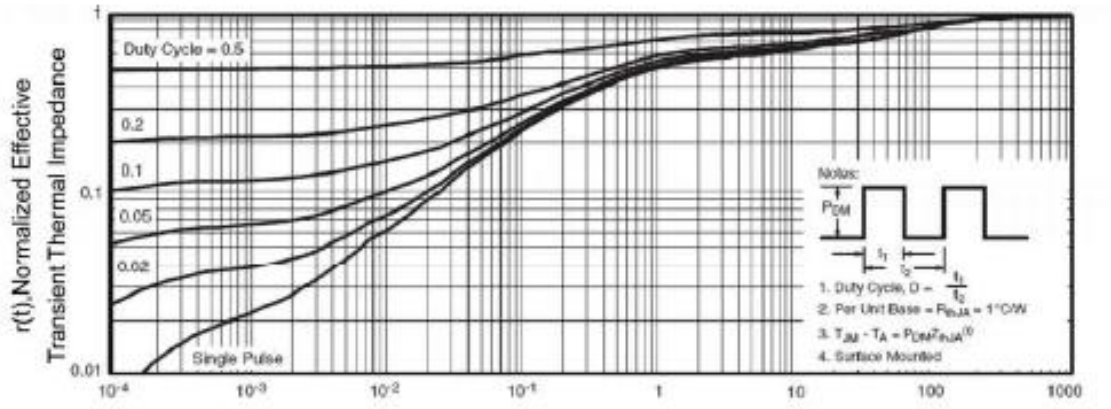
Vds Drain-Source Voltage(V)

Figure 8 Safe Operation Area



TJ -Junction Temperature (℃)

Figure 10 Power De-rating

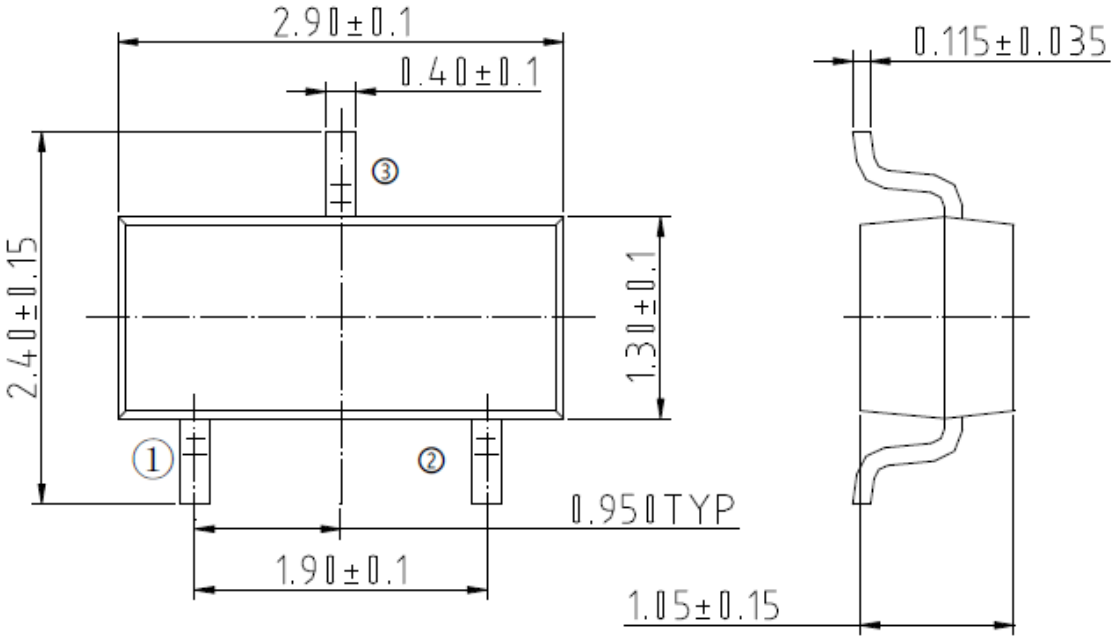


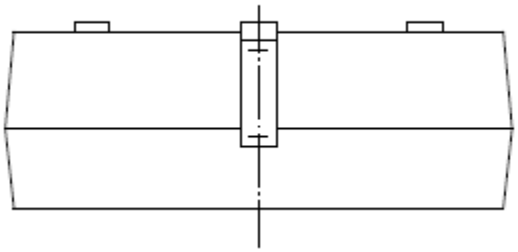
Square Wave Pluse Duration(sec)

Figure 11 Normalized Maximum Transient Thermal Impedance

Packing Information

SOT-23-3L





SOT-23-3L
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.