ACE7701A

P-Channel Enhancement Mode MOSFET

Description

The ACE7701A is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

Features

- -60V/-0.5A,$R_{DS(ON)}$= 6Ω@V_{GS}=- 10V
- -60V/-0.25A,$R_{DS(ON)}$= 10Ω@V_{GS}=-4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- TSOT-23 package design

Applications

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

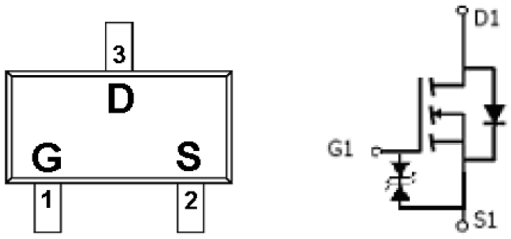
Absolute Maximum Ratings

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	-60	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current (T_J=150℃)	T_A=25℃	I_D	-0.5	A
	T_A=70℃		-0.3	
Pulsed Drain Current		I_{DM}	0.8	A
Power Dissipation	T_A=25℃	P_D	1.25	A
	T_A=70℃		0.8	
Operating Junction Temperature		T_J	150	W
Storage Temperature Range		T_{STG}	-55~150	°C
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	375	°C /W

Packaging Type

TSOT-23-3



Pin Description

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

Ordering information

ACE7701A XX + H

- Halogen - free
- Pb - free
- BMS: TSOT-23-3

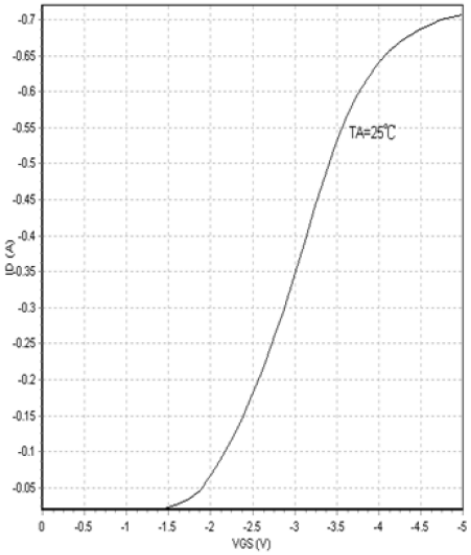
Electrical Characteristics

T_A=25℃, unless otherwise noted.

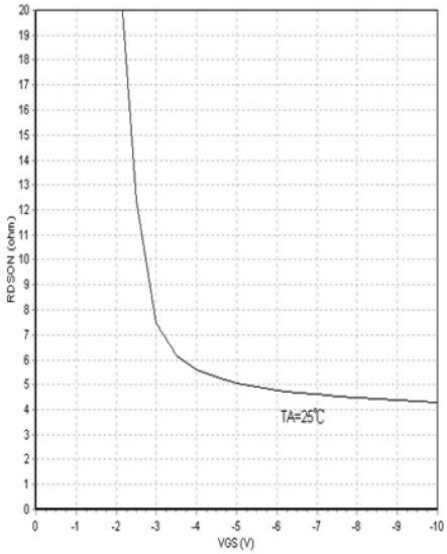
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250 uA	-60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-1		-3	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±10	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V, V_{GS}=0V			-1	uA
		V_{DS}=-60V, V_{GS}=0V, T_J=55℃			-10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦-5V,V_{GS}=-10V	-1			A
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-0.5A			6	Ω
		V_{GS}=-4.5V, I_D=-0.25A			10	
Forward Trans Conductance	gfs	V_{DS}=-10V, I_D=-0.5A		1		S
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-0.2A			-1.5	V
Dynamic						
Total Gate Charge	Q_g	V_{DD}=-30V, V_{GS}=-15V, I_D≡-0.5A		2		nC
Gate-Source Charge	Q_{gs}			0.53		
Gate-Drain Charge	Q_{gd}			0.72		
Input Capacitance	Ciss	V_{DS} =-25 V, f = 1 MHz, V_{GS} = 0V		25		pF
Output Capacitance	Coss			13		
Reverse Transfer Capacitance	Crss			7.3		
Turn-On Time	td(on)	V_{DD}=-25V, I_D≡-200mA, V_{GEN}=-10V		20		ns
Turn-Off Time	td(off)			35		

Typical Performance Characteristics

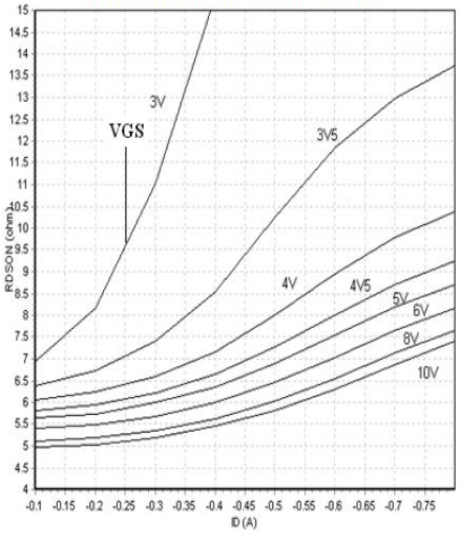
Drain-Current vs. Gate-Source Voltage



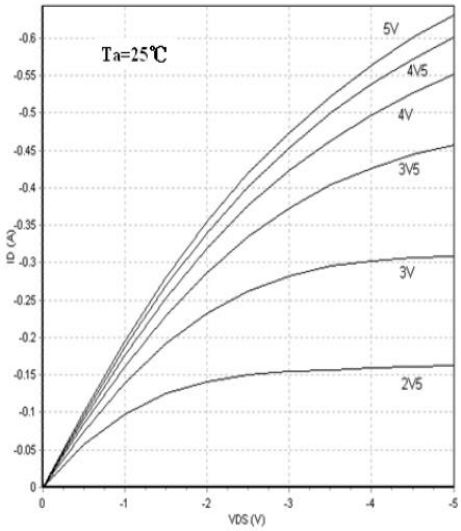
On-Resistance vs. Gate-Source Voilage



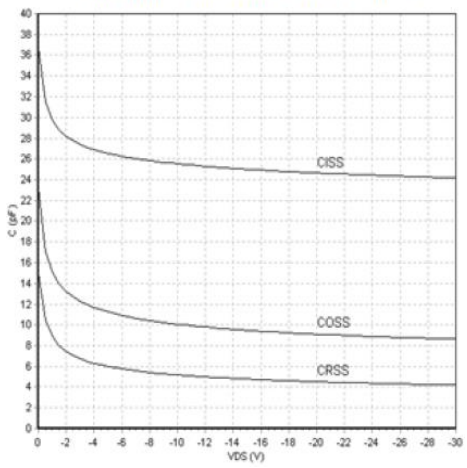
On-Resistance vs. Drain-Current



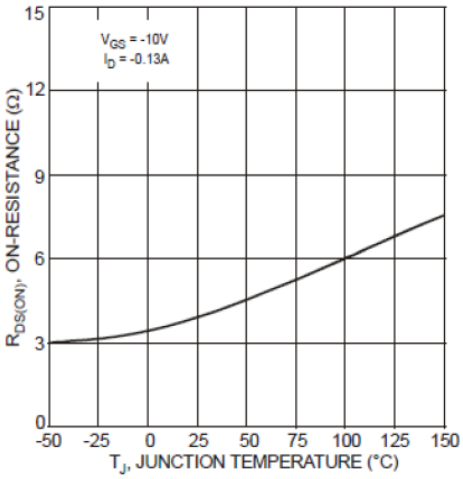
Drain-Source Current vs. Drain-Source Voltage



Capacitance vs. Drain-Source Voltage

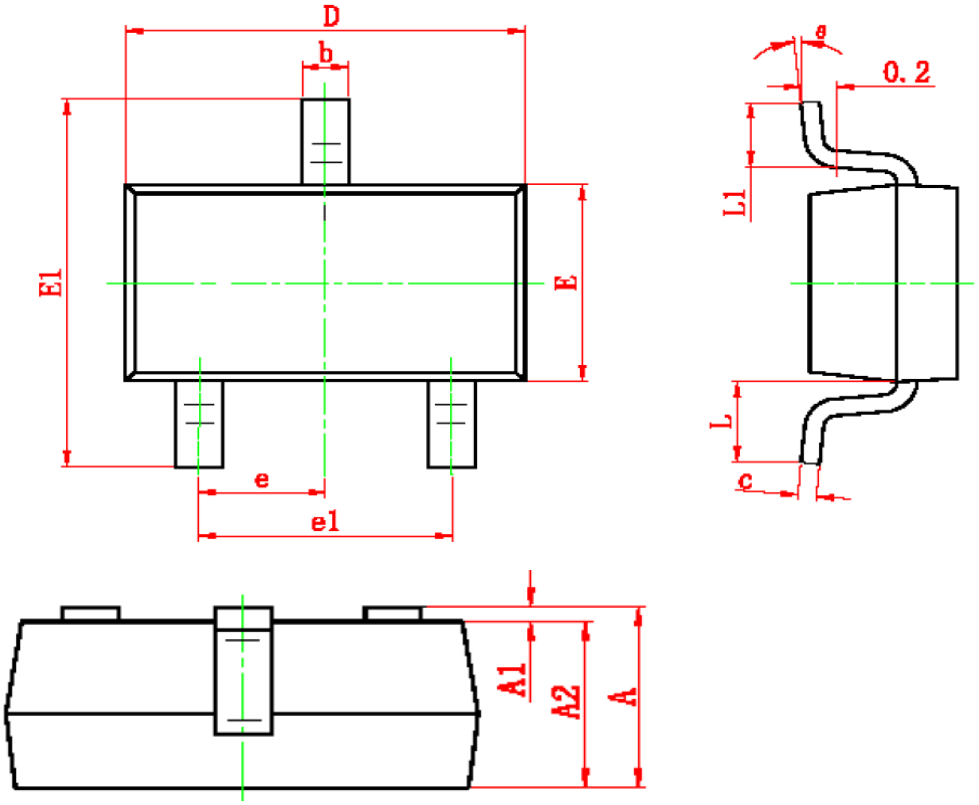


On-Resistance vs. Drain-Current



Packing Information

TSOT-23-3



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.820	1.200	0.0323	0.0430
A1	0.000	0.100	0.0000	0.0040
A2	0.820	1.100	0.0323	0.0390
b	0.300	0.500	0.0120	0.0200
c	0.080	0.150	0.0030	0.0060
D	2.800	3.000	0.1100	0.1180
E	1.200	1.400	0.0470	0.0550
E1	2.200	2.550	0.0866	0.1000
e	0.95 TYP		0.037 TYP	
e1	1.800	2.000	0.0710	0.0790
L	0.529 REF		0.0208 REF	
L1	0.200	0.500	0.0079	0.0200
θ	0°	8°	0°	8°

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.