ACE1543B

P-Channel Enhancement Mode Field Effect Transistor

Description

This P-Channel enhancement mode power FETs are produced with high cell density, DMOS trench technology, which is especially used to minimize on-state resistance. This device is particularly suited for low voltage application such as portable equipment, power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

Features

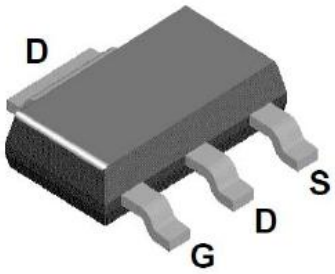
- V_{DS}(V) =-30V
- I_D=-4.5A
- $R_{DS(ON)}$=68mΩ @ V_{GS}=-10V
- $R_{DS(ON)}$=83mΩ @ V_{GS}=-4.5V
- High density cell design for low $R_{DS(ON)}$

Absolute Maximum Ratings

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current * AC	T_A=25℃	I_D	-4.5	A
	T_A=70℃		-3.6	
Pulsed Drain Current * B		I_{DM}	-20	A
Power Dissipation	T_A=25℃	P_D	2	W
Operating Junction Temperature / Storage Temperature Range		T_J/T_{STG}	-55/150	°C

Packaging Type

SOT-223



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P-Channel Enhancement Mode Field Effect Transistor

Ordering information

ACE1543B XX + H

- Halogen - free
- Pb - free
- XM : SOT-223

Electrical Characteristics

T_A=25℃, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250 uA	-30	-34		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=-250uA	-1	-1.4	-3	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	uA
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-6A		48	68	mΩ
		V_{GS}=-4.5V, I_D=-4A		63	83	
Forward Transconductance	gfs	V_{DS}=-5V,I_D=-6A		12		S
Diode Forward Voltage	V_{SD}	I_{SD}=-1A, V_{GS}=0V		-0.81		V
Switching						
Total Gate Charge	Q_g	V_{DS}=-15V, V_{GS}=-10V, I_D=-4.9A		18.3	23.8	nC
Gate-Source Charge	Q_{gs}			2.4	3.2	
Gate-Drain Charge	Q_{gd}			3.1	4.1	
Turn-On Time	td(on)	V_{GS}=-10V, R_{GEN}=6Ω, V_{DS}=-15V, R_L=15Ω		12.4	24.8	nS
Turn-Off Time	td(off)			41.1	82.2	
Dynamic						
Input Capacitance	Ciss	V_{GS}=0V, V_{DS}=-15V, f=1MHz		971.5		pF
Output Capacitance	Coss			235.1		
REVERSE Transfer Capacitance	Crss			82.7		

Note:

1. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.
2. Repetitive rating, pulse width limited by junction temperature.
3. The current rating is based on the t≤ 10s junction to ambient thermal resistance rating.

Typical Performance Characteristics

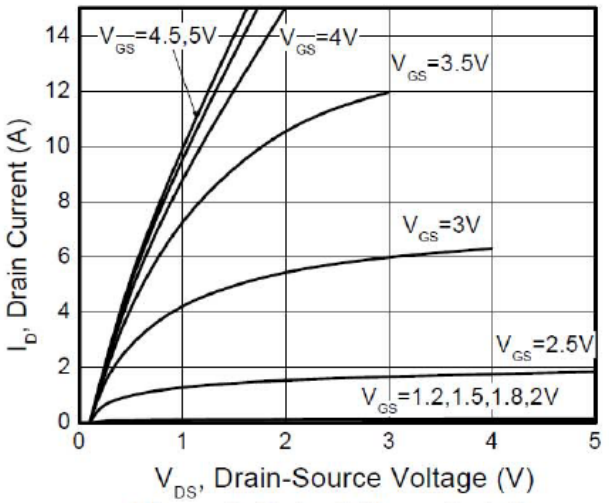


Figure 1. Output Characteristics

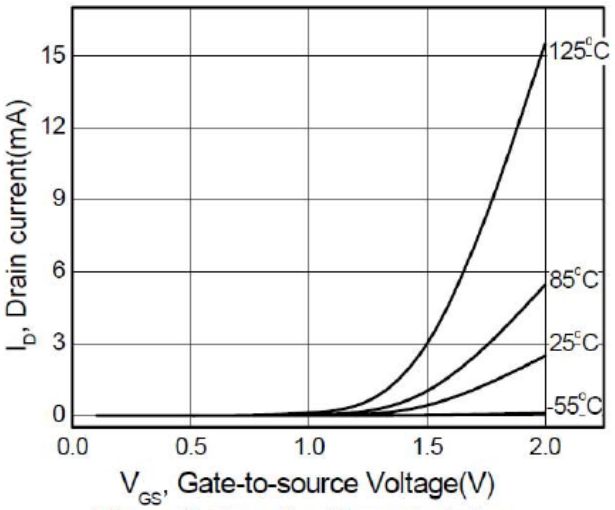


Figure 2. Transfer Characteristics

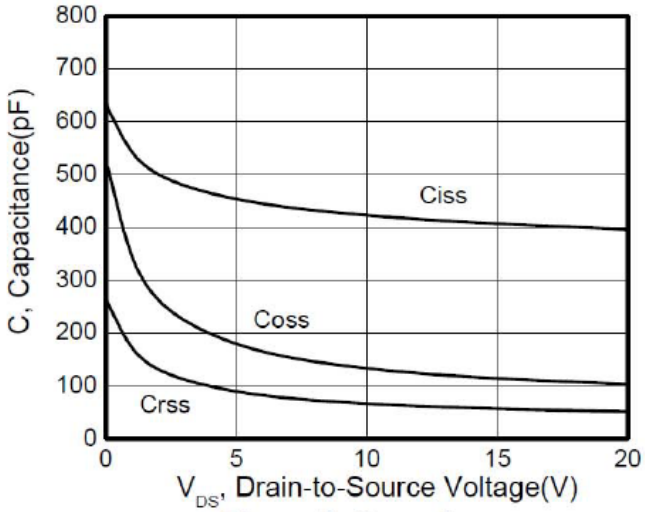


Figure 3. Capacitance

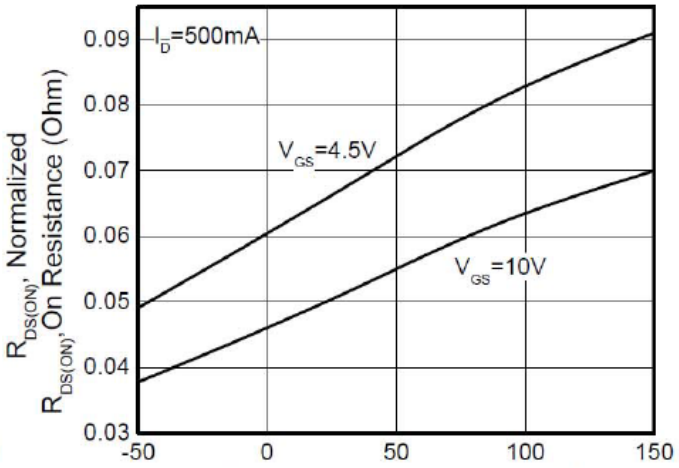


Figure 4. On Resistance Vs. Temperature

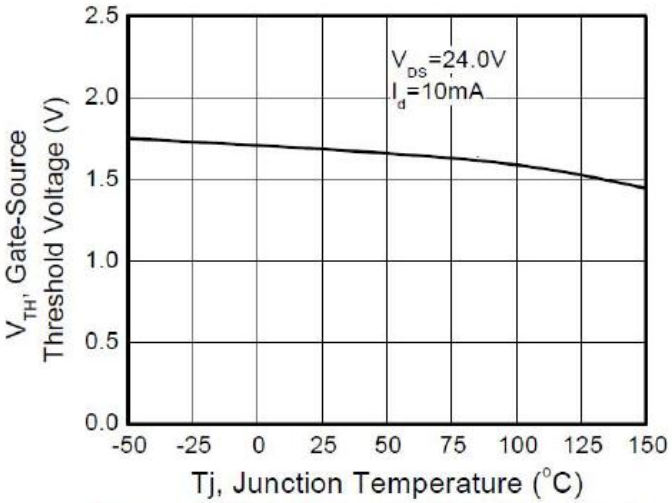


Figure 5. Gate Thershold Vs. Temperature

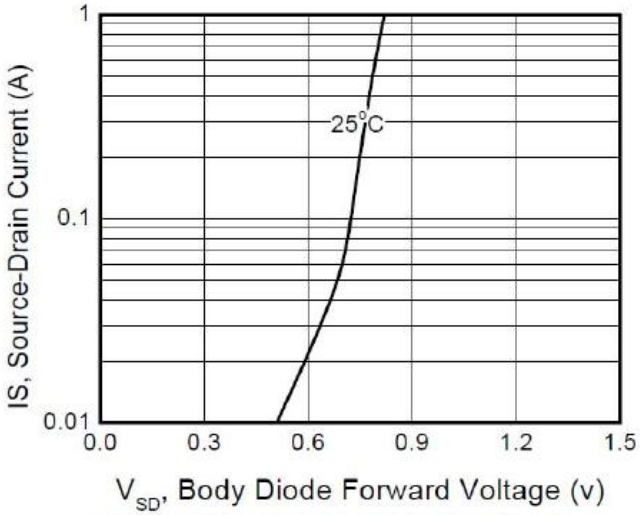
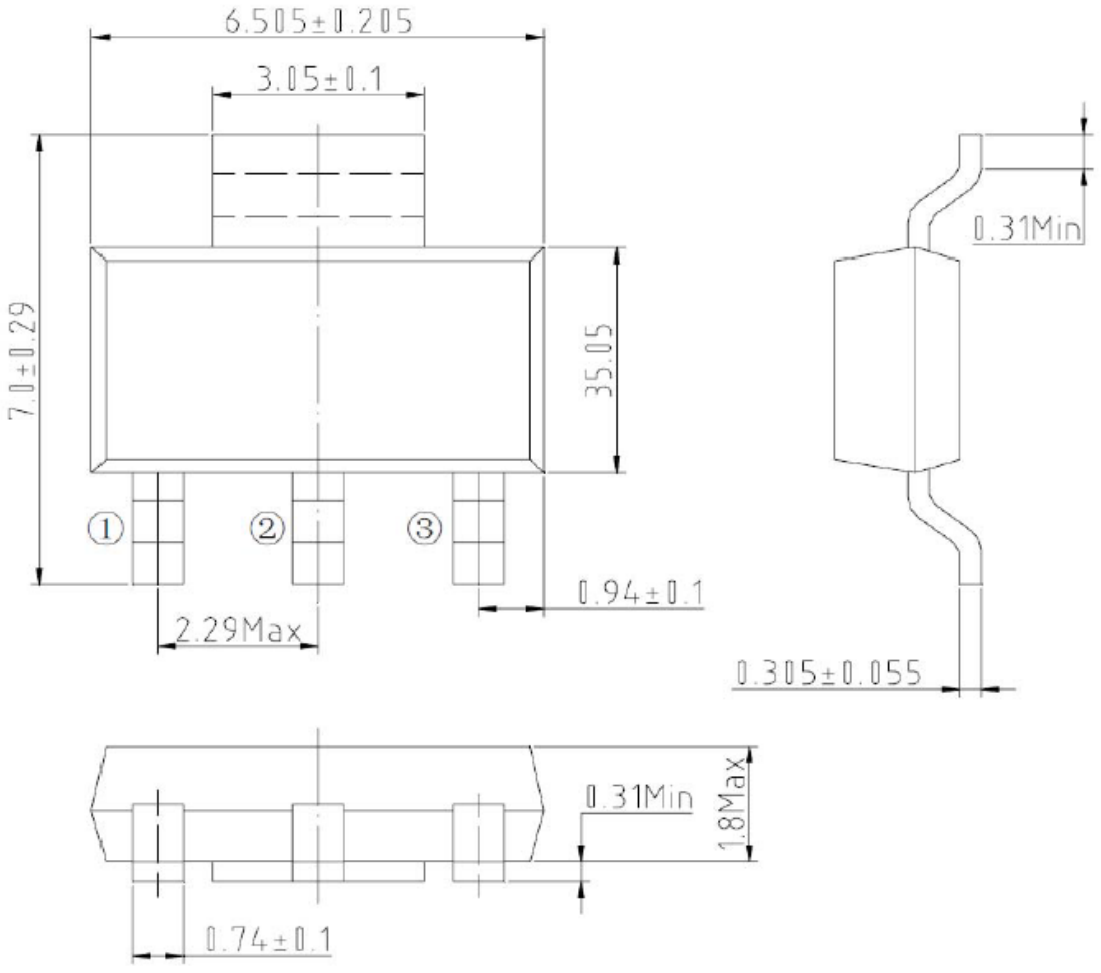


Figure 6.Body Diode Forward Voltage

Packing Information

SOT-223



Units: 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.

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