ACE17430B

N-Channel Enhancement Mode Power MOSFET

Description

ACE17430B 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

- V_{DS}= 30V , I_D=45A
- $R_{DS(ON)}$@ V_{GS} = 10V , TYP= 10mΩ
- $R_{DS(ON)}$@ V_{GS} = 4.5V , TYP= 13mΩ

Absolute Maximum Ratings@T_A=25℃ unless otherwise noted

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current (Continuous)*AC	T_A=25℃	I_D	45	A
	T_A=100℃		21	
Drain Current (Pulsed)*B		I_{DM}	150	A
Power Dissipation	T_A=25℃	P_D	40	W
Operating temperature / Storage temperature		T_J/T_{STG}	-55~150	℃

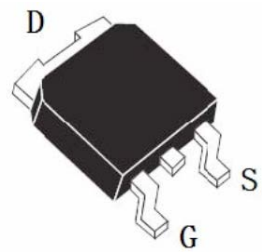
A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

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

C: The current rating is based on the t≤ 10s junction to ambient thermal resistance rating.

Packaging Type

TO-252



Ordering information

ACE17430B XX + H

- Halogen - free
- Pb - free
- YM: TO-252

Electrical Characteristics T_A=25°C, 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	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate threshold voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_{DS}=250μA	1	1.5	2.2	V
Gate leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	μA
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		10	14	mΩ
		V_{GS}=4.5V, I_D=15A		13	25	
Forward Trans conductance	g_{FS}	V_{DS} =5V, I_D= 20A	26			S
Diode forward voltage	V_{SD}	I_{SD}=20A, V_{GS}=0V			1.2	V
Maximum body-diode continuous current	I_S				45	A
Switching						
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=15V, I_D=20A		17		nC
Gate-Source Charge	Q_{gs}			2.8		
Gate-Drain Charge	Q_{gd}			4		
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=15V, I_D=2A, V_{GS}=10V,R_G=3Ω		5		ns
Turn-on Rise Time	t_r			12		
Turn-off Delay Time	$t_{d(off)}$			19		
Turn-off Fall Time	t_f			6		
Dynamic						
Input Capacitance	Ciss	V_{GS}=0V, V_{DS}=15V, f=1.0MHz		920		pF
Output Capacitance	Coss			132		
Reverse Transfer Capacitance	Crss			103		

Typical Performance Characteristics

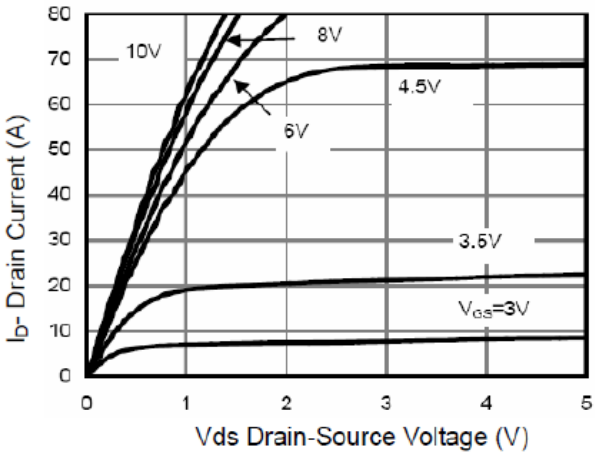


Figure 1 Output Characteristics

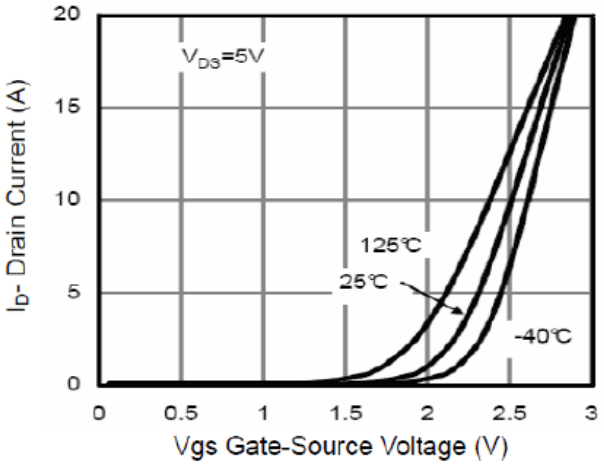


Figure 2 Transfer Characteristics

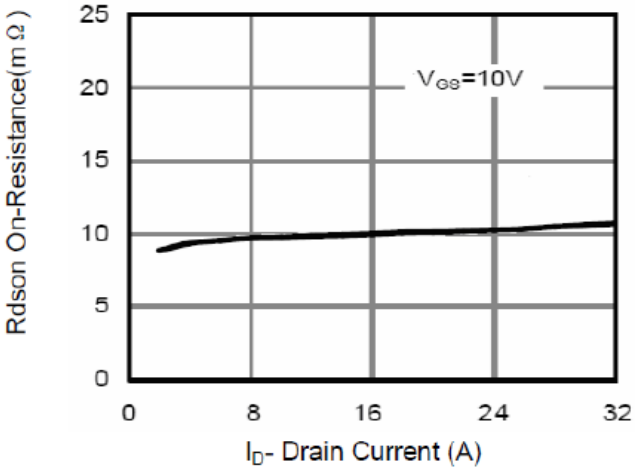


Figure 3 Rdson- Drain Current

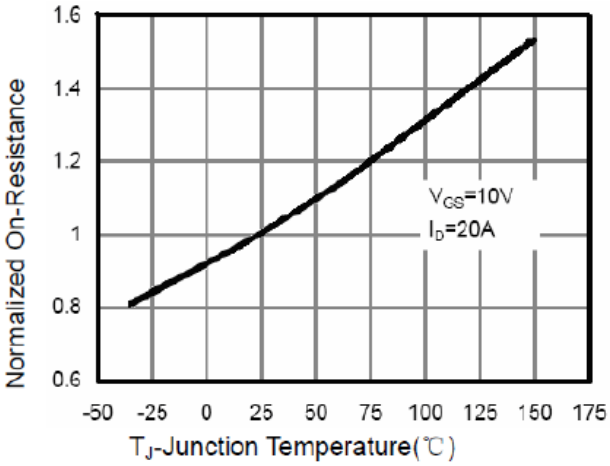


Figure 4 Rdson-Junction Temperature

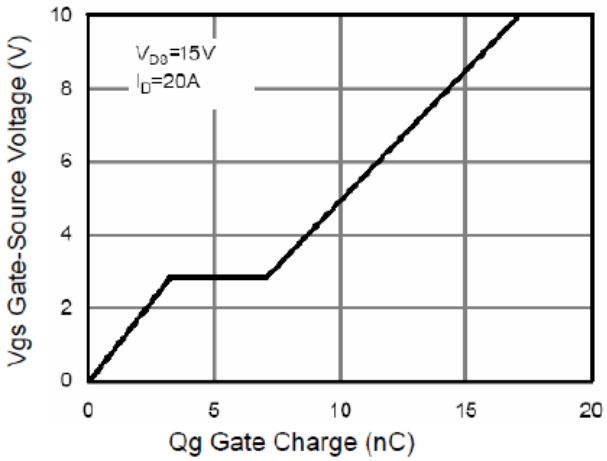


Figure 5 Gate Charge

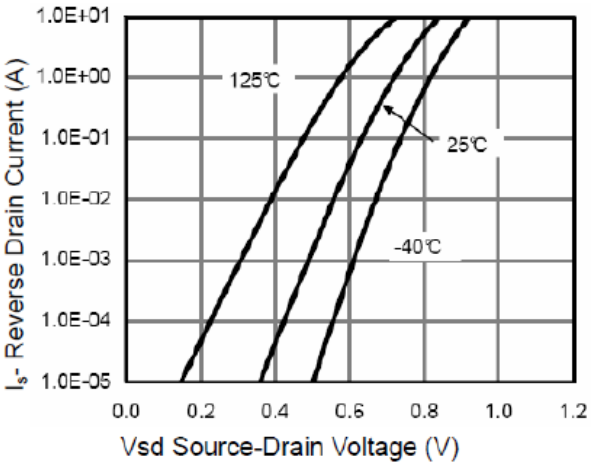


Figure 6 Source- Drain Diode Forward

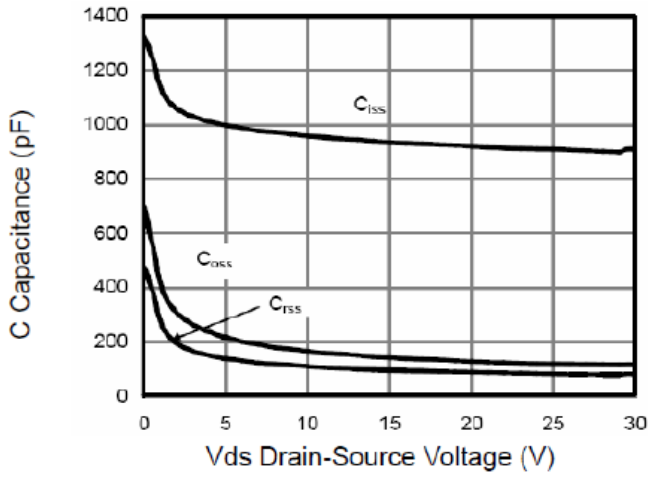


Figure 7 Capacitance vs Vds

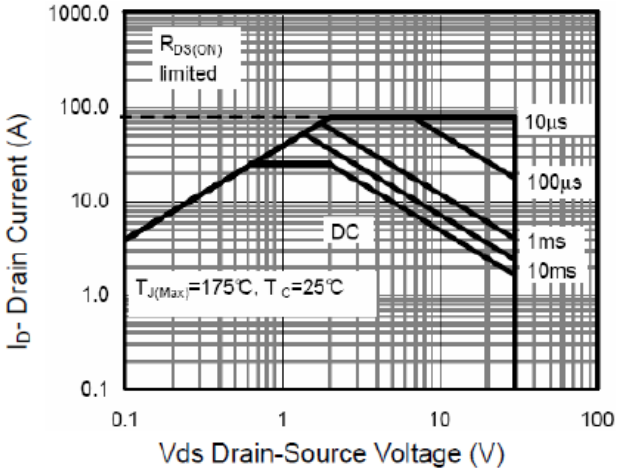


Figure 8 Safe Operation Area

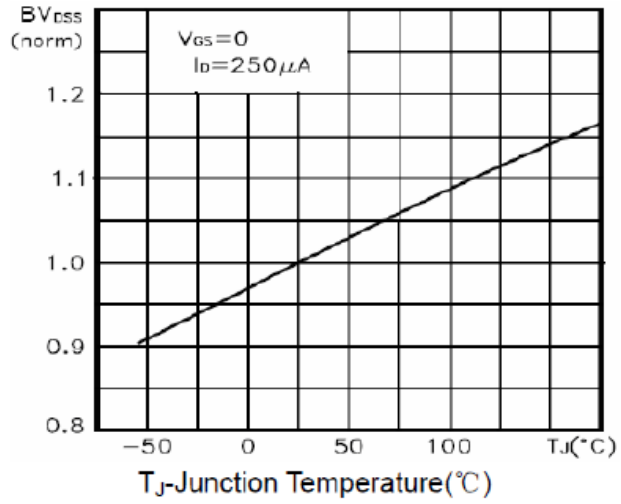


Figure 9 BV_{DSS} vs Junction Temperature

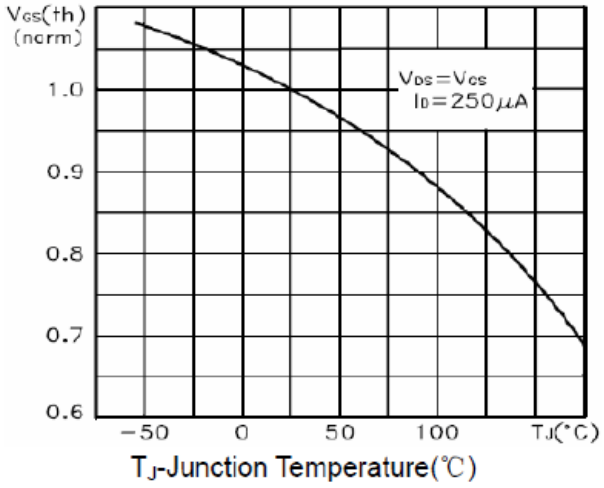


Figure 10 $V_{GS(th)}$ vs Junction Temperature

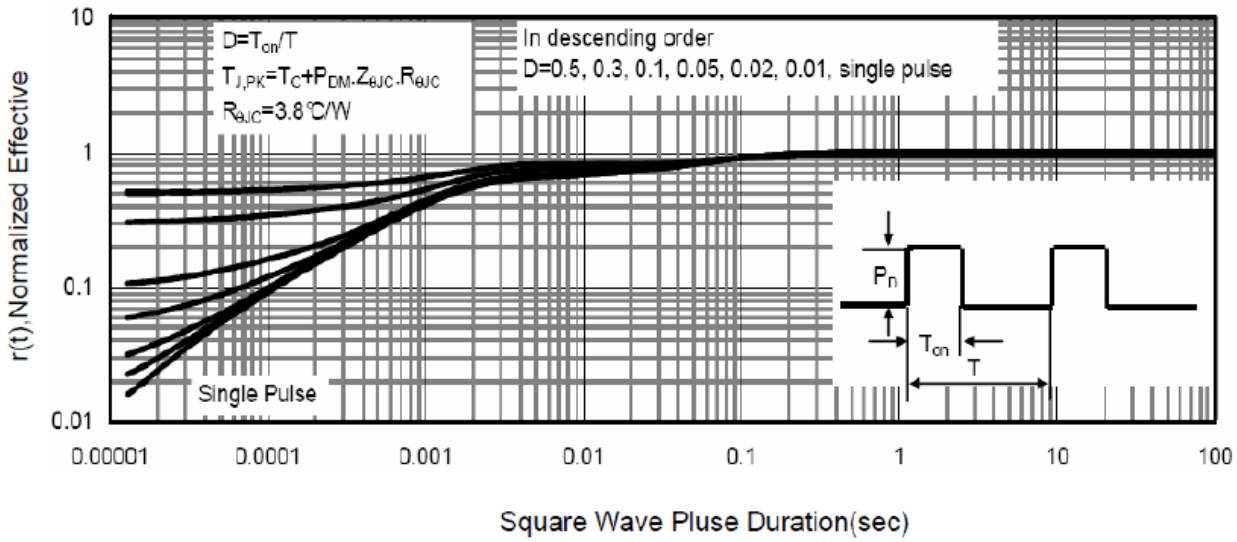
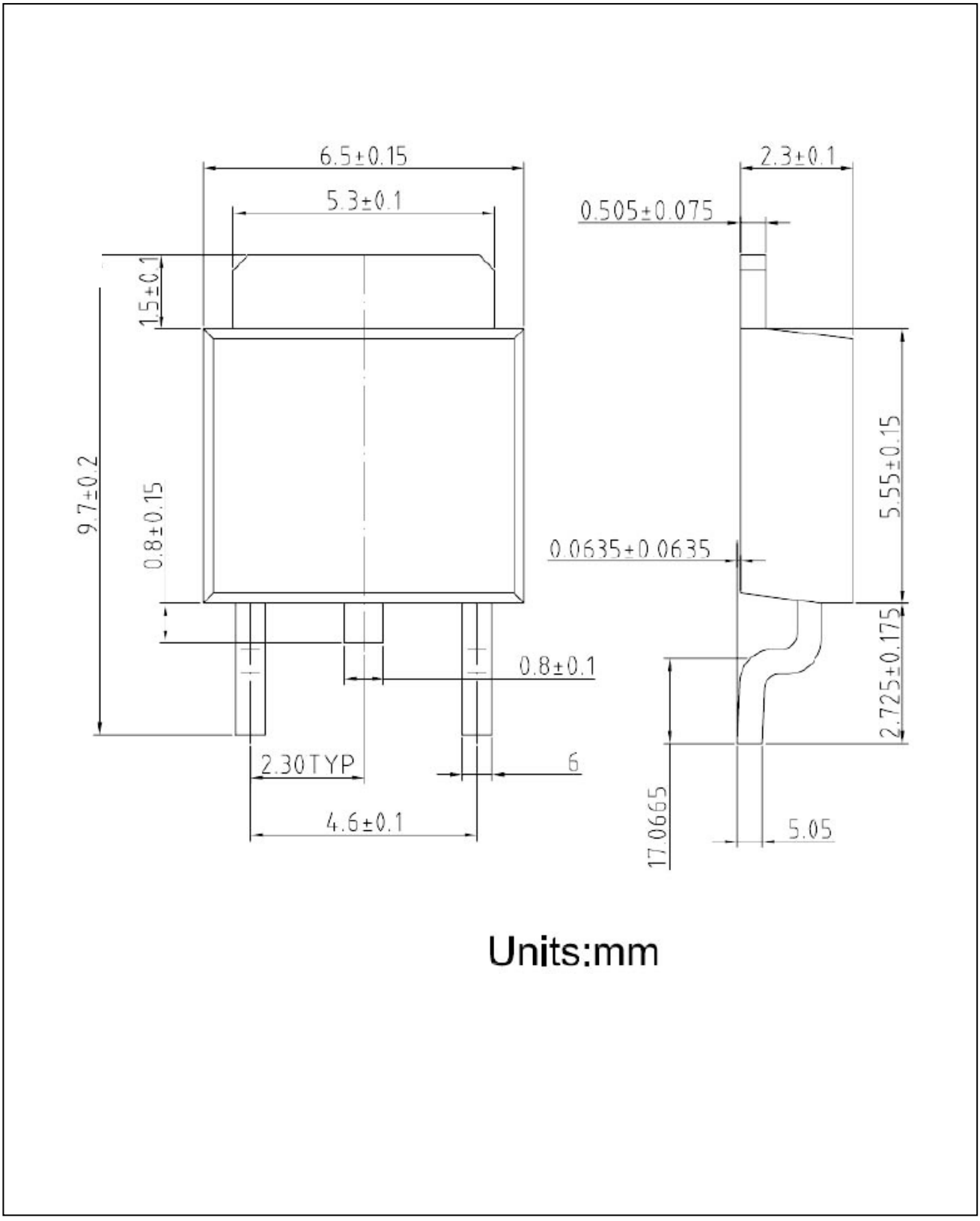


Figure 11 Normalized Maximum Transient Thermal Impedance

Packing Information

TO-252



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.