ACE1632B

N-Channel Enhancement Mode Field Effect Transistor

Description

ACE1613B uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device particularly suits for low voltage application such as power management of desktop computer or notebook computer power management, DC/DC converter.

This device has specifically been designed to minimize input capacitance and gate charge. It is therefore suitable as primary switch in advanced high-efficiency isolated DC-DC converters for Telecom and Computer application. It is also intended for any application with low gate charge drive requirements.

Features

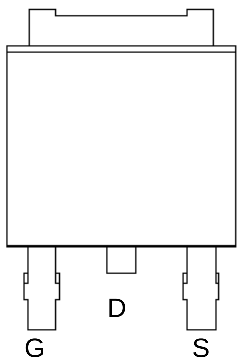
- V_{DS} =60V, I_D=18A, V_{GS} 20V
- $R_{DS(ON)}$<40mΩ @V_{GS}=10V

Absolute Maximum Ratings

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage		V_{GSS}	±20	V
Maximum Drain Current	Continuous	I_D	18	A
	Pulsed		45	
Continuous Power Dissipation (large heatsick)		P_D	110	W
Operating Temperature / Storage Temperature		T_J/T_{STG}	-55/150	°C

Packaging Type

TO-252



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N-Channel Enhancement Mode Field Effect Transistor

Ordering information

ACE1632B XX + H

- H: Halogen - free
- \+ : Pb - free
- XX: YM : TO-252

Electrical Characteristics

T_A=25℃, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250uA	60			V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	uA
On characteristics [b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250uA	1.1	1.5	2.9	V
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=10A		35	40	mΩ
		V_{GS}=4.5V, I_D=5A		42	50	
Forward Transconductance	gfs*	V_{DS}=15V,I_D=10A		20		S
Switching characteristics [b]						
Total Gate Charge	Q_g	V_{DS}=48V, V_{GS}=10V, I_D=18A		50		nC
Gate-Source Charge	Q_{gs}			20		
Gate-Drain Charge	Q_{gd}			15		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=30V, I_D=10A, R_{GEN}=4.7Ω,		45		ns
Turn-On Rise Time	t_r			22		
Turn-Off Delay Time	$t_{d(off)}$			42		
Turn- Off Rise Time	t_f			13		
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0V f=1MHz		1000		pF
Output Capacitance	C_{oss}			200		
Reverse Transfer Capacitance	C_{rss}			100		
Drain-source diode characteristics and maximum ratings [b]						
Drain-source diode forward voltage	V_{SD}	V_{GS}=0V, I_S=18A [(2)]			1.3	V

Note:

1. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta JA}$ is determined by the user's board design.
2. Pulse Test: Pulse Width ≦ 300μs, Duty Cycle ≦ 2.0%

Typical Performance Characteristics (N-Channel)

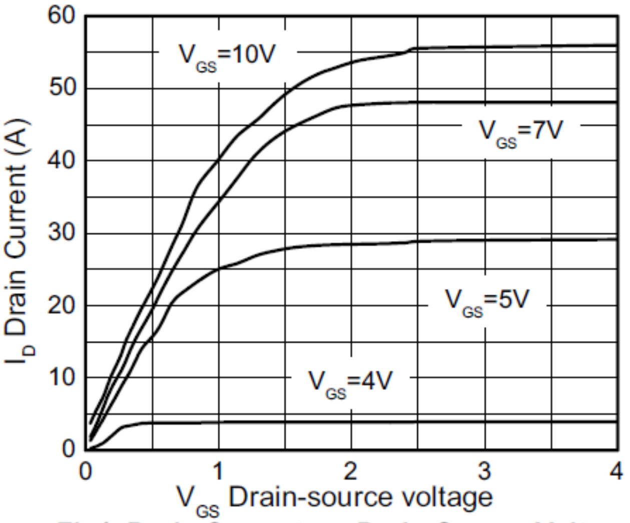


Fig1. Drain Current vs. Drain-Source Voltage

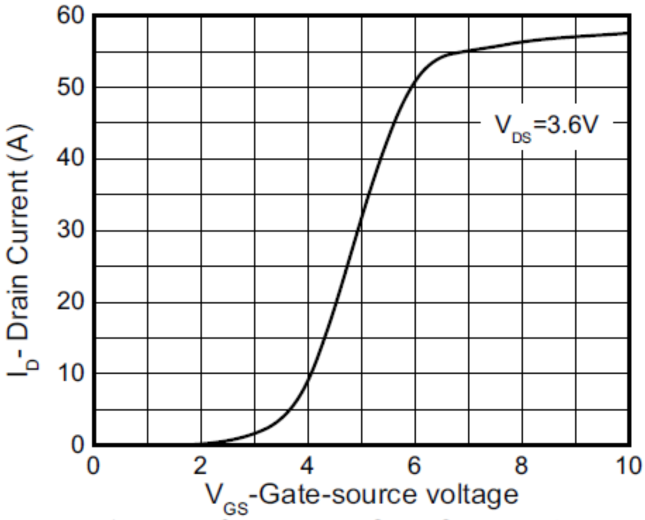


Fig2. Drain Current vs. Gate-Source Voltage

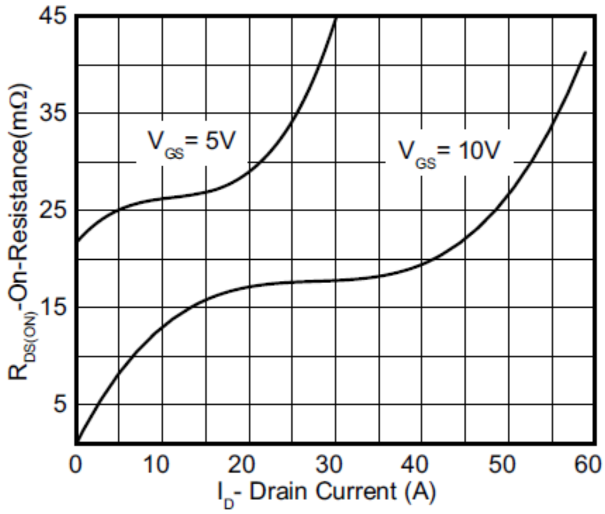


Fig3. On-Resistance vs. Drain Current

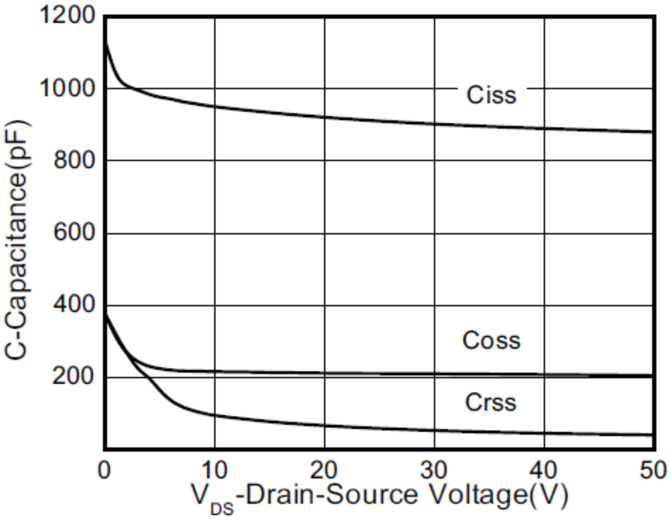


Fig4. Drain-Source Voltage vs.Capacitance

Typical Performance Characteristics

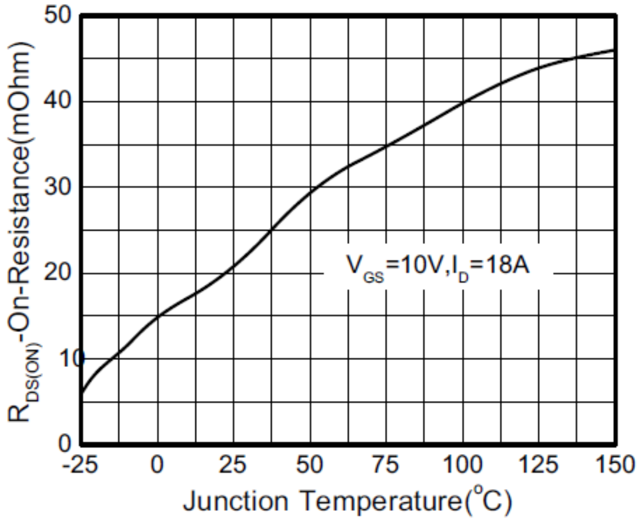


Fig5. On-Resistance vs. Junction Temperature

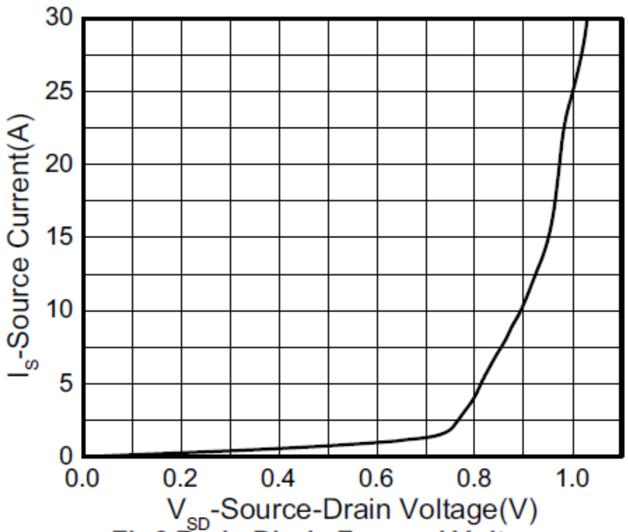


Fig6.Body Diode Forward Voltage vs Diode Current

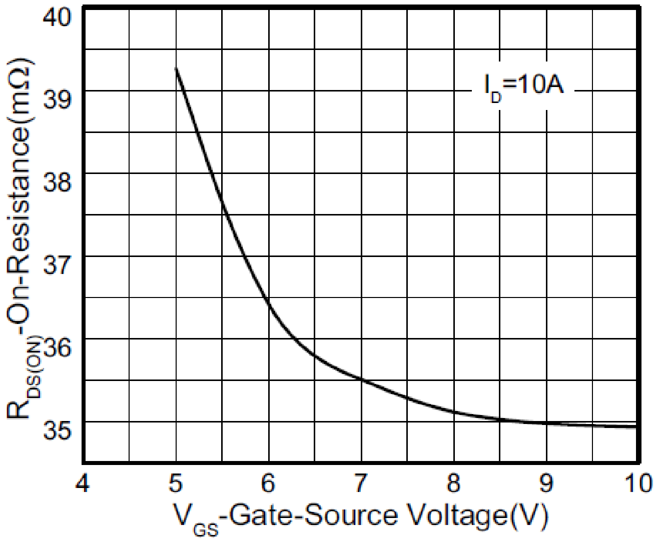


Fig7. On-Resistance vs. Gate-Source Voltage

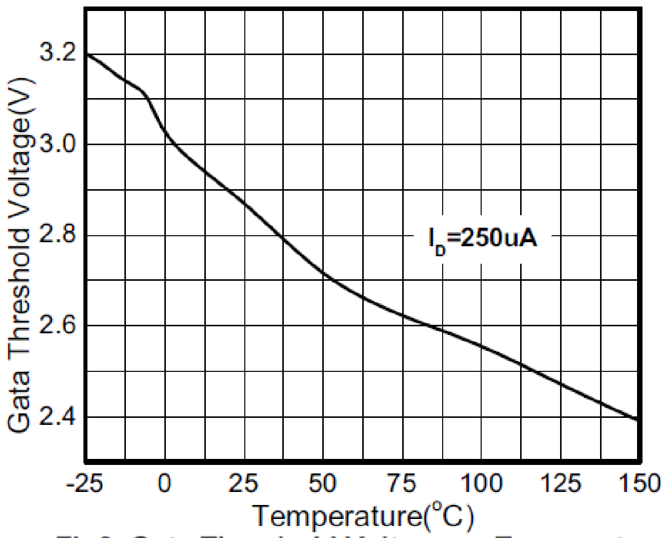
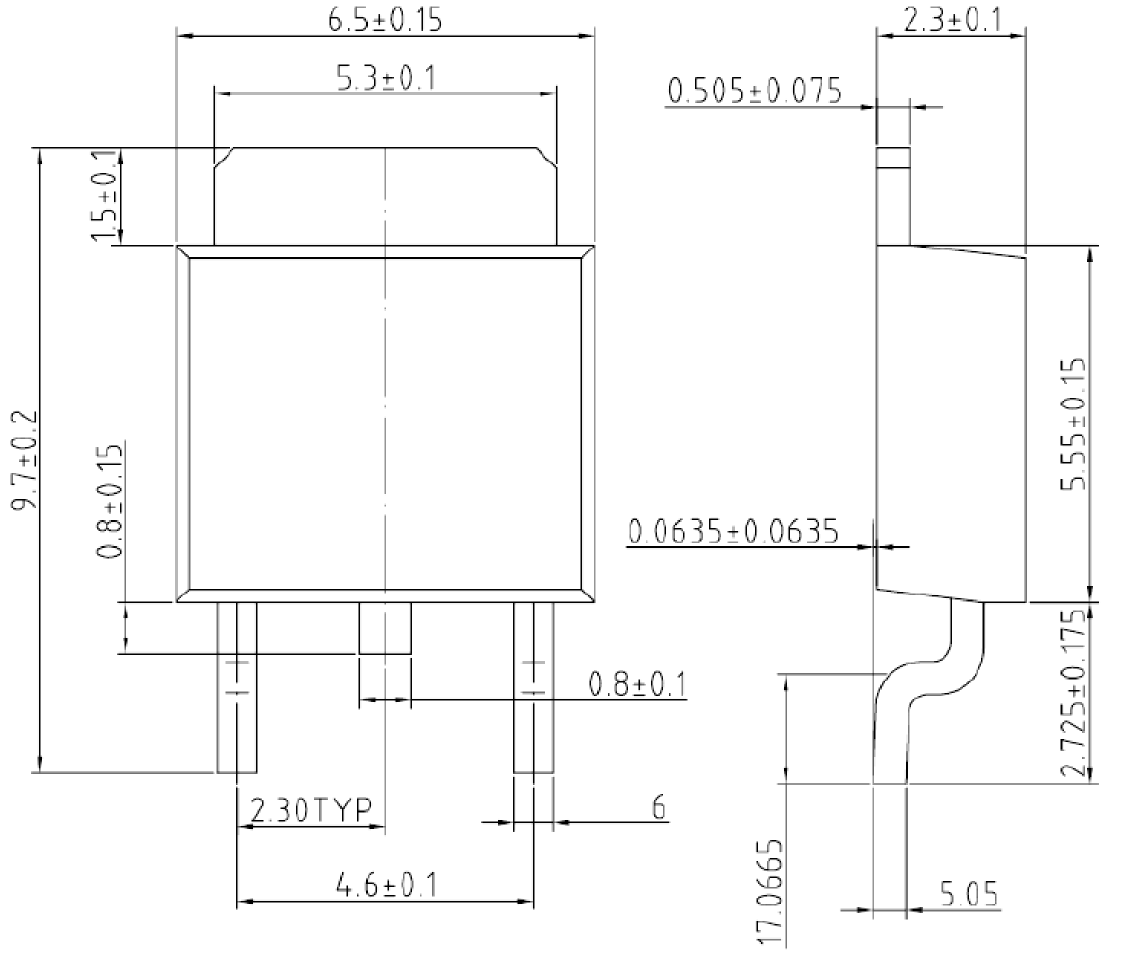


Fig8. Gata Threshold Voltage vs Temperature

Packing Information

TO-252



Units: mm

Notes

ACE Technology Co., LTD.
http://www.ace-ele.com/