ACE1613B
N-Channel Enhancement Mode MOSFET

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.

Features

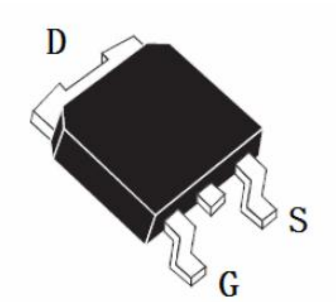
- V_{DS} =25V, I_D=60A, V_{GS} 20V
- $R_{DS(ON)}$@V_{GS}=10V, I_{DS}=40A, Typ 4.8mΩ
- $R_{DS(ON)}$@V_{GS}=4.5V, I_{DS}=20A, Typ 6.0mΩ

Absolute Maximum Ratings

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	25	V
Gate-Source Voltage		V_{GSS}	±20	V
Mounted on PCB of Minimum Footprint	Pulsed Drain Current (Note 2)	I_{DM}	150	A
	Continuous Drain Current (Note 1)	I_D	17	A
	Total Power Dissipation (Note 1)	P_D	1.5	W
Mounted on PCB of 1in^2 Pad Area	Pulsed Drain Current (Note 2)	I_{DM}	150	A
	Continuous Drain Current (Note 1)	I_D	22	A
	Total Power Dissipation (Note 1)	P_D	2.5	W
Mounted on Large Heat Sink	Pulsed Drain Current (Note 2)	I_{DM}	150	A
	Continuous Drain Current (Note 1)	I_D	60 (Note 3)	A
	Total Power Dissipation (Note 1)	P_D	50	W
Operating Junction Temperature / Storage Temperature Range		T_J/T_{STG}	-55/150	°C

Packaging Type

TO-252



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Ordering information

ACE1613B 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
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250uA	25	27		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250uA	1.5	1.8	2.4	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	uA
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=40A		4.8	6.0	mΩ
		V_{GS}=4.5V, I_D=20A		6.0	9.0	
Forward Transconductance	gfs	V_{DS}=5V,I_D=5A		7.3		S
Diode Forward Voltage	V_{SD}	I_S=10A, V_{GS}=0V		0.86	1	V
Turn-On Delay Time	td(on)	V_{GS}=10V, I_{DS}=1A, V_{DS}=15V, R_{GEN}=6Ω, R_L=15Ω		18		nS
Turn-Off Delay Time	td(off)			61		
Input Capacitance	Ciss	V_{GS}=0V, V_{DS}=15V, f=1MHz		2650		pF
Output Capacitance	Coss			910		
Reverse Transfer Capacitance	Crss			774		

Note:

1. DUT is mounted on a 1in 2 FR-4 board with 2oz. Copper in a still air environment at 25°C, the current rating is based on the DC （<10s） test conditions.
2. Repetitive rating, pulse width limited by junction temperature. 300us Pulse Drain Current Tested.
3. Current limited by bond wire.

Typical Performance Characteristics (N-Channel)

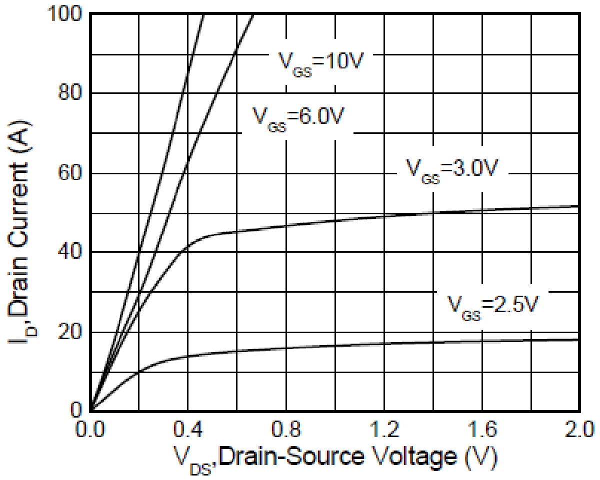

Fig1:Drain-Source Voltage vs Drain Current

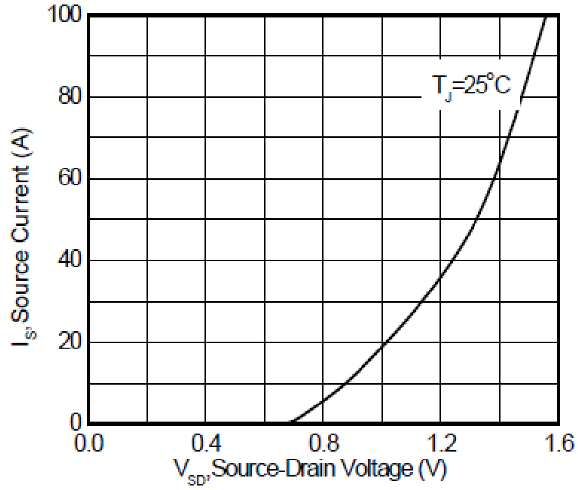

Fig2. Source-Drain Voltage vs Source Current

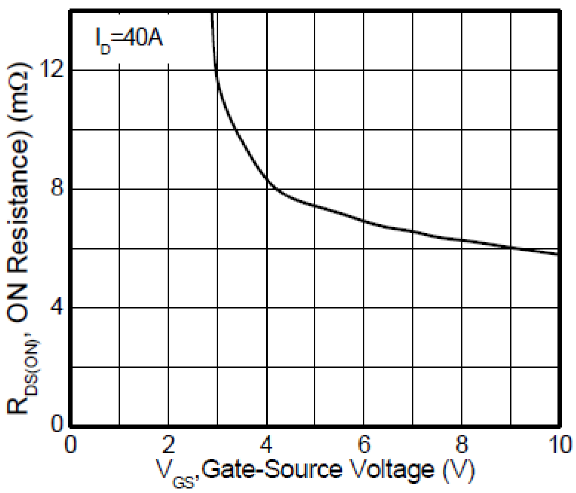

Fig3:Gate-Source Voltage vs ON Resistance

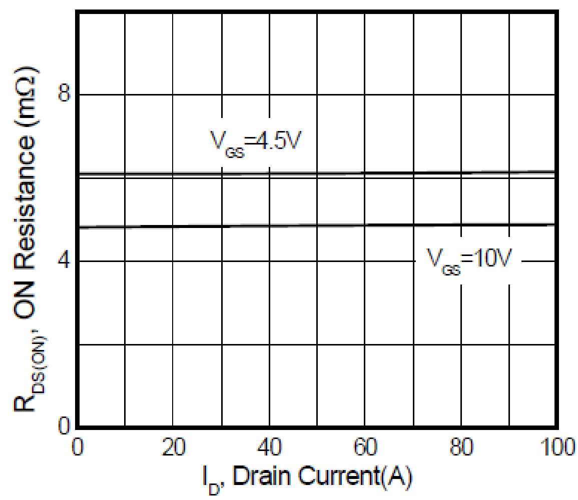

Fig4: Drain Current vs ON Resistance

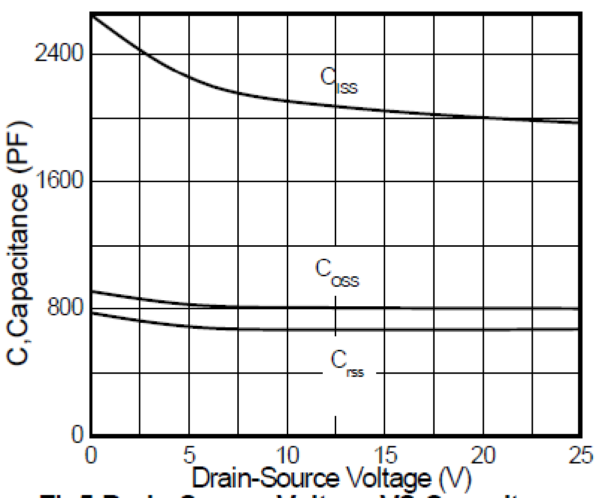

Fig5:Drain-Source Voltage VS Capacitance

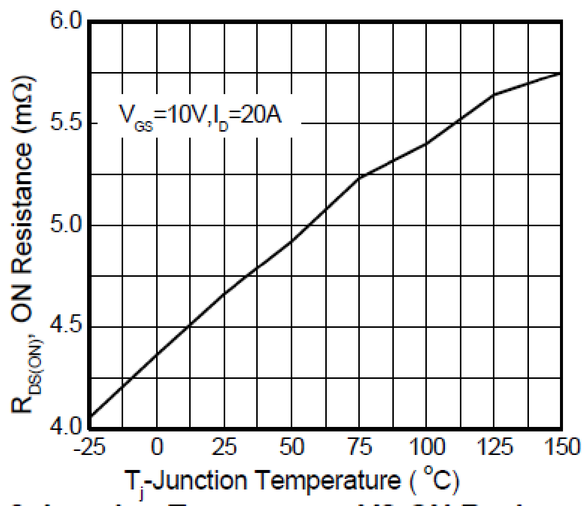

Fig6:Junction Temperature VS ON Resistanc

Typical Performance Characteristics

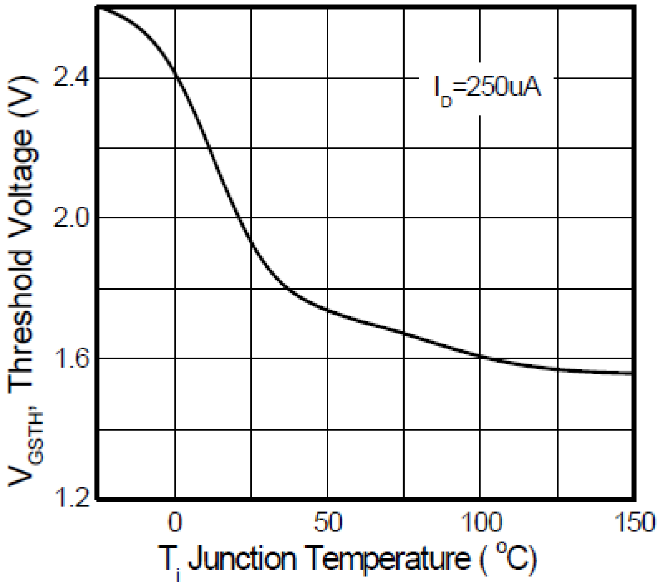

Fig7:Junction Temperature vs Threshold Voltage

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Packing Information

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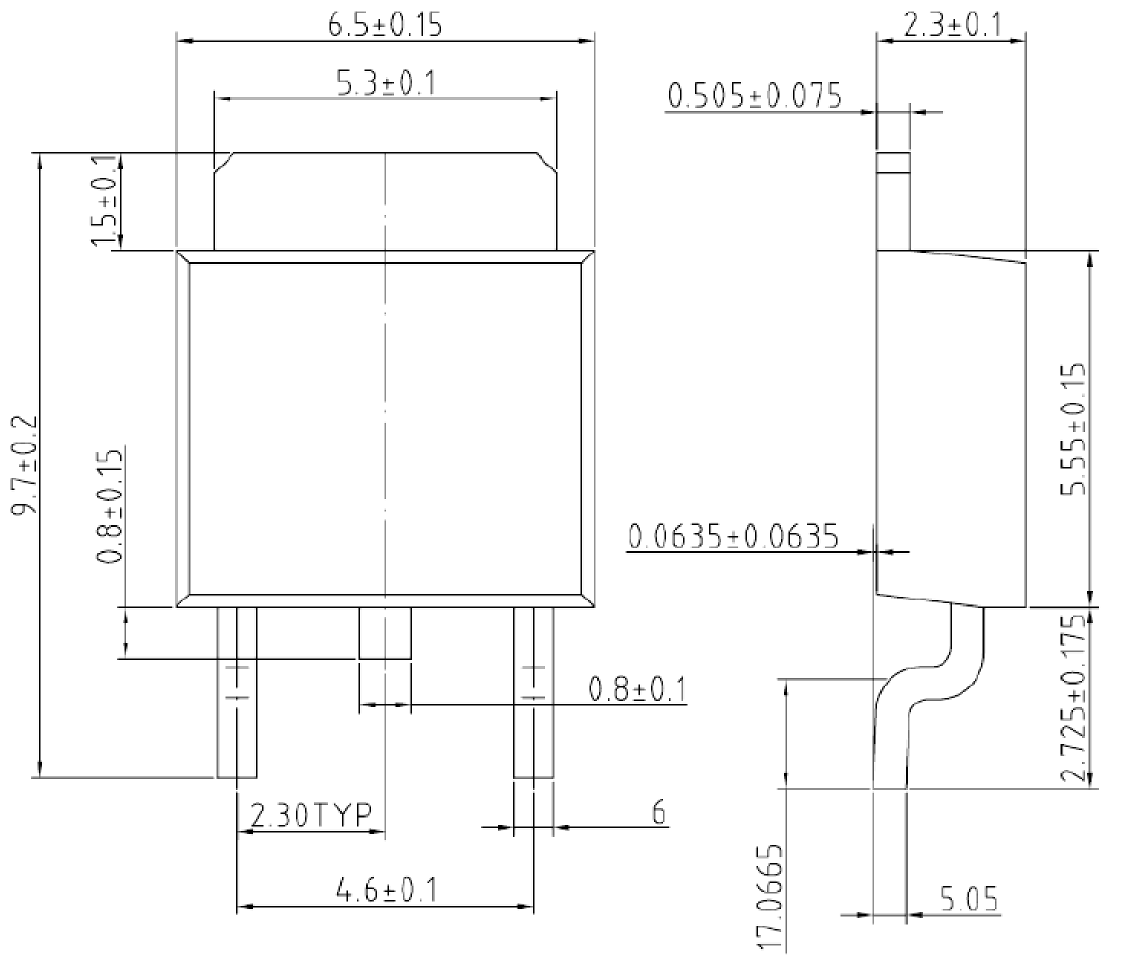

Units: mm

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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