ACE5801

P-Channel Power MOSFET

Description

The ACE5801 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltage.

. This device is suitable for use as a load switching application and a wide variety of other applications.

Features

- Advanced trench MOSFET process technology
- Ultra low on-resistance with low gate charge

Applications

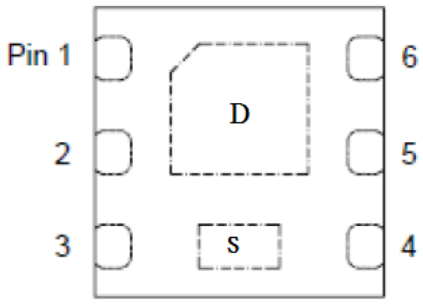
- PWM application
- Load switch
- Battery charge in cellular handset

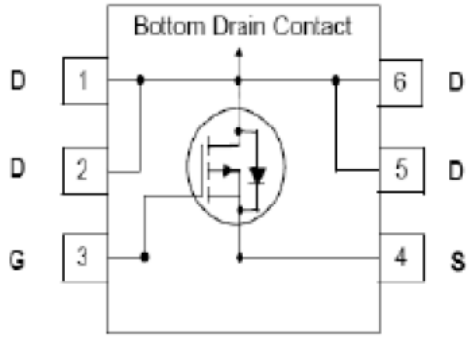
Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Drain-Source Voltage	V_{DSS}	-12	V
Gate-Source Voltage	V_{GSS}	±8	V
Drain Current-Continuous	I_D	-16	A
Drain Current-Pulsed (note 1)	I_{DM}	-65	
Power Dissipation (note 2, T_A=25℃)	P_D	2.5	W
Maximum Power Dissipation (note 3, T_C=25℃)		18	
Thermal Resistance from Junction to Ambient (note 4)	$R_{\theta JA}$	50	℃/W
Thermal Resistance from Junction to case (note 4)	$R_{\theta JC}$	6.9	
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~150	

Packaging Type

DFNWB2*2-6L





1. DRAIN
2. DRAIN
3. GATE
4. SOURCE
5. DRAIN
6. DRAIN

Ordering information

ACE5801 XX + H

- Halogen - free
- Pb - free
- LN : DFNWB2*2-6L

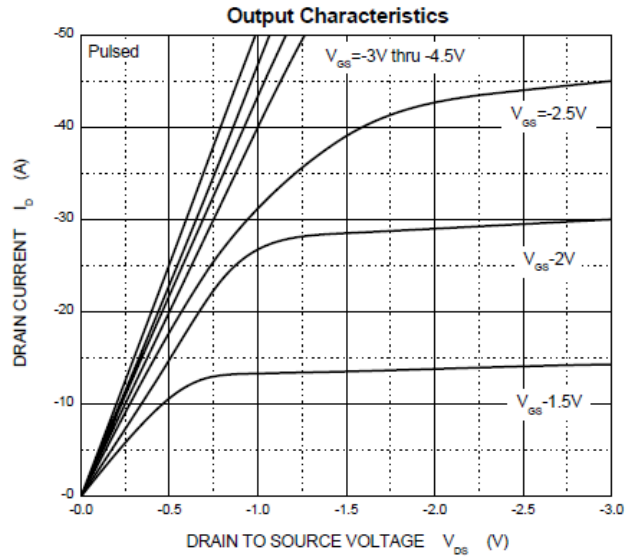
Electrical Characteristics (T_A=25 °C unless otherwise noted)

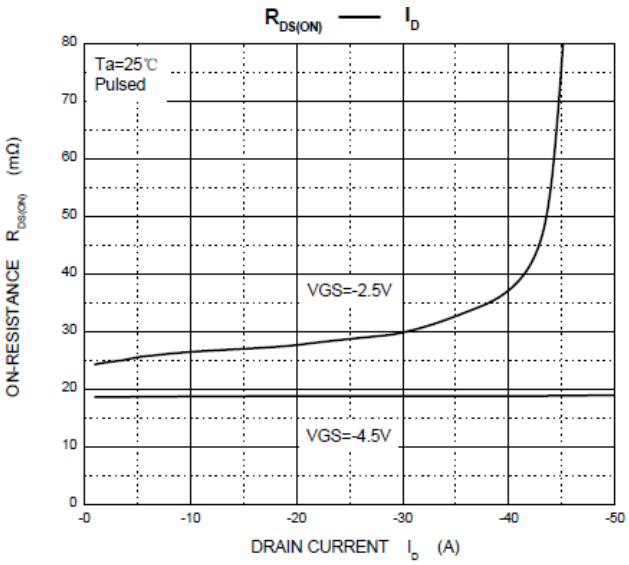
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-12			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-12V, V_{GS}=0V			-1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±100	nA
On characteristics (note 5)						
Drain-Source On-state Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-6.7A			21	mΩ
		V_{GS}=-2.5V, I_D=-6.2A			27	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250uA	-0.4	-0.7	-1	V
Forward Transconductance	g_{FS}	V_{DS}=-10V, I_D=-6.7A		40		S
Dynamic characteristics (note 6)						
Input Capacitance	C_{iss}	V_{DS}=-10V, V_{GS}=0V f=1 MHz		2700		pF
Output Capacitance	C_{oss}			680		
Reverse Transfer Capacitance	C_{rss}			590		
Total Gate Charge	Q_g	V_{DS}=-6V, V_{GS}=-8V, I_D=-10A		60	100	nC
		V_{DS}=-6V, V_{GS}=-4.5V, I_D=-10A		35	48	
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			10		
Drain-source diode characteristics						
Diode Forward Current (note 5)	I_S				-16	A
Diode Forward Voltage (note 4)	V_{SD}	I_S=-1.6A,V_{GS}=0V	-0.5		-1.2	V

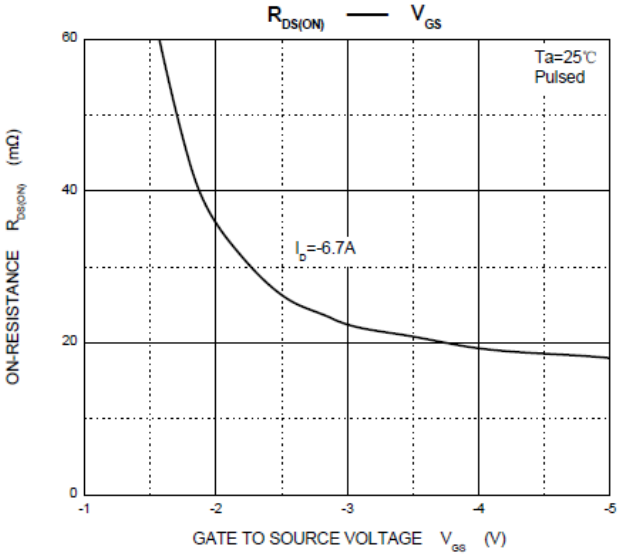
Note:

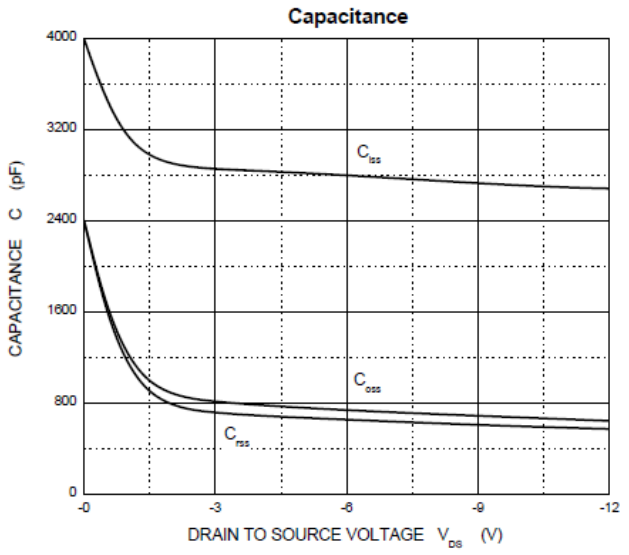
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at Ta=25℃.
3. This test is performed with infinite heat sink at Tc=25℃.
4. Surface mounted on FR4 board, t≤10S.
5. Pulse Test: Pulse With ≤300μs,Duty Cycle≤2%.
6. Guaranteed by design, not subject to production testing.

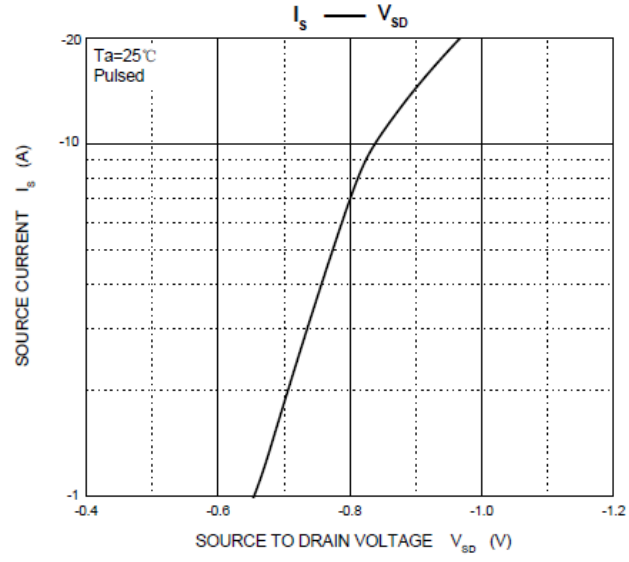
Typical Performance Characteristics

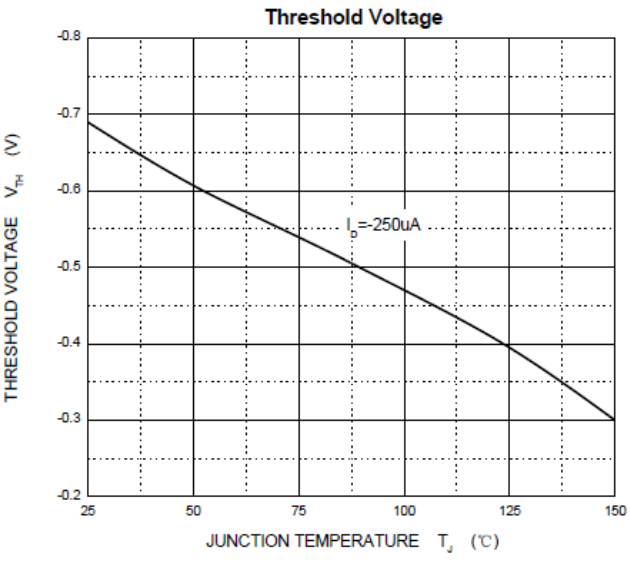






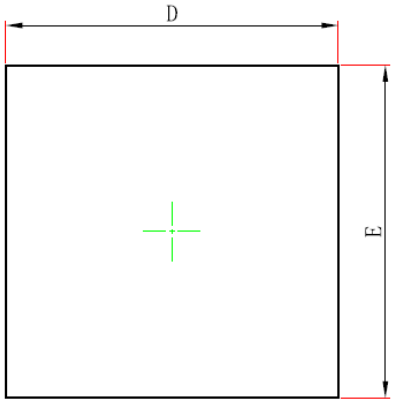




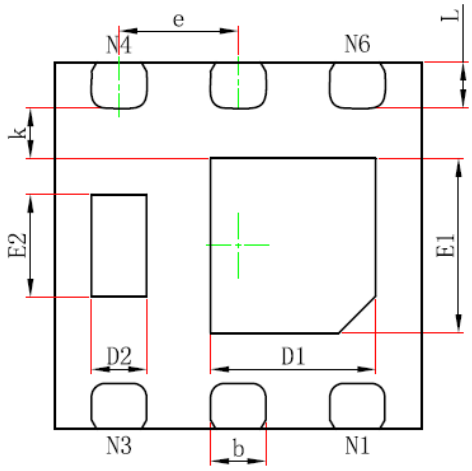


Packing Information

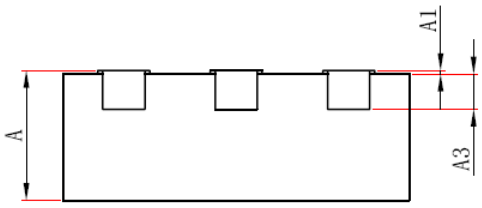
DFNWB2*2-6L



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.800	1.000	0.031	0.039
E1	0.850	1.050	0.033	0.041
D2	0.200	0.400	0.008	0.016
E2	0.460	0.660	0.018	0.026
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

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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