ACE11011B

N-Channel Enhancement Mode Power MOSFET

Description

- Notebook AC-in load switch
- Battery protection charge/discharge

Features

- V_{DS}=100V
- I_D=83A
- $R_{DS(ON)}$@V_{GS}=10V,TYP 4.3mΩ
- $R_{DS(ON)}$@V_{GS}=6V,TYP 5.2mΩ
- $R_{DS(ON)}$@V_{GS}=4.5V,TYP 6.8mΩ

Absolute Maximum Ratings

Parameter		Symbol	Ratings	Units
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current(Continuous) *AC	T_C=25℃	I_D	83	A
	T_C=70℃		66.1	
Drain Current(Pulsed) *B		I_{DM}	200	A
Power Dissipation	T_C=25℃	P_D	83	W
Operating temperature / storage temperature		T_J/T_{STG}	-55~150	℃

Note :

A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 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.

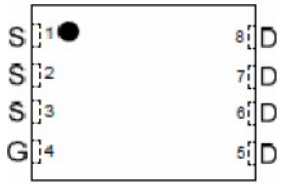
C. The current rating is based on the t≤ 10s junction to ambient thermal resistance rating

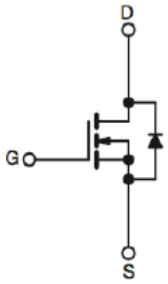
Thermal Resistance Ratings

Parameter		Symbol	Typical	Maximum	Units
Maximum Junction-to-Ambient	t ≤ 10 s	R_{thJA}	18	23	°C/W
Maximum Junction-to-Case (Drain)	Steady State	R_{thJC}	1	1.5	

Packaging Type

DFN5*6-8L





Ordering information

ACE11011B XX -1+ H

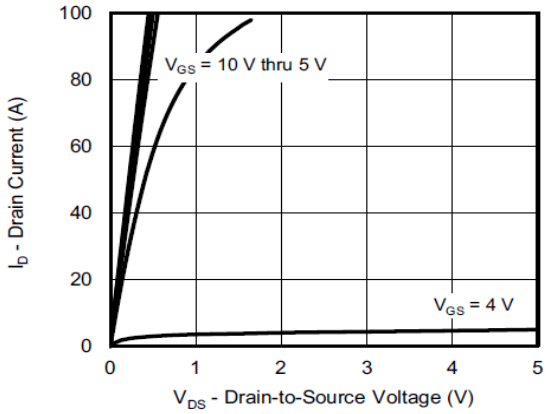
- H: Halogen - free
- -1+: Pb - free
- XX: PN：DFN5*6-8L

Electrical Characteristics

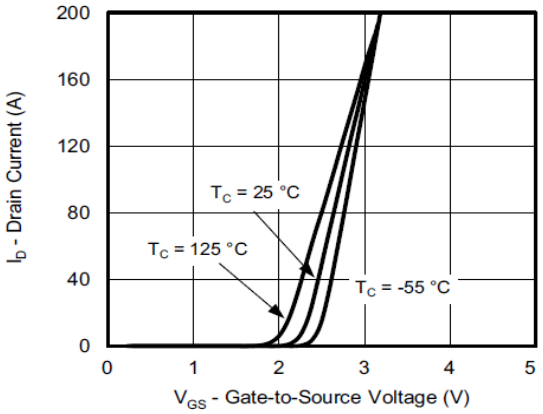
T_A=25℃, unless otherwise specified.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D= 250μA	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 100V, V_{GS} = 0V			1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS}, I_{DS}= 250μA	1	2.1	3	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		4.3	5.5	mΩ
		V_{GS} =6V, I_D = 20A		5.2	6.7	
		V_{GS} = 4.5V, I_D = 20A		6.8	8.7	
Diode Forward Voltage	V_{SD}	I_{SD}= 1A , V_{GS}=0V		0.69	1.2	V
Diode Forward Current *AC	I_S	T_C =25°C			83	A
Switching						
Total Gate Charge	Q_g	V_{GS}=10V ,V_{DS}=50V, I_D=15A		57		nC
Gate-Source Charge	Q_{gs}			18		
Gate-Drain Charge	Q_{gd}			9		
Turn-on Delay Time	$t_{d(on)}$	V_{GEN}=10V,V_{DD}=50V, R_L=3.3Ω, R_G=1Ω, I_D=15A		18		ns
Turn-on Rise Time	t_r			8		
Turn-off Delay Time	$t_{d(off)}$			35		
Turn-Off Fall Time	t_f			6.5		
Dynamic						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V, f=1.0MHz		3720		pF
Output Capacitance	C_{oss}			284		
Reverse Transfer Capacitance	C_{rss}			16		

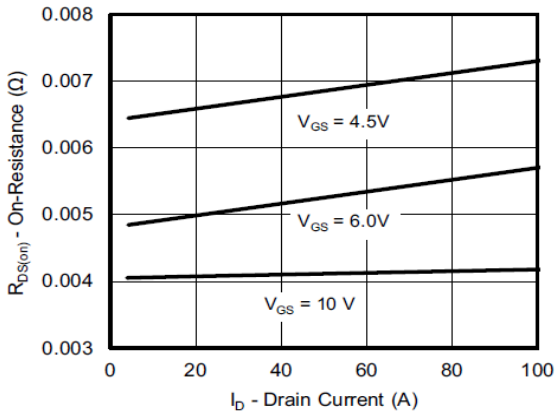
Typical Performance Characteristics (TJ = 25 °C, unless otherwise noted)



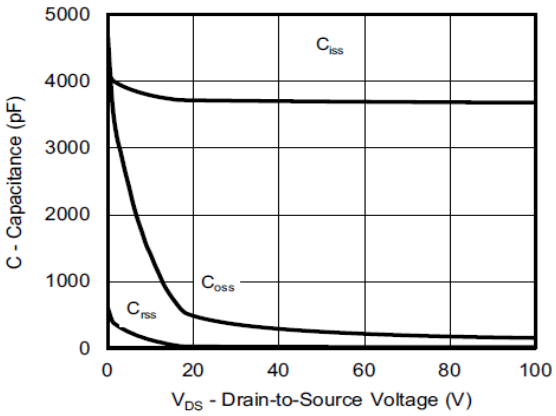
Output Characteristics



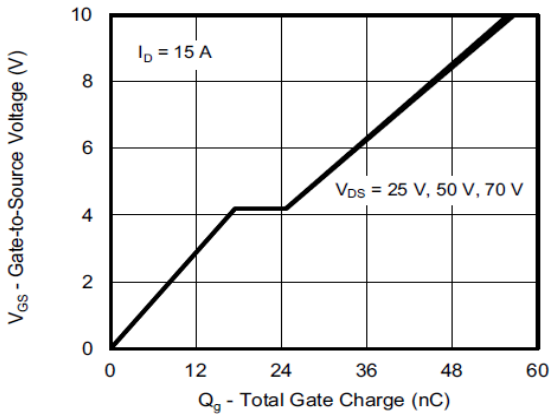
Transfer Characteristics



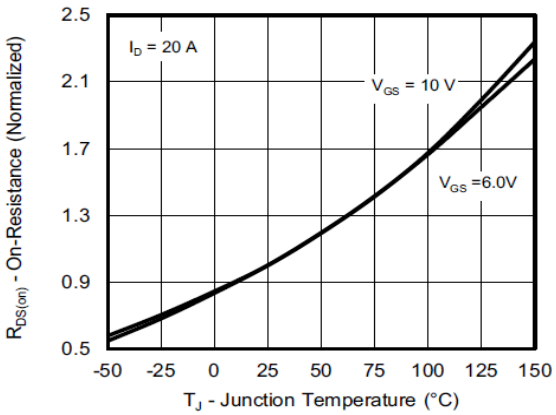
On-Resistance vs. Drain Current and Gate Voltage



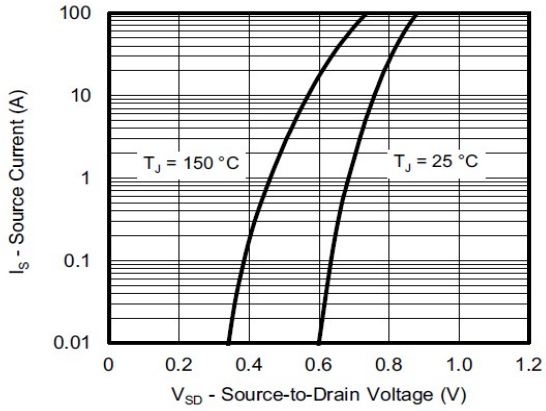
Capacitance



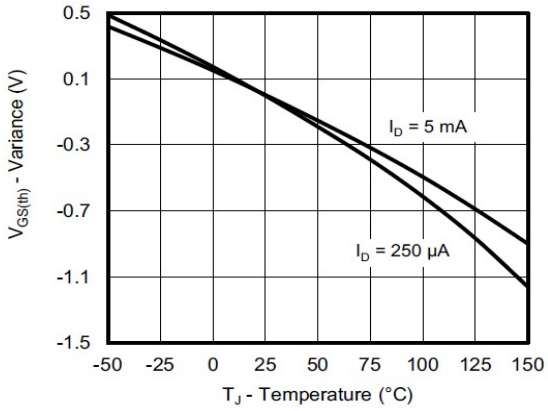
Gate Charge



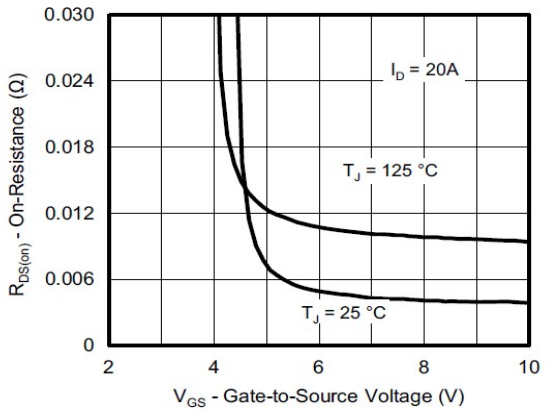
On-Resistance vs. Junction Temperature



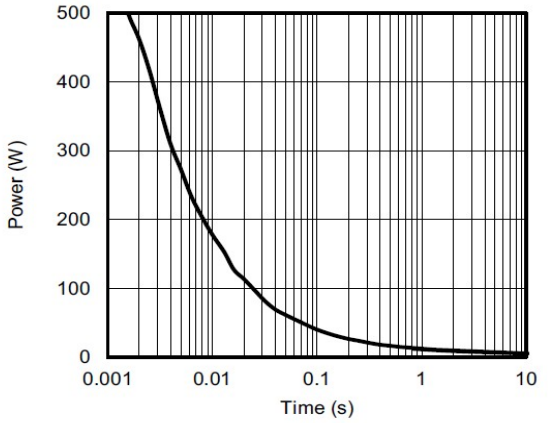
Source-Drain Diode Forward Voltage



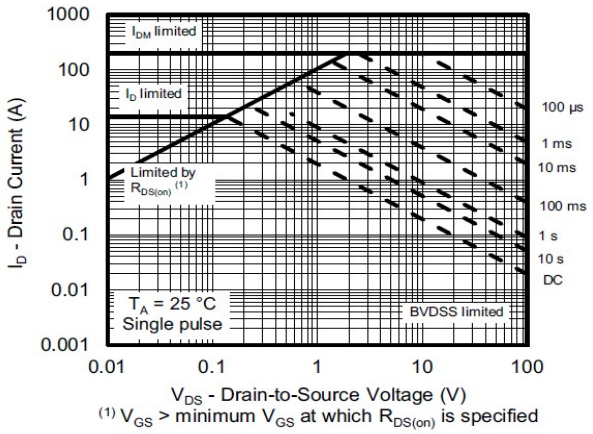
Threshold Voltage



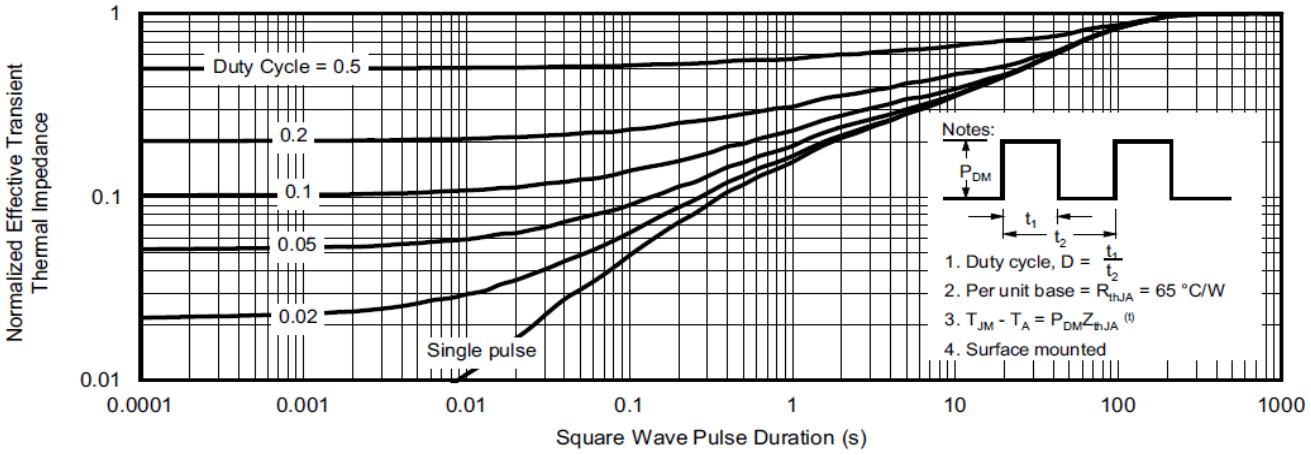
On-Resistance vs. Gate-to-Source Voltage



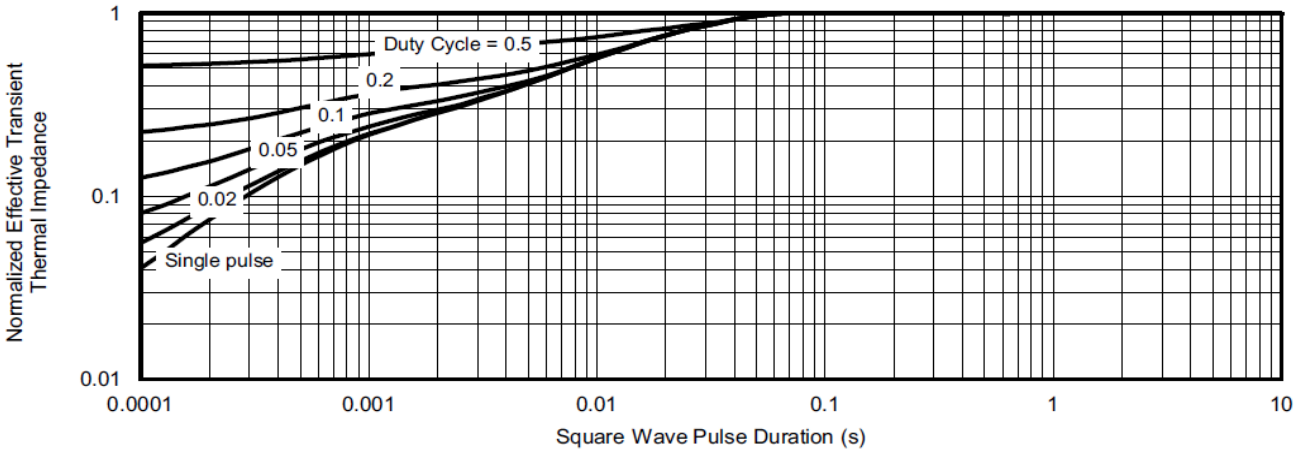
Single Pulse Power, Junction-to-Ambient



Safe Operating Area, Junction-to-Ambient

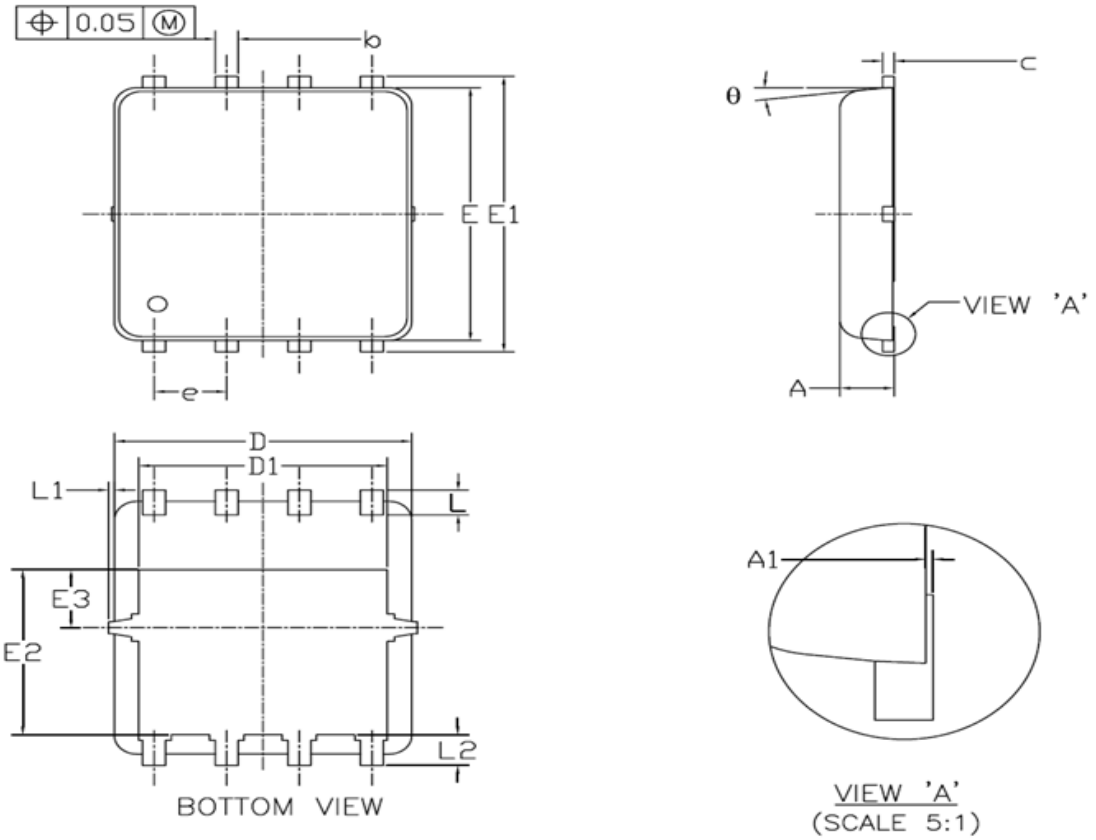


Normalized Thermal Transient Impedance, Junction-to-Ambient

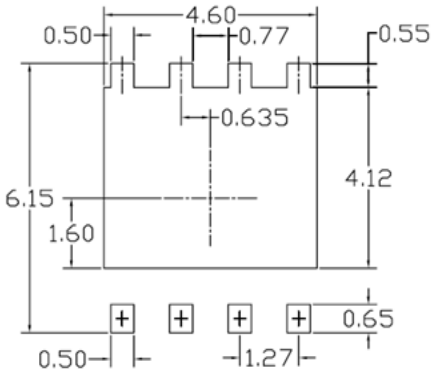


Packing Information

DFN5*6-8L



RECOMMENDED LAND PATTERN



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.85	0.95	1.00	0.033	0.037	0.039
A1	0.00	—	0.05	0.000	—	0.002
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.15	0.20	0.25	0.006	0.008	0.010
D	5.20 BSC			0.205 BSC		
D1	4.35 BSC			0.171 BSC		
E	5.55 BSC			0.219 BSC		
E1	6.05 BSC			0.238 BSC		
E2	3.625 BSC			0.143 BSC		
E3	1.275 BSC			0.050 BSC		
e	1.27 BSC			0.050 BSC		
L	0.45	0.55	0.65	0.018	0.022	0.026
L1	0	—	0.15	0	—	0.006
L2	0.68 REF			0.027 REF		
θ	0°	—	10°	0°	—	10°

UNIT: mm

NOTE
1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
   MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 6 MILS EACH.
2. CONTROLLING DIMENSION IS MILLIMETER.
   CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.

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.