# ACE5208

**P-Channel Power MOSFET**

## Description

The ACE5208 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

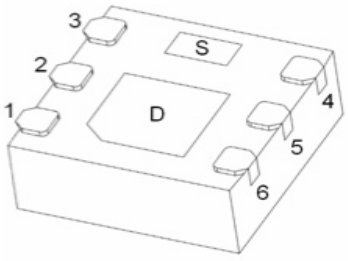
- PWM application
- Load switch
- Battery charge in cellular handset

## Absolute Maximum Ratings

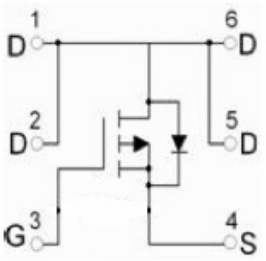
| Parameter | Symbol | Max | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | -12 | V |
| Gate-Source Voltage | $V_{GS}$ | ±8 | |
| Drain Current-Continuous | $I_D$ | -6 | A |
| Drain Current-Pulsed (note 1) | $I_{DM}$ | -20 | |
| Power Dissipation (note 2, $T_A$=25℃) | $P_D$ | 1.5 | W |
| Maximum Power Dissipation (note 3, $T_C$=25℃) | | 12 | |
| Thermal Resistance from Junction to Ambient (note 4) | $R_{\theta JA}$ | 83.3 | ℃/W |
| Thermal Resistance from Junction to case (note 4) | $R_{\theta JC}$ | 10.4 | |
| Junction Temperature | $T_J$ | 150 | ℃ |
| Storage Temperature | $T_{STG}$ | -55~+150 | |

## Packaging Type

**DFNWB2*2-6L-J**




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



## Ordering information

ACE5208 XX + H

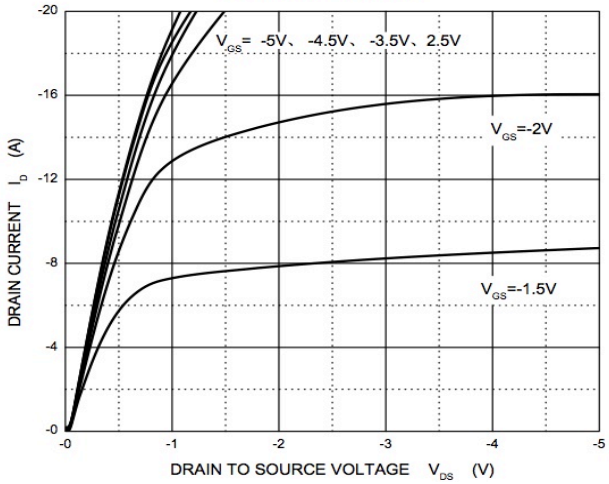
- Halogen - free
- Pb - free
- LN : DFNWB2*2-6L-J

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

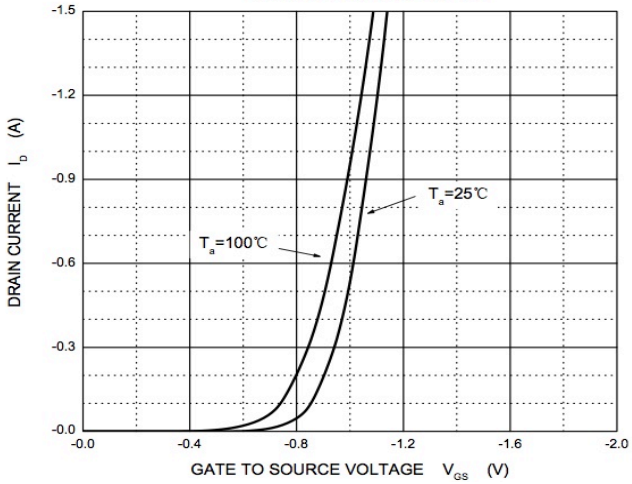
| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Off characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$=0V, $I_D$=-250uA | -12 | | | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-12V, $V_{GS}$=0V | | | -1 | uA |
| Gate-Body Leakage Current | $I_{GSS}$ | $V_{GS}$=±8V, $V_{DS}$=0V | | | ±120 | nA |
| On characteristics (note 5) | | | | | | |
| Drain-Source On-state Resistance | $R_{DS(ON)}$ | $V_{GS}$=-4.5V, $I_D$=-6.7A | | 25 | 30 | mΩ |
| | | $V_{GS}$=-2.5V, $I_D$=-6.2A | | 30 | 50 | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$, $I_D$=-250uA | -0.4 | -0.7 | -1 | V |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$=-5V, $I_D$=-2.8A | 8 | 18 | | S |
| Dynamic characteristics (note 6) | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=-6V, $V_{GS}$=0V f=1 MHz | | 1280 | | pF |
| Output Capacitance | $C_{oss}$ | | | 250 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 240 | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=-6V, $V_{GS}$=-8V, $I_D$=-10A | | 14 | 21 | nC |
| | | $V_{DS}$=-6V, $V_{GS}$=-4.5V, $I_D$=-10A | | 6.5 | | |
| Gate-Source Charge | $Q_{gs}$ | | | 2.5 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 3.5 | | |
| Drain-source diode characteristics | | | | | | |
| Diode Forward Current (note 5) | $I_S$ | | | 1.2 | -1.4 | A |
| Diode Forward Voltage (note 4) | $V_{SD}$ | $I_{SD}$=-1.25A,$V_{GS}$=0V | | 1.0 | -1.2 | V |

## Typical Performance Characteristics

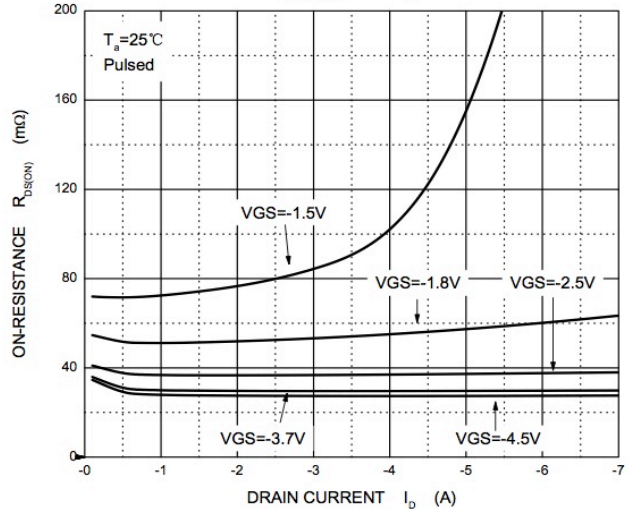
**Output Characteristics**



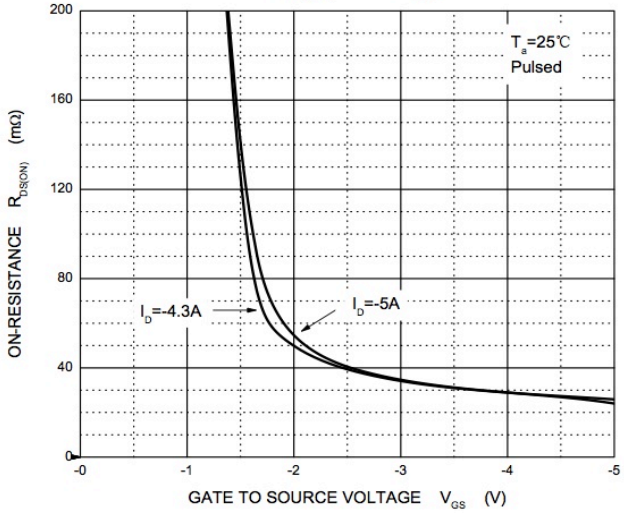

**Transfer Characteristics**



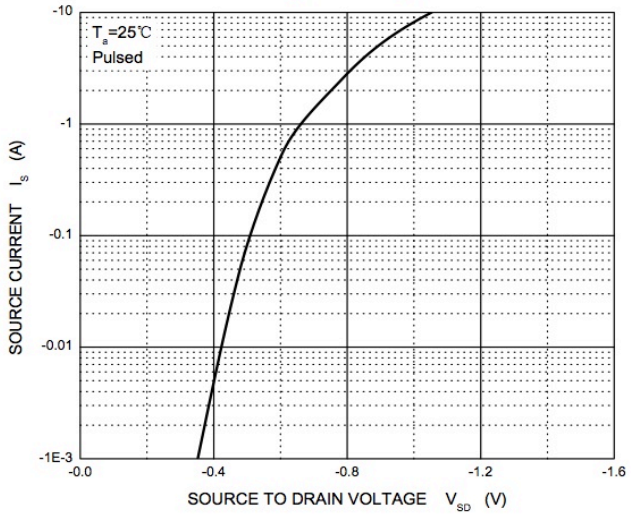

**$R_{DS(ON)}$ —— $I_D$**



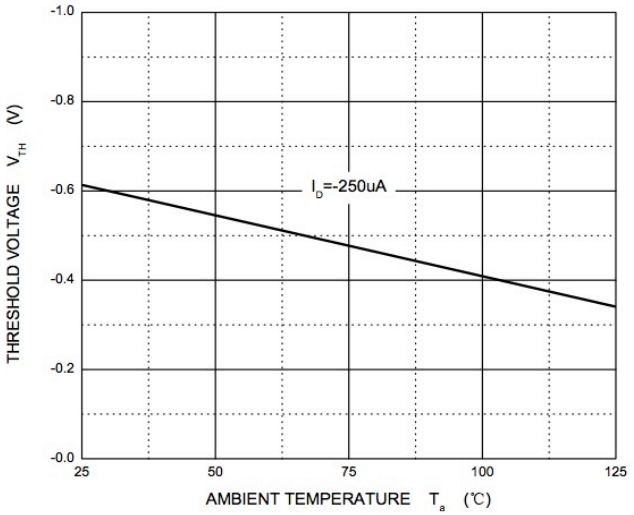

**$R_{DS(ON)}$ —— $V_{GS}$**




**$I_S$ —— $V_{SD}$**

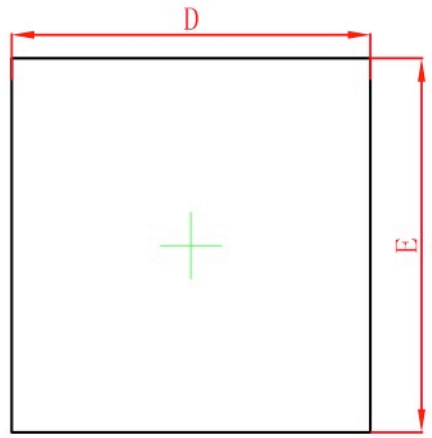



**Threshold Voltage**

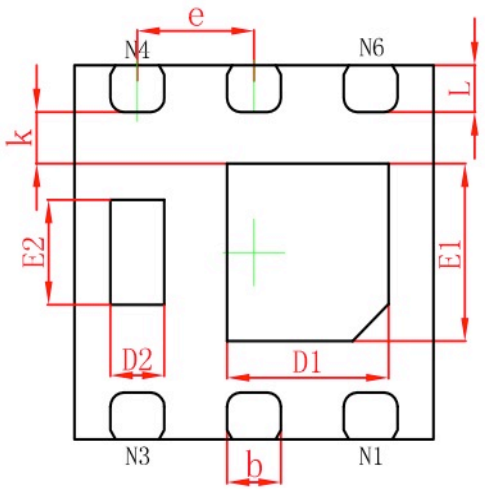


## Packing Information

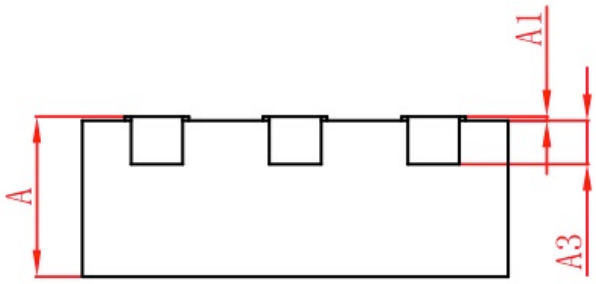
### DFNWB2*2-6L-J Package Outline Dimensions(Umit:mm)




TOP VIEW




BOTTOM VIEW

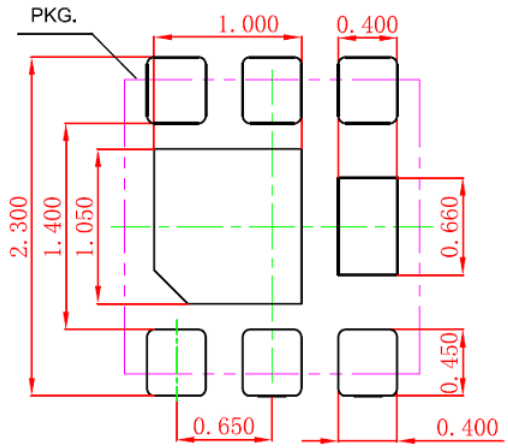



SIDE VIEW

| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 0.700/0.800 | 0.800/0.900 | 0.028/0.031 | 0.031/0.035 |
| 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 |

## Packing Information

### DFNWB2*2-6L-J Package Outline Dimensions(Umit:mm)




Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.050mm.
3.The pad layout is for reference purposes only.

Notes

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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.