



# ACE9926B

## Dual N-Channel Enhancement Mode Field Effect Transistor

### Description

The ACE9926B uses advanced trench technology to provide excellent  $R_{DS(ON)}$  and low gate charge. They offer operation over a wide gate drive range from 2.5V to 12V. The two devices may be used individually, in parallel or to form a bidirectional blocking switch.

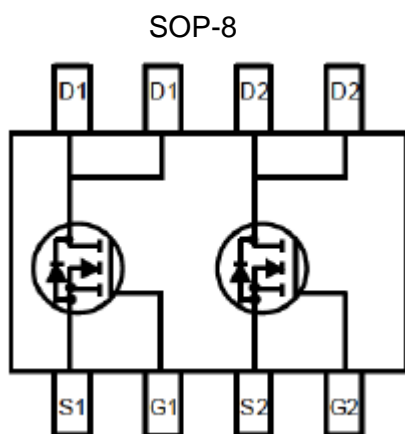
### Features

- $V_{DS}(V)=20V$
- $I_D=6A$  ( $V_{GS}=4.5V$ )
- $R_{DS(ON)}<30m\Omega$  ( $V_{GS}=4.5V$ )
- $R_{DS(ON)}<40m\Omega$  ( $V_{GS}=2.5V$ )

### Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Drain-Source Voltage	$V_{DSS}$	20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$	V
Drain Current (Continuous) * AC	$I_D$	$T_A=25^\circ C$	6
		$T_A=70^\circ C$	5
Drain Current (Pulse) * B	$I_{DM}$	24	A
Power Dissipation	$P_D$	$T_A=25^\circ C$	2
		$T_A=70^\circ C$	1.3
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ C$

### Packaging Type



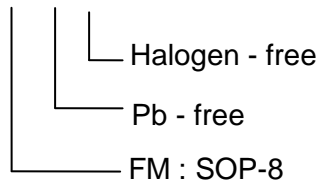


# ACE9926B

## Dual N-Channel Enhancement Mode Field Effect Transistor

### Ordering information

ACE9926B XX + H



### Electrical Characteristics

$T_A=25\text{ }^\circ\text{C}$  unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$			1	$\mu A$
Gate Leakage Current	$I_{GSS}$	$V_{GS}=\pm 12V, V_{DS}=0V$			100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=6A$		21	30	m $\Omega$
		$V_{GS}=2.5V, I_D=5.2A$		30	40	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.65	0.78	1	V
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=6A$		12		S
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_{SD}=1.7A$		0.8	1.0	V
Maximum Body-Diode Continuous Current	$I_S$				1.7	A
Switching						
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V, I_D=6A$		6.24	8.11	nC
Gate-Source Charge	$Q_{gs}$			1.64	2.13	
Gate-Drain Charge	$Q_{gd}$			1.34	1.74	
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DS}=10V, R_L=10\Omega, R_{GEN}=6\Omega$		10.4	20.8	ns
Turn-On Rise Time	$t_r$			4.4	8.8	
Turn-Off Delay Time	$t_{d(off)}$			27.36	54.72	
Turn- Off Rise Time	$t_f$			4.16	8.32	
Dynamic						
Input Capacitance	$C_{iss}$	$V_{DS}=8V, V_{GS}=0V, f=1MHz$		522.3		pF
Output Capacitance	$C_{oss}$			98.48		
Reverse Transfer Capacitance	$C_{rss}$			74.69		

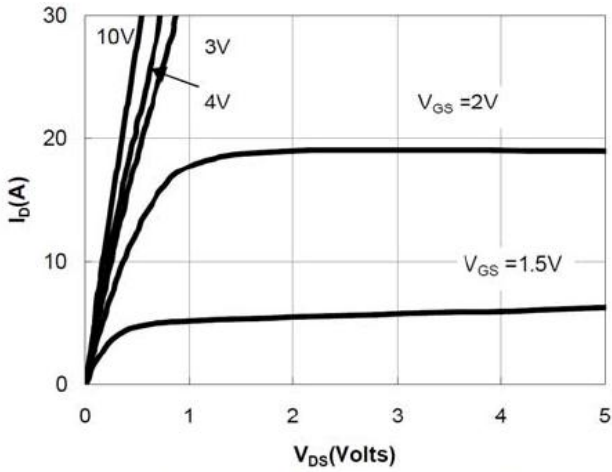
Note: A. The value of  $R_{\theta JA}$  is measured with the device mounted on 1\*1in FR-4 board with 2oz Copper, in a still air environment with  $T_A=25^\circ\text{C}$ . The value in any given application depends on the user's specific board design.

B. Repetitive rating, pulse width limited by junction temperature.

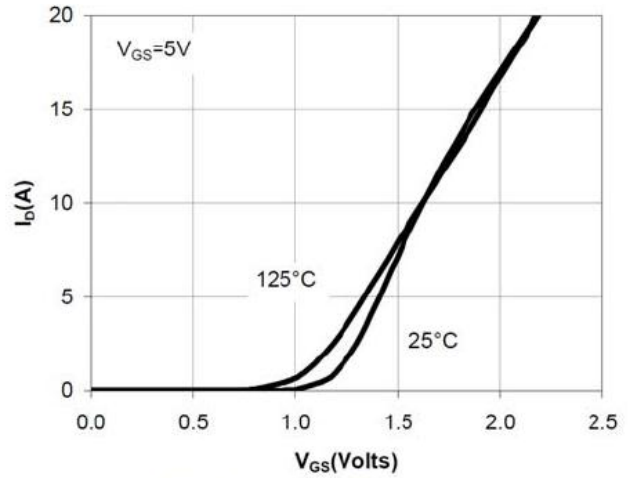
C. The current rating is based on the  $t \leq 10s$  junction to ambient thermal resistance rating.



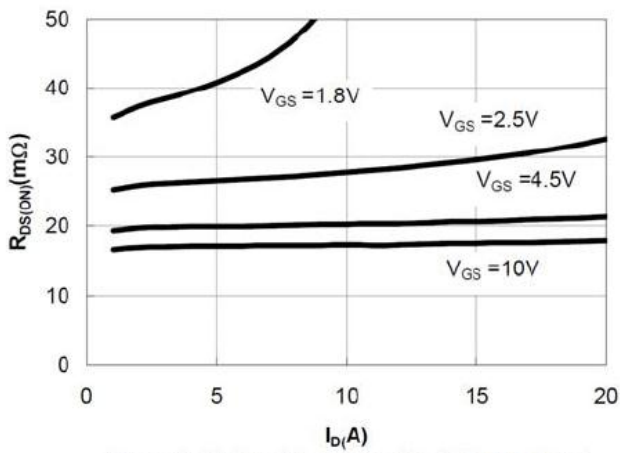
**Typical Performance Characteristics**



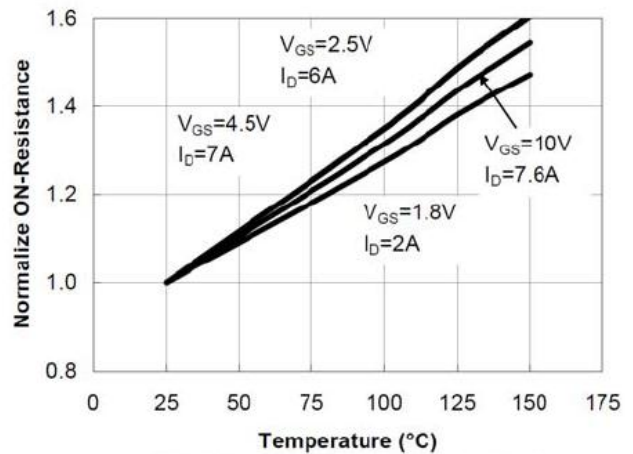
**Figure 1: On-Regions Characteristic CS**



**Figure 2: Transfer Characteristics**



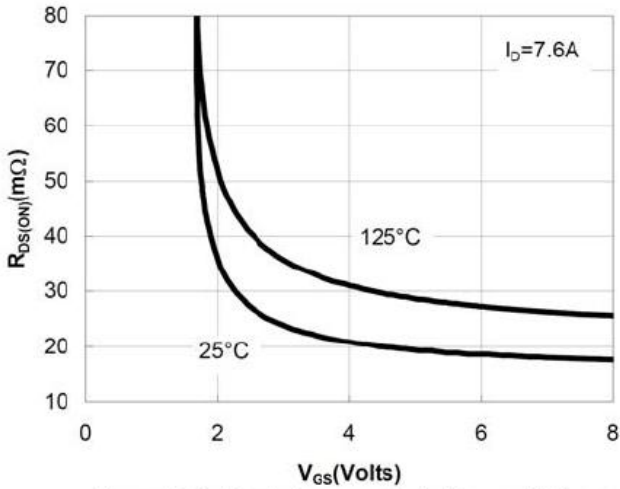
**Figure 3: On-Resistance vs. Drain Current and Gate Voltage**



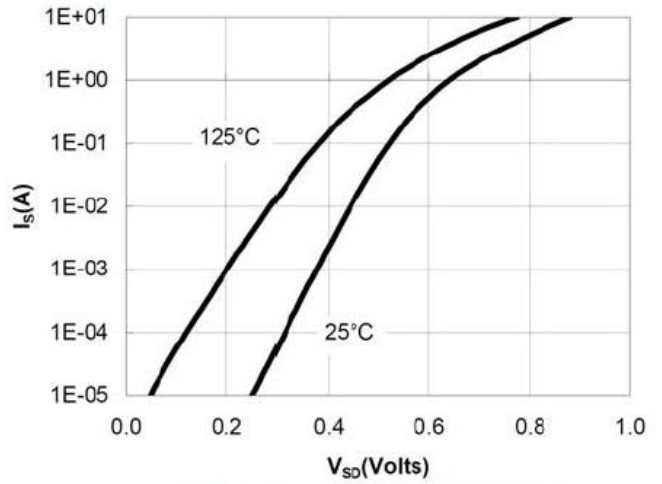
**Figure 4: On-Resistance vs. Junction Temperature**



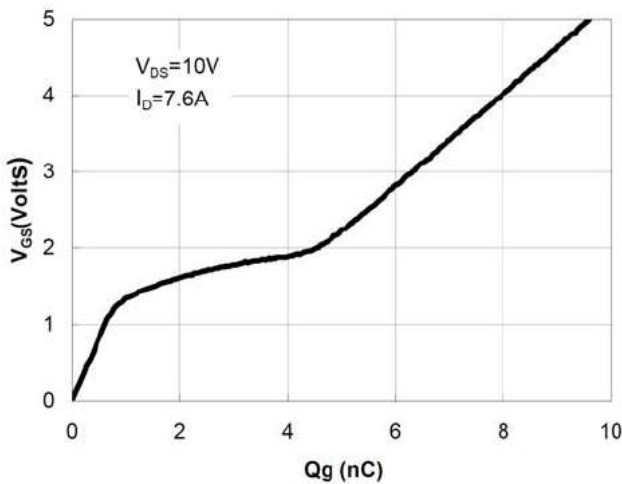
**Typical Performance Characteristics**



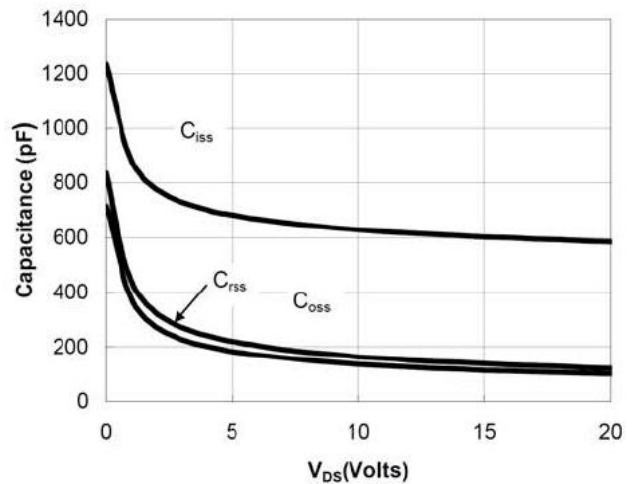
**Figure 5: On-Resistance vs. Gate-Source Voltage**



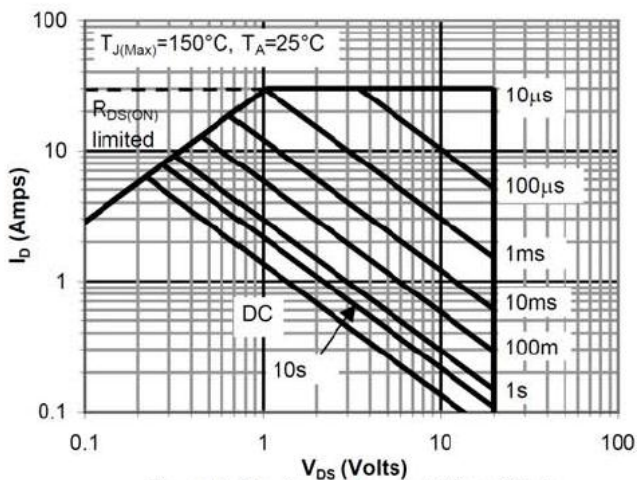
**Figure 6: Body-Diode Characteristics**



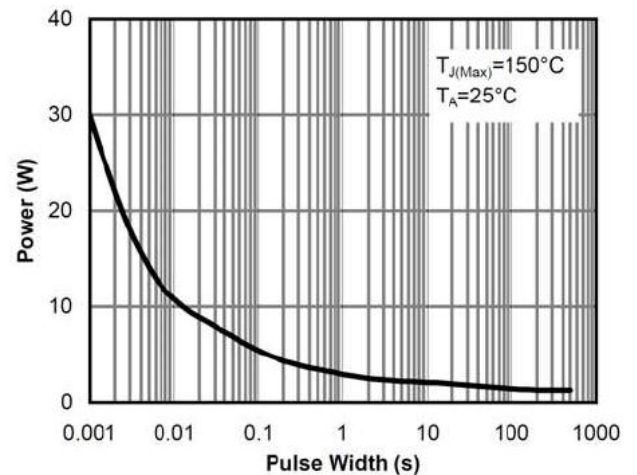
**Figure 7: Gate-Charge Characteristics**



**Figure 8: Capacitance Characteristics**



**Figure 9: Maximum Forward Biased Safe Operating Area (Note E)**



**Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)**



Typical Performance Characteristics

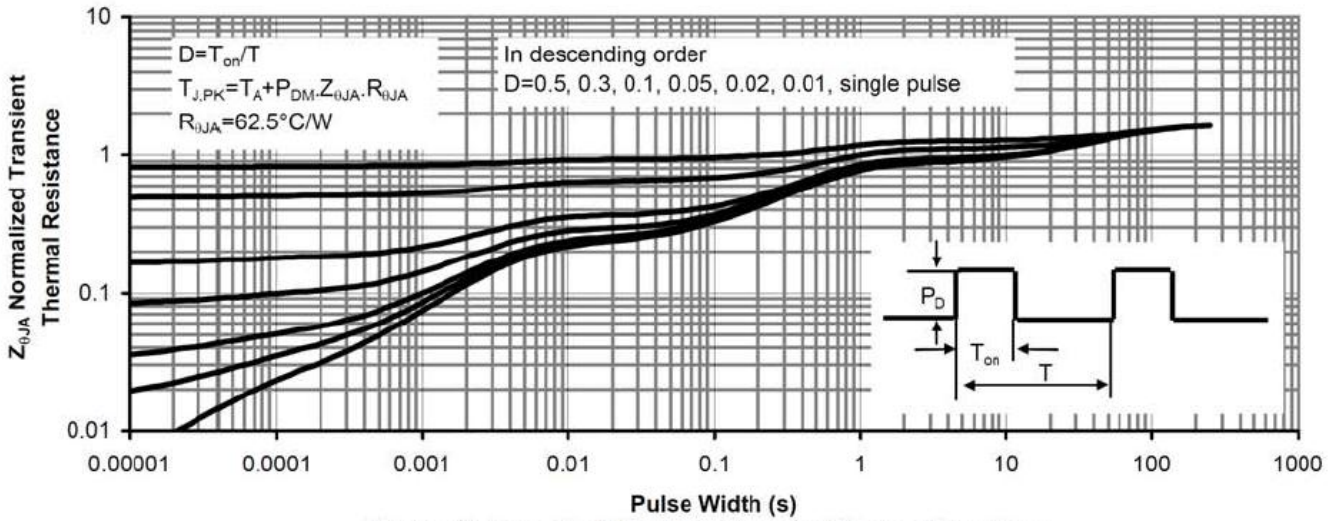


Figure 11: Normalized Maximum Transient Thermal Impedance

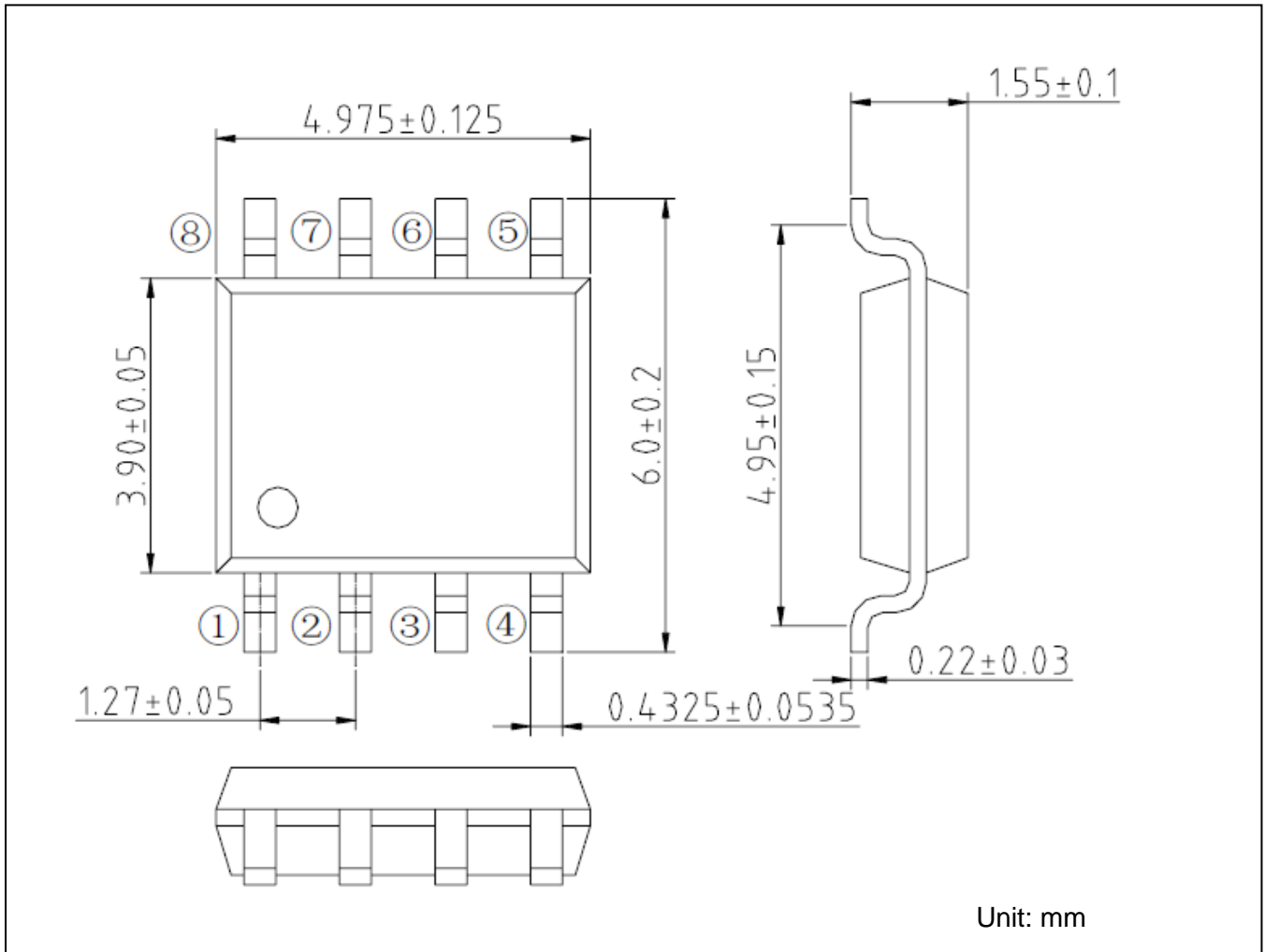


# ACE9926B

## Dual N-Channel Enhancement Mode Field Effect Transistor

### Packing Information

#### SOP-8





# ACE9926B

## Dual N-Channel Enhancement Mode Field Effect Transistor

### 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 whose 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.

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