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

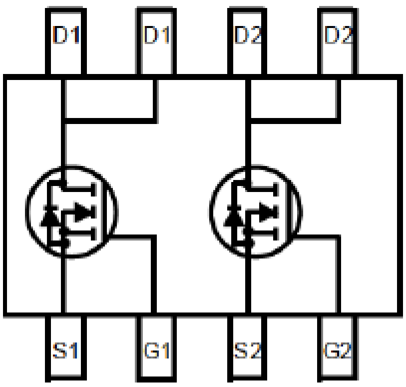
- V_{DS}(V)=20V
- I_D=6A (V_{GS}=4.5V)
- $R_{DS(ON)}$<30mΩ (V_{GS}=4.5V)
- $R_{DS(ON)}$<40mΩ (V_{GS}=2.5V)

Absolute Maximum Ratings

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

Packaging Type

SOP-8



Ordering information

ACE9926B XX + H

- H: Halogen - free
- X: Pb - free
- X: FM : SOP-8

Electrical Characteristics

T_A=25 °C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250uA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	uA
Gate Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V			100	nA
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=6A		21	30	mΩ
		V_{GS}=2.5V, I_D=5.2A		30	40	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	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=10Ω, R_{GEN}=6Ω		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°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.

Typical Performance Characteristics

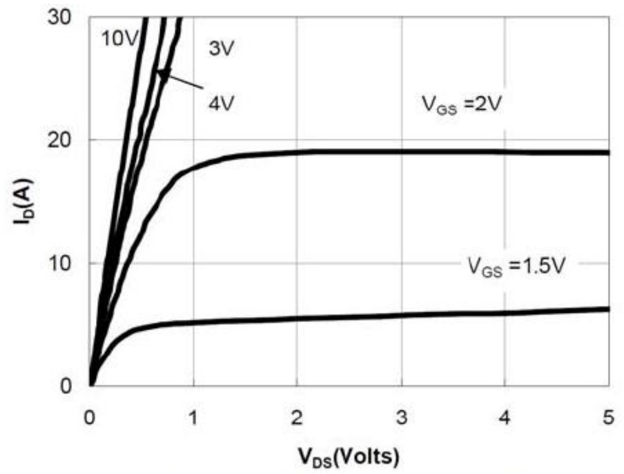


Figure 1: On-Regions Characteristics

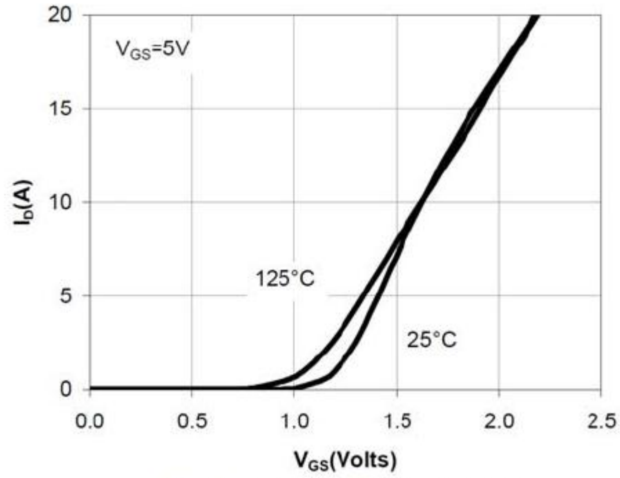


Figure 2: Transfer Characteristics

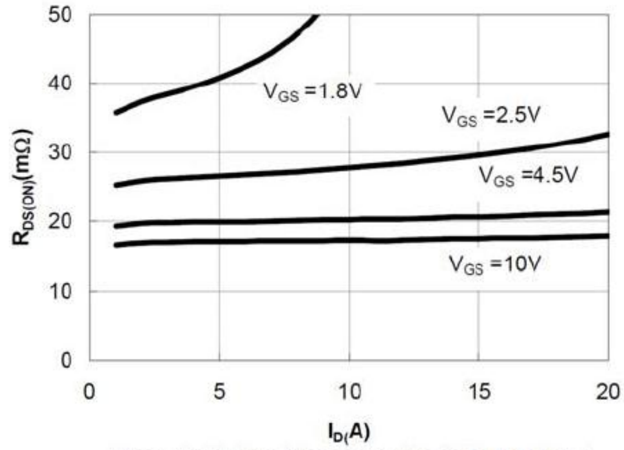


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

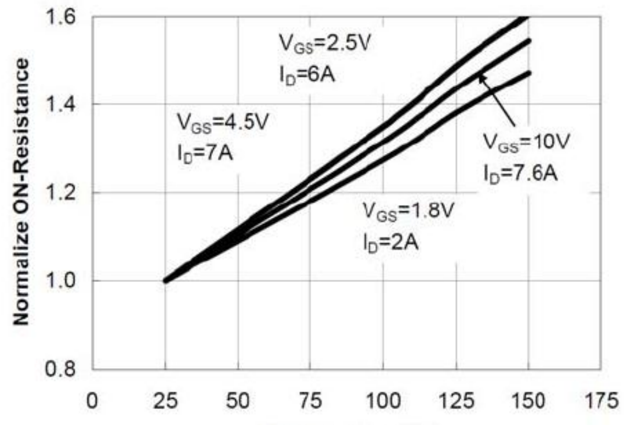


Figure 4: On-Resistance vs. Junction Temperature

Typical Performance Characteristics

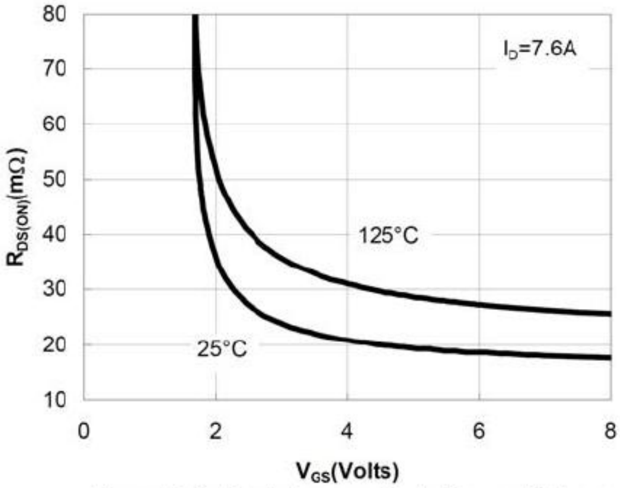


Figure 5: On-Resistance vs. Gate-Source Voltage

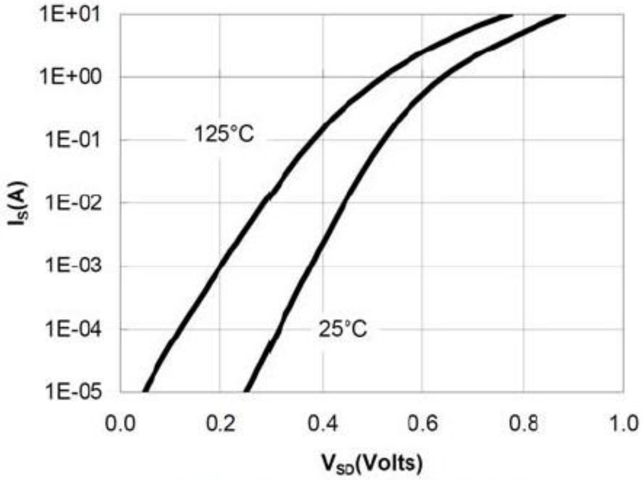


Figure 6: Body-Diode Characteristics

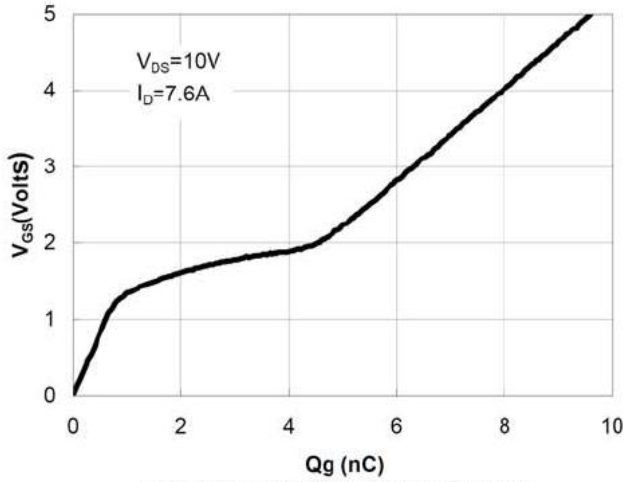


Figure 7: Gate-Charge Characteristics

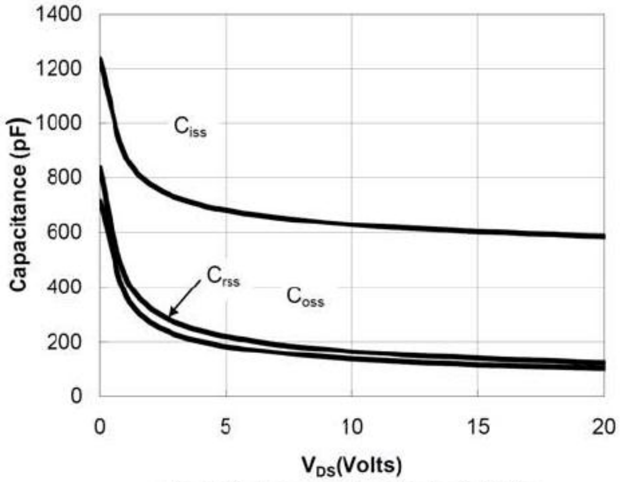


Figure 8: Capacitance Characteristics

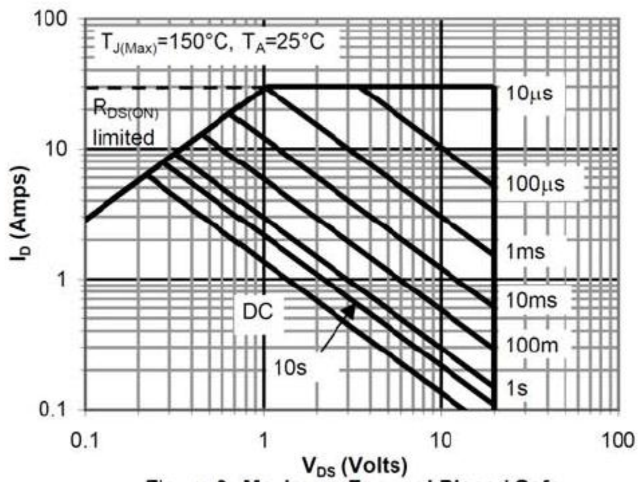


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

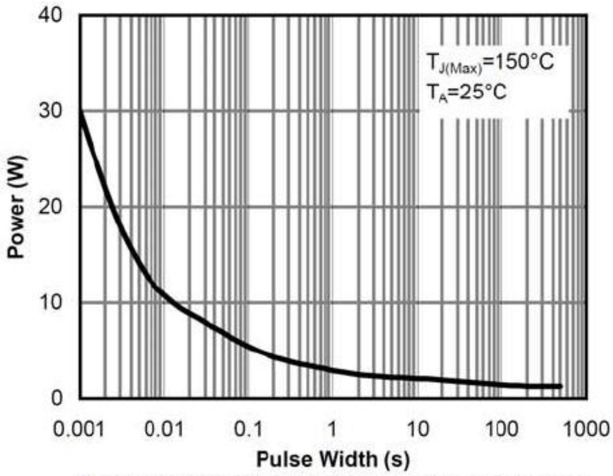


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

Typical Performance Characteristics

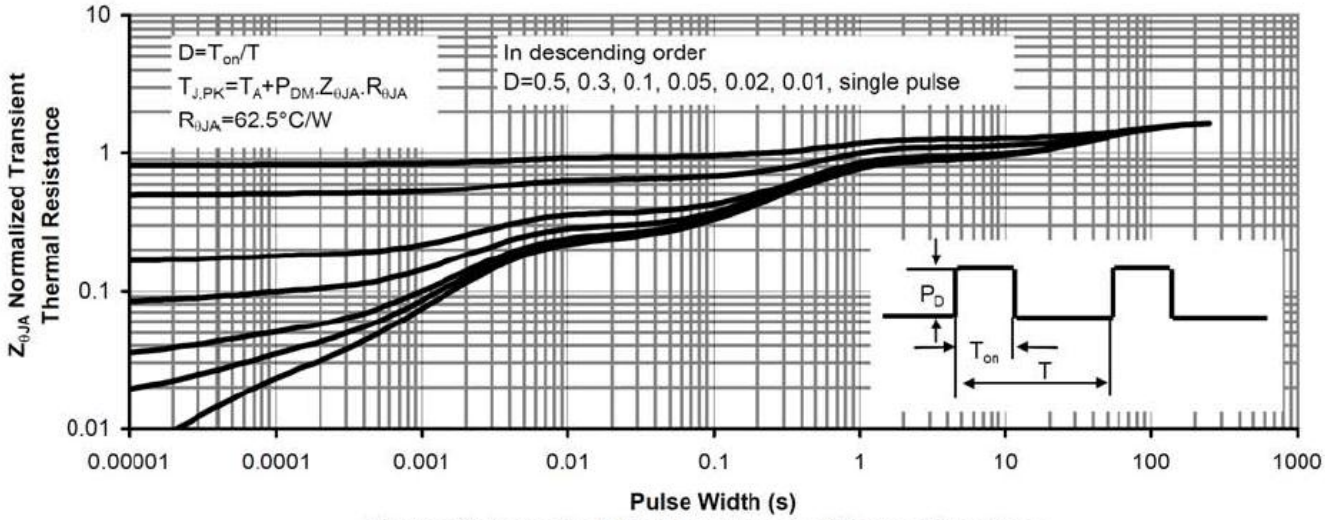
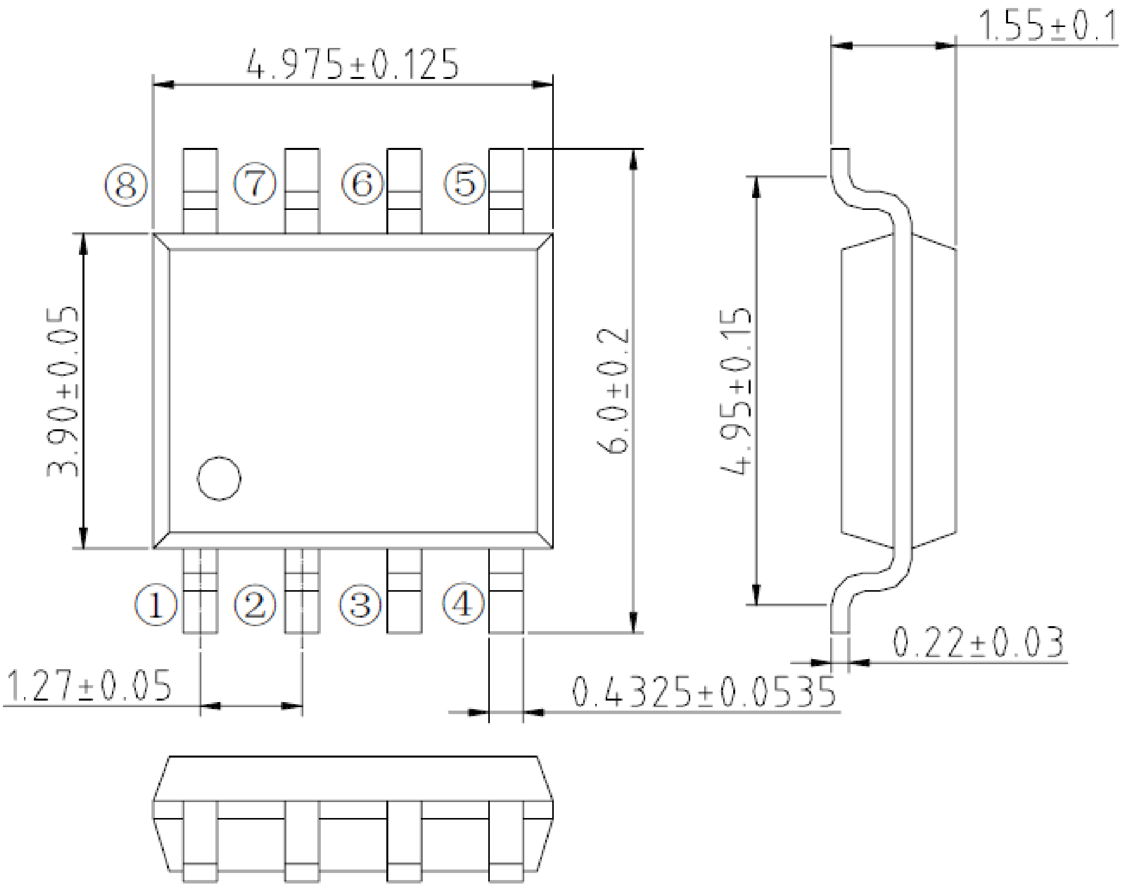


Figure 11: Normalized Maximum Transient Thermal Impedance

Packing Information

SOP-8



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.

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