



## Description

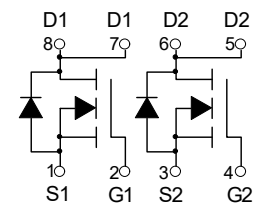
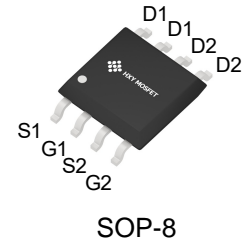
The HXY9926BS uses advanced trench technology and design to provide excellent  $R_{DS(ON)}$  with low gate charge. It can be used in a wide variety of applications.

## General Features

- $V_{DS} = 20V, I_D = 4A$   
 $R_{DS(ON)} < 45m\Omega @ V_{GS} = 4.5V$   
 $R_{DS(ON)} < 55m\Omega @ V_{GS} = 2.5V$

## Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



Dual N-Channel MOSFET

## Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
HXY9926BS	SOP-8	9926B XXX YYYY	3000

## Absolute Maximum Ratings ( $T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V
Drain Current-Continuous	$I_D$	4	A
Drain Current-Continuous( $T_C = 100^\circ C$ )	$I_D(100^\circ C)$	2.8	A
Pulsed Drain Current	$I_{DM}$	25	A
Maximum Power Dissipation	$P_D$	1.25	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	$^\circ C$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	100	$^\circ C/W$



**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)**

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	20	22	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	$\pm 100$	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=4A$	-	35	45	m $\Omega$
		$V_{GS}=2.5V, I_D=2A$	-	40	55	
Forward Transconductance	$g_{FS}$	$V_{DS}=5V, I_D=6A$	20	-	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0V,$ $F=1.0MHz$	-	290	-	PF
Output Capacitance	$C_{oss}$		-	60	-	PF
Reverse Transfer Capacitance	$C_{rss}$		-	30	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V, I_D=1A$ $V_{GEN}=4.5V, R_G=6\Omega$	-	8	-	nS
Turn-on Rise Time	$t_r$		-	9	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	15	-	nS
Turn-Off Fall Time	$t_f$		-	4	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=10V, I_D=3A,$ $V_{GS}=4.5V$	-	10	-	nC
Gate-Source Charge	$Q_{gs}$		-	1.5	-	nC
Gate-Drain Charge	$Q_{gd}$		-	1.6	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	$V_{SD}$	$V_{GS}=0V, I_S=1.7A$	-	-	1.2	V
Diode Forward Current (Note 2)	$I_S$		-	-	6	A

**Notes:**

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.
3. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to production



## Typical Characteristics

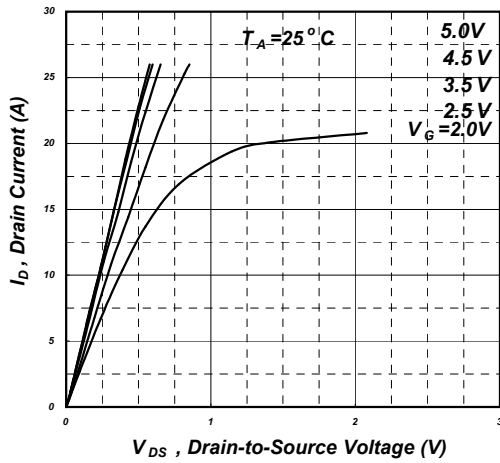


Fig 1. Typical Output Characteristics

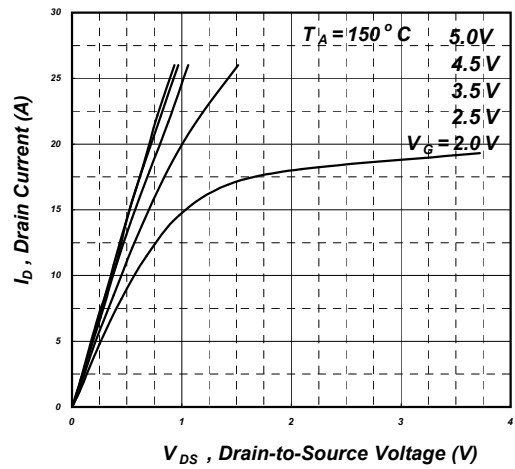


Fig 2. Typical Output Characteristics

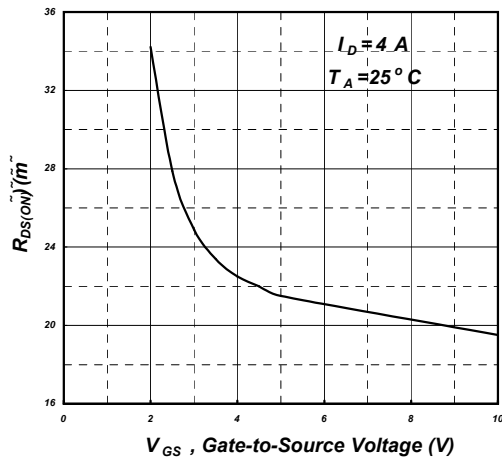


Fig 3. On-Resistance v.s. Gate Voltage

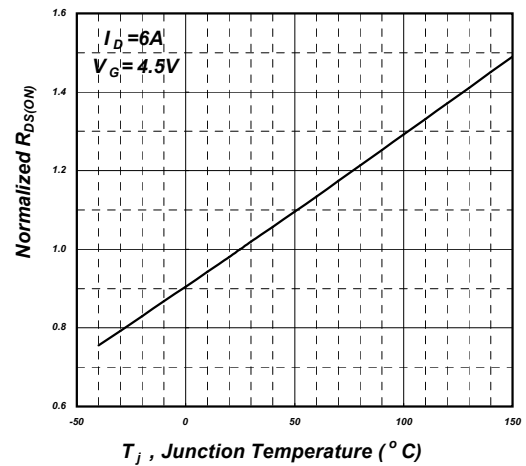


Fig 4. Normalized On-Resistance  
v.s. Temperature

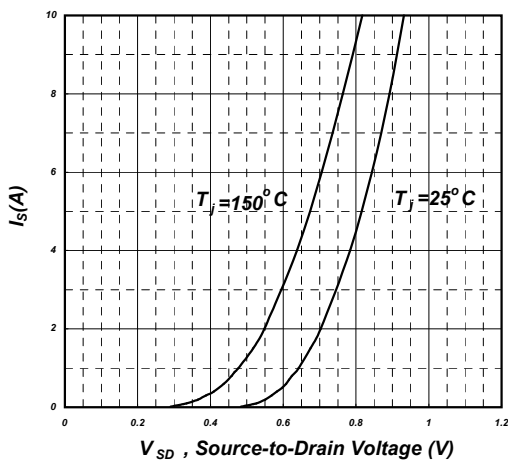


Fig 5. Forward Characteristic of  
Reverse Diode

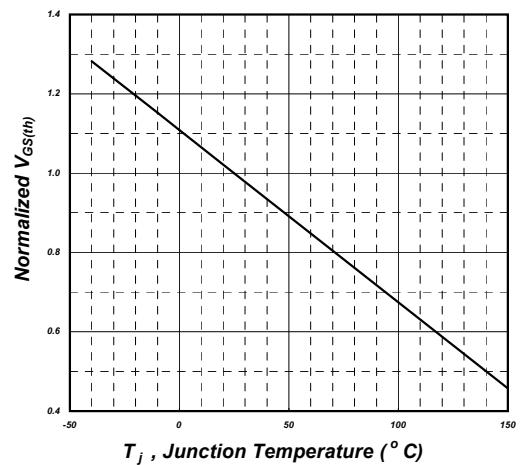


Fig 6. Gate Threshold Voltage v.s.  
Junction Temperature

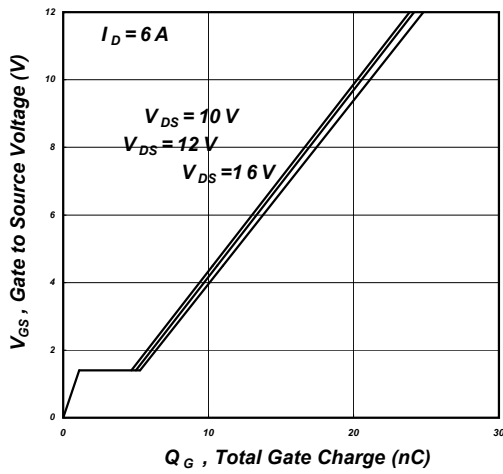


Fig 7. Gate Charge Characteristics

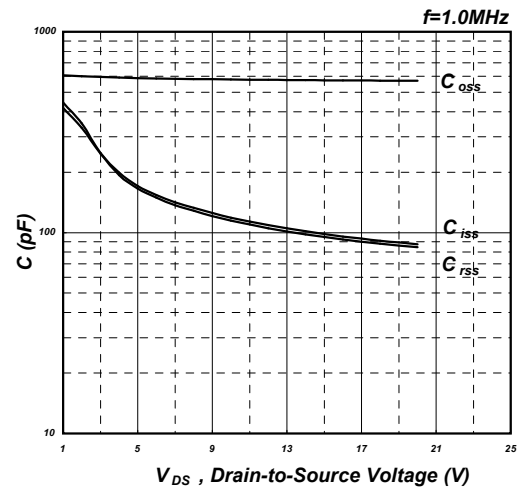


Fig 8. Typical Capacitance Characteristics

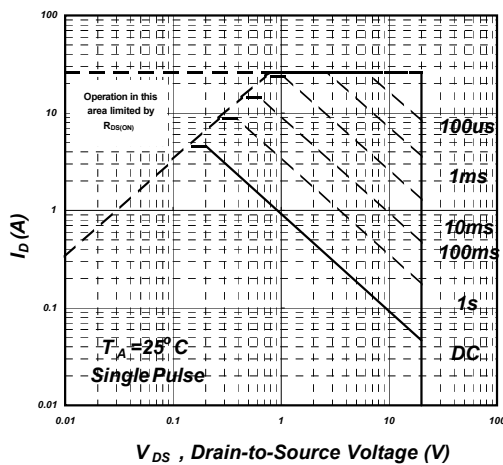


Fig 9. Maximum Safe Operating Area

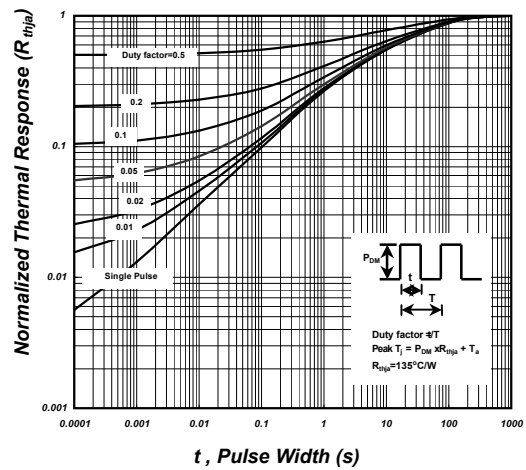


Fig 10. Effective Transient Thermal Impedance

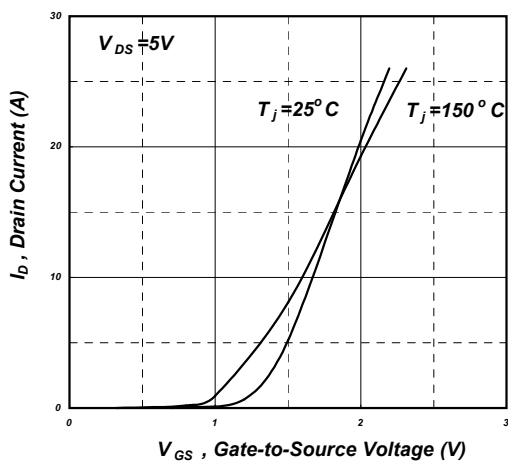


Fig 11. Transfer Characteristics

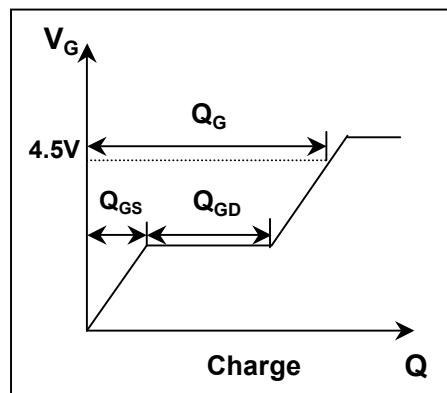
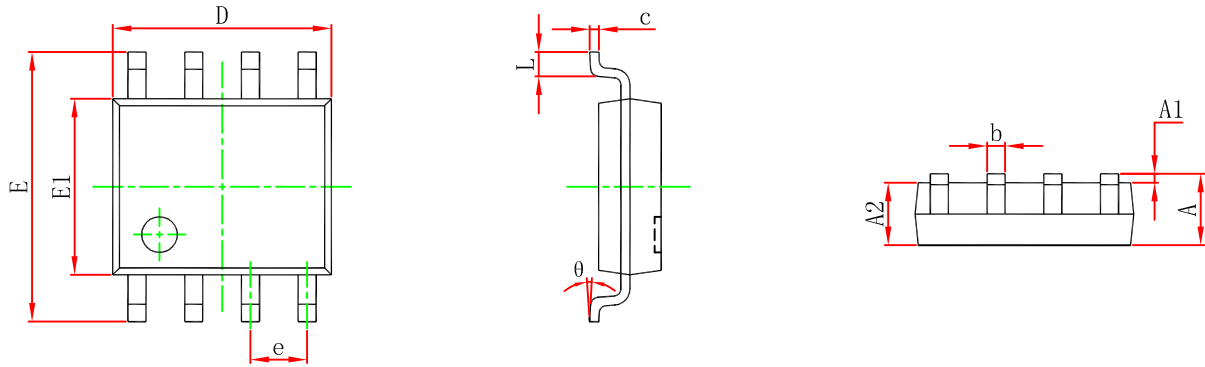


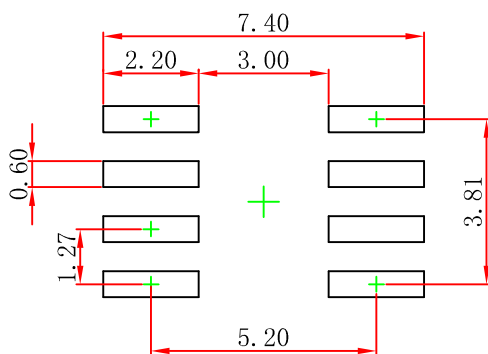
Fig 12. Gate Charge Waveform



## SOP-8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Note:  
1. Controlling dimension: in millimeters.  
2. General tolerance:  $\pm 0.05\text{mm}$ .  
3. The pad layout is for reference purposes only.



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