



H9926S / H9926CS

Dual N-Channel 2.5V MOSFET

Description

This N-Channel 2.5V specified MOSFET is a rugged gate version of advanced trench process. It has been optimized for power management applications with a wide range of gate drive voltage (2.5V-10V)

Features

- 4.5A, 20V. $R_{DS(on)}=32m\Omega@V_{GS}=4.5V$, $R_{DS(on)}=45m\Omega@V_{GS}=2.5V$
- Optimized for use in battery circuit applications
- Extended V_{GSS} range ($\pm 10V$) for battery applications
- High performance trench technology for extremely low $R_{DS(on)}$
- Low profile TSSOP-8 package

Applications

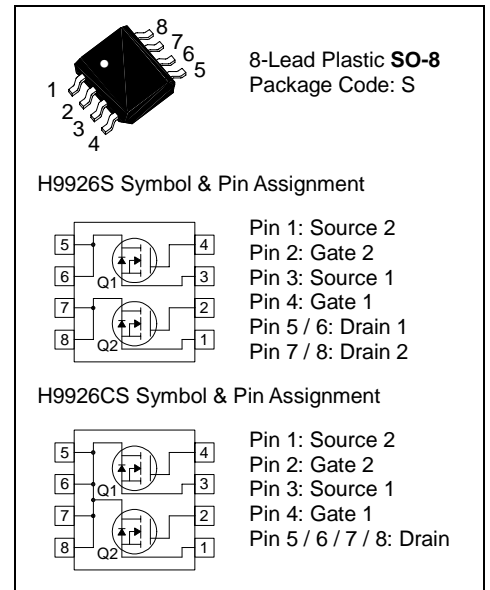
- Battery Protection
- Load Switch
- Power Management

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

Symbol	Parameter	Ratings	Units
V_{DSS}	Drain-Source Voltage	20	V
V_{GSS}	Gate-Source Voltage	± 12	V
I_D	Drain Current (Continuous) ^{*1}	4.5	A
I_{DM}	Drain Current (Pulsed)	30	A
P_D	Total Power Dissipation ^{*1}	1	W
	Total Power Dissipation ^{*2}	0.6	W
T_j, T_{stg}	Operating and Storage Temperature Range	-55 to +150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient ^{*1}	125	$^\circ C/W$
	Thermal Resistance Junction to Ambient ^{*2}	208	$^\circ C/W$

*1: $R_{\theta JA}$ is 125 $^\circ C/W$ (steady state) when mounted on a 1 inch² copper pad on FR-4.

*2: $R_{\theta JA}$ is 208 $^\circ C/W$ (steady state) when mounted on a minimum copper pad on FR-4.





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

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
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• Off Characteristics

V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	20	-	-	V
ΔBV _{DSS} /ΔT _J	Breakdown Voltage Temperature Coefficient	I _D =250uA, Referenced to 25°C	-	12	-	mV/°C
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16V, V _{GS} =0V	-	-	1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA

• On Characteristics^{*3}

V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.6	1	1.5	V
ΔV _{GS(th)} /ΔT _J	Gate Threshold Voltage Temperature Coefficient	I _D =250uA, Referenced to 25°C	-	-3	-	mV/°C
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =4.5V, I _D =4.5A	-	24	32	mΩ
		V _{GS} =2.5V, I _D =3.8A	-	34	45	
		V _{GS} =4.5V, I _D =4.5A, T _J =125°C	-	33	48	
I _{D(on)}	On-State Drain Current	V _{GS} =4.5V, V _{DS} =5V	15	-	-	A
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =4.5A	-	19	-	S

• Dynamic Characteristics

C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =10V, f=1MHz	-	630	-	pF
C _{oss}	Output Capacitance		-	150	-	
C _{rss}	Reverse Transfer Capacitance		-	85	-	
R _G	Gate Resistance	V _{GS} =15mV, f=1.0MHz	-	1.4	-	Ω

• Switching Characteristics^{*3}

t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, I _D =1A, V _{GS} =4.5V R _{GEN} =6Ω	-	8	16	ns
t _r	Turn-on Rise Time		-	8	16	
t _{d(off)}	Turn-off Delay Time		-	15	26	
t _f	Turn-off Fall Time		-	4	8	
Q _g	Total Gate Charge	V _{DS} =10V, I _D =4.5A V _{GS} =4.5V	-	6.1	9	nC
Q _{gs}	Gate-Source Charge		-	1.1	-	
Q _{gd}	Gate-Drain Charge		-	1.8	-	

• Drain-Source Diode Characteristics and Maximum Ratings

I _S	Maximum Continuous Drain-Source Diode Forward Current		-	-	0.83	A
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0V, I _S =0.83A ^{*3}	-	0.69	1.2	V
t _{rr}	Diode Reverse Recovery Time	I _F =4.5A, d _F /dt=100A/us	-	14	-	ns
Q _{rr}	Diode Reverse Recovery Charge		-	4	-	nC

*3: Pulse Test: Pulse Width ≤300us, Duty Cycle≤2%



SO-8 Dimension

8-Lead SO-8 Plastic
 Surface Mounted Package
 HSMC Package Code: S

H9926S Marking:

Pb Free Mark
 Pb-Free: *●* (Note)
 Normal: None

Pin 1 Index
 Date Code

Control Code

Pin Style: 1.S2 2.G2 3.S1 4.G1 5 & 6.D1 7 & 8.D2

H9926CS Marking:

Pb Free Mark
 Pb-Free: *●* (Note)
 Normal: None

Pin 1 Index
 Date Code

Control Code

Pin Style: 1.S2 2.G2 3.S1 4.G1 5 & 6 & 7 & 8.D

Note: Green label is used for pb-free packing

Material:

- Lead solder plating: Sn60/Pb40 (Normal), Sn/3.0Ag/0.5Cu or Pure-Tin (Pb-free)
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

DIM	Min.	Max.
A	4.85	5.10
B	3.85	3.95
C	5.80	6.20
D	1.22	1.32
E	0.37	0.47
F	3.74	3.88
G	1.45	1.65
H	4.80	5.10
I	0.05	0.20
J	0.30	0.70
K	0.19	0.25
L	0.37	0.52
M	0.23	0.28
N	0.08	0.13
O	0.00	0.15

*: Typical, Unit: mm

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