

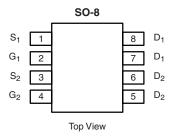
## SPN9926AS8RG-VB Datasheet Dual N-Channel 20-V (D-S) MOSFET

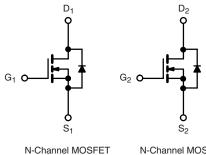
PRODUCT SUMMARY				
V <sub>DS</sub> (V)	<b>R<sub>DS(on)</sub> (</b> Ω)	I <sub>D</sub> (A)		
20	0.019 at V <sub>GS</sub> = 4.5 V	7.1		
	0.026 at V <sub>GS</sub> = 2.5 V	6.0		

#### **FEATURES**

- Halogen-free According to IEC 61249-2-21 Definition
- Trench Power MOSFET ٠
- 100 % R<sub>g</sub> Tested
  Compliant to RoHS Directive 2002/95/EC







N-Channel MOSFET

<b>ABSOLUTE MAXIMUM RATINGS</b> $T_A = 25 \text{ °C}$ , unless otherwise noted					
Parameter		Symbol	Limit	Unit	
Drain-Source Voltage		V <sub>DS</sub>	20	N/	
Gate-Source Voltage		V <sub>GS</sub>	± 12	V	
	T <sub>A</sub> = 25 °C	- I <sub>D</sub>	7.1		
Continuous Drain Current (T <sub>J</sub> = 150 °C) <sup>a</sup>	T <sub>A</sub> = 70 °C		5.7	1	
Pulsed Drain Current (10 µs Pulse Width)		I <sub>DM</sub>	40	- A	
Continuous Source Current (Diode Conduction) <sup>a</sup>		۱ <sub>S</sub>	1.7		
	T <sub>A</sub> = 25 °C	Pn	2	w	
Maximum Power Dissipation <sup>a</sup>	T <sub>A</sub> = 70 °C	۲D	1.3		
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	- 55 to 150	°C	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Limit	Unit		
Maximum Junction-to-Ambient <sup>a</sup>	R <sub>thJA</sub>	62.5	°C/W		

Notes:

a. Surface Mounted on FR4 board, t  $\leq$  10 s.

<b>SPECIFICATIONS</b> T <sub>J</sub> = 25 °C, unless otherwise noted							
Parameter	Symbol	Test Conditions Min.		Тур.	Max.	Unit	
Static							
Gate Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}, I_D = 250 \ \mu A$ 0.6			1.5	V	
Gate-Body Leakage	I <sub>GSS</sub>	$V_{DS} = 0 V, V_{GS} = \pm 12 V$			± 100	nA	
Zara Cata Valtaga Drain Current		V <sub>DS</sub> = 20 V, V <sub>GS</sub> = 0 V			1	μΑ	
Zero Gate Voltage Drain Current	IDSS	$V_{DS} = 20 \text{ V}, V_{GS} = 0 \text{ V}, T_{J} = 55 \text{ °C}$			5		
On-State Drain Current <sup>a</sup>	I <sub>D(on)</sub>	$V_{DS} \!\geq\! 5$ V, $V_{GS}$ = 4.5 V	20			А	
	R <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 7.1 A		0.019		0	
Drain-Source On-State Resistance <sup>a</sup>		$V_{GS} = 2.5 \text{ V}, \text{ I}_{D} = 6.0 \text{ A}$		0.026		Ω	
Forward Transconductance <sup>a</sup>	9 <sub>fs</sub>	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 7.1 A		27		S	
Diode Forward Voltage <sup>a</sup>	V <sub>SD</sub>	$I_{\rm S} = 1.7$ A, $V_{\rm GS} = 0$ V			1.2	V	
Dynamic <sup>b</sup>				•			
Total Gate Charge	Qg			9.5			
Gate-Source Charge	Q <sub>gs</sub>	$V_{DS}$ = 10 V, $V_{GS}$ = 4.5 V, $I_{D}$ = 7.1 A		1.5		nC	
Gate-Drain Charge	Q <sub>gd</sub>			2.5			
Gate Resistance	R <sub>g</sub>	f = 1 MHz		1.6	2.7	Ω	
Turn-On Delay Time	t <sub>d(on)</sub>			10			
Rise Time	t <sub>r</sub>	$V_{DD}$ = 10 V, $R_L$ = 10 $\Omega$		15			
Turn-Off Delay Time	t <sub>d(off)</sub>	$I_D \cong$ 1 A, $V_{GEN}$ = 4.5 V, $R_g$ = 10 $\Omega$		38		ns	
Fall Time	t <sub>f</sub>			25			
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 1.7 A, dl/dt = 100 A/μs		26			

Notes:

a. Pulse test; pulse width  $\leq$  300 µs, duty cycle  $\leq$  2 %.

b. Guaranteed by design, not subject to production testing.

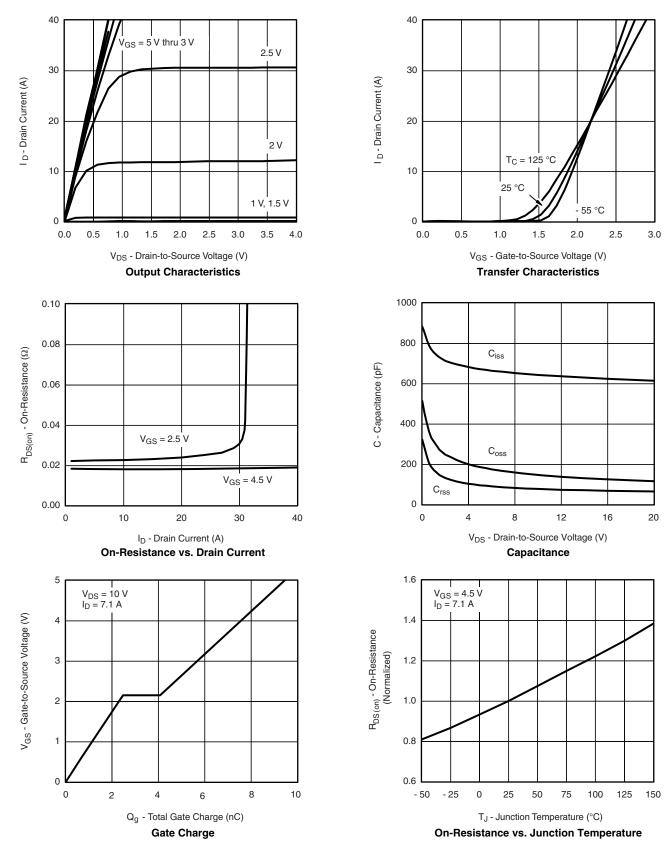
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

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#### 40 0.10 $I_{D} = 7.1 \text{ A}$ 0.08 $R_{DS(on)}$ - On-Resistance $(\Omega)$ T<sub>J</sub> = 150 °C I s - Source Current (A) 10 0.06 $T_J = 25 \ ^\circ C$ 0.04 0.02 1 L 0.0 0.00 0.2 0.4 0.6 0.8 1.0 1.2 1.4 2 3 4 0 1 5 V<sub>SD</sub> - Source-to-Drain Voltage (V) $V_{GS}$ - Gate-to-Source Voltage (V) Source-Drain Diode Forward Voltage On-Resistance vs. Gate-to-Source Voltage 0.4 30 0.2 24 V<sub>GS(th)</sub> Variance (V) $I_{\rm D} = 250 \ \mu {\rm A}$ 0.0 18 Power (W) - 0.2 12 - 0.4 6 - 0.6 0 - 50 - 25 0 25 50 75 100 125 150 0.01 0.10 1.00 10.00 T<sub>J</sub> - Temperature (°C) Time (s) Single Pulse Power **Threshold Voltage** 2 1 Ħ Duty Cycle = 0.5 Normalized Effective Transient Thermal Impedance 0.2 Notes 4 0.1 P<sub>DM</sub> 0.1 0.05 t<sub>1</sub> t<sub>2</sub> t<sub>1</sub> t<sub>2</sub> 1. Duty Cycle, D = 0.02 2. Per Unit Base = R<sub>thJA</sub> = 62.5 °C/W 3. T<sub>JM</sub> - T<sub>A</sub> = P<sub>DM</sub>Z<sub>thJA</sub><sup>(t)</sup> Single Pulse 4. Surface Mounted 0.01 10<sup>-2</sup> 10-4 10<sup>-3</sup> 10-1 10 30 1

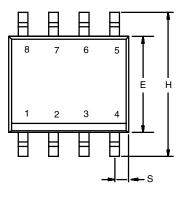
#### TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted

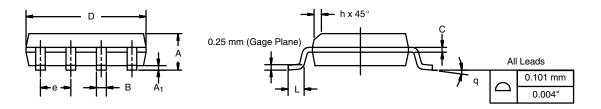




### SOIC (NARROW): 8-LEAD

JEDEC Part Number: MS-012





	MILLIM	IETERS	INC	IES	
DIM	Min	Мах	Min	Max	
A	1.35	1.75	0.053	0.069	
A <sub>1</sub>	0.10	0.20	0.004	0.008	
В	0.35	0.51	0.014	0.020	
С	0.19	0.25	0.0075	0.010	
D	4.80	5.00	0.189	0.196	
E	3.80	4.00	0.150	0.157	
е	1.27	BSC	0.050 BSC		
н	5.80	6.20	0.228	0.244	
h	0.25	0.50	0.010	0.020	
L	0.50	0.93	0.020	0.037	
q	0°	8°	0°	8°	
S	0.44	0.64	0.018	0.026	
ECN: C-06527-Rev. I, 11-Sep-06 DWG: 5498					



**RECOMMENDED MINIMUM PADS FOR SO-8** 



Recommended Minimum Pads Dimensions in Inches/(mm)



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