



WANSEMI
万芯半导体

WP9926A

Enhancement Mode N-Channel Power MOSFET

SOP8/NMOS/20V/ ± 12 V/0.75V/6A/21.8m Ω

Rev0.5

20V, 21.8mΩ, 6A, N-Channel Enhancement Mode Power MOSFET

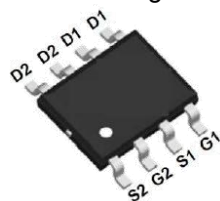
1.Features

- ◆ High Power and current handling capability
- ◆ Lead free product is acquired
- ◆ Surface Mount Package

V _{DS} Typ	R _{DS(on)} Typ.	I _D Max.
20V	21.8mΩ @ 4.5V	6A
	26.7mΩ @ 2.5V	

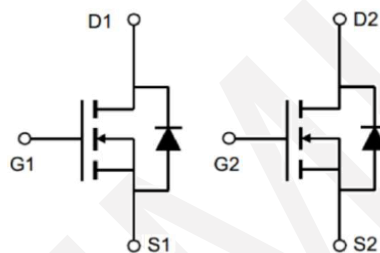
2.Applications

- ◆ Battery protection
- ◆ Load Switch
- ◆ Power management



SOP8

Pin Description



Schematic Diagram

3.Package Marking and Ordering Information

Part no.	Marking	Package	PCS/Reel	PCS/CTN.
WP9926A	9926A	SOP8	4,000	48,000

4.Absolute Max Ratings at Ta=25°C (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V _{DSS}	20	V
Gate to Source Voltage	V _{GSS}	±12	V
Drain Current-Continuous	I _D	6	A
Drain Current (Pulse)	I _{DM}	24	A
Maximum Power Dissipation	P _D	1.7	W
Avalanche Energy, Single Pulsed	E _{AS}	81	mJ
Junction Temperature	T _J	150	°C
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

5. Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$	75	$^{\circ}\text{C}/\text{W}$

Note 2: When mounted on 1 inch square copper board $t \leq 10\text{sec}$ The value in any given application depends on the user's specific board design.

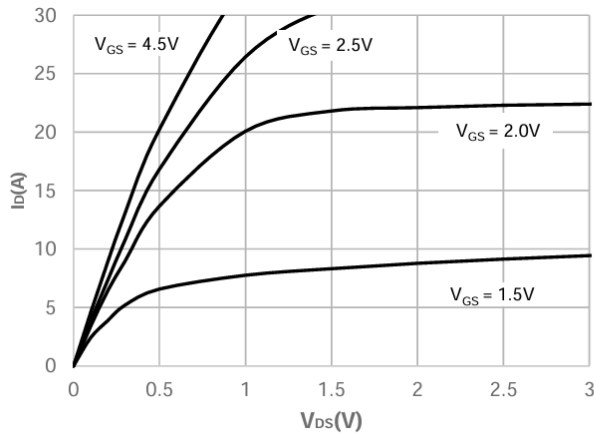
6. Electrical Characteristics at $T_a=25^{\circ}\text{C}$ (Note 3)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 250\mu\text{A}$, $V_{GS} = 0\text{V}$	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20\text{V}$, $V_{GS} = 0\text{V}$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 12\text{V}$, $V_{DS} = 0\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_{DS}=250\mu\text{A}$	0.5	0.75	1.2	V
Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D = 6\text{A}$, $V_{GS} = 4.5\text{V}$		21.8	26	$\text{m}\Omega$
		$I_D = 5\text{A}$, $V_{GS} = 2.5\text{V}$		26.7	33	$\text{m}\Omega$
Diode Forward Voltage	V_{SD}	$I_S = 6\text{A}$, $V_{GS} = 0$			1.2	V
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=10\text{V}$, Frequency=1.0MHz		455		pF
Output Capacitance	C_{oss}			64		pF
Reverse Transfer Capacitance	C_{rss}			55		pF
Turn-ON Delay Time	$t_{d(on)}$	$V_{DS} = 10\text{V}$, $V_{GS} = 4.5\text{V}$, $R_{GEN} = 3\Omega$, $I_D=2\text{A}$		4		ns
Turn-ON Rise Time	t_r			13		ns
Turn-OFF Delay Time	$t_{d(off)}$			65		ns
Turn-ON Fall Time	t_f			33		ns
Total Gate Charge	Q_g	$V_{DS} = 10\text{V}$, $V_{GS} = 0$ to 4.5V , $I_D = 2\text{A}$		6		nC
Gate-Source Charge	Q_{gs}			1		nC
Gate-Drain Charge	Q_{gd}			1.5		nC

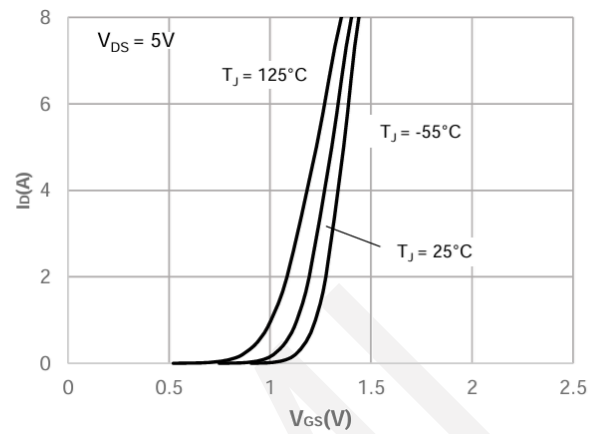
Note 3: Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



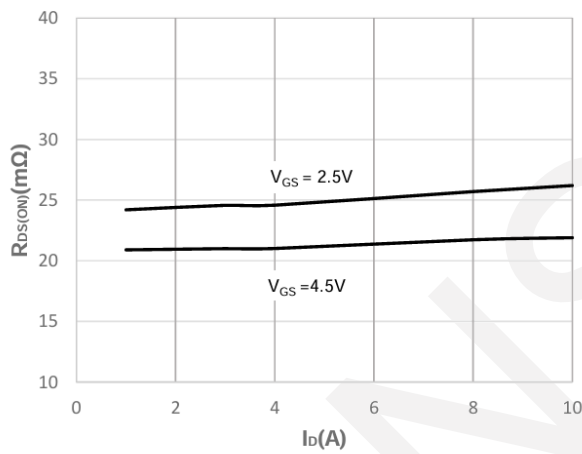
7. Typical electrical and thermal characteristics



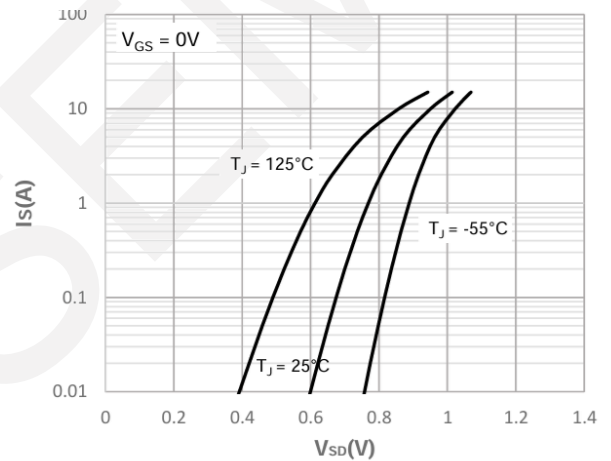
Output Characteristics



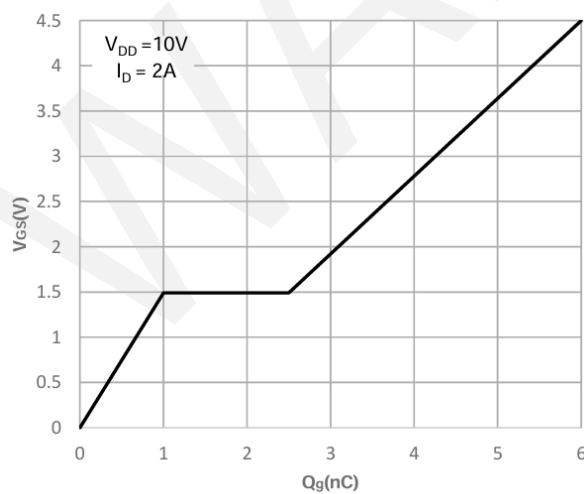
Transfer Characteristics



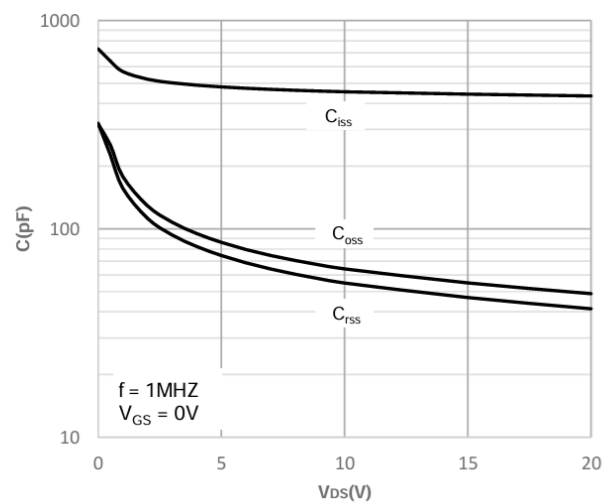
On-Resistance vs. Drain Current



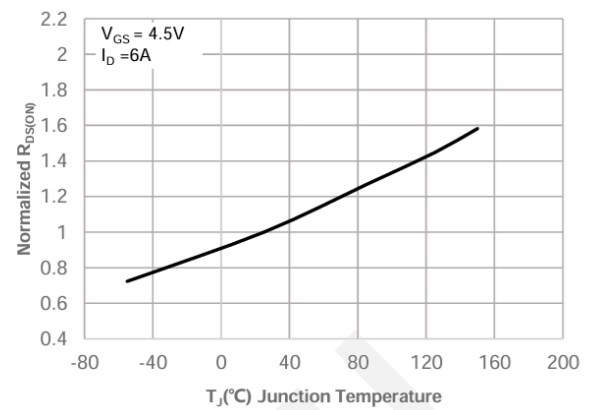
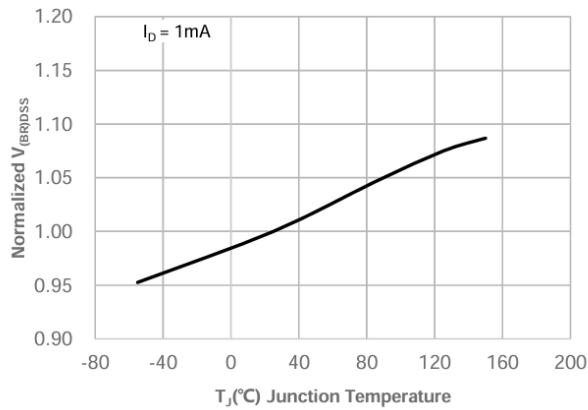
Body Diode Characteristics



Gate Charge Characteristics

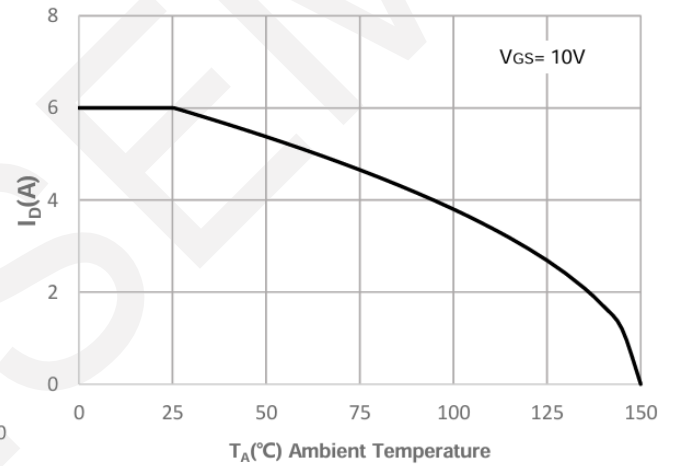
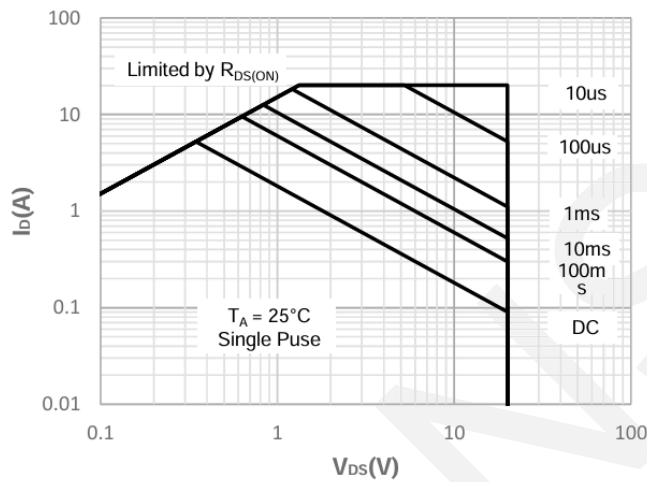


Capacitance Characteristics



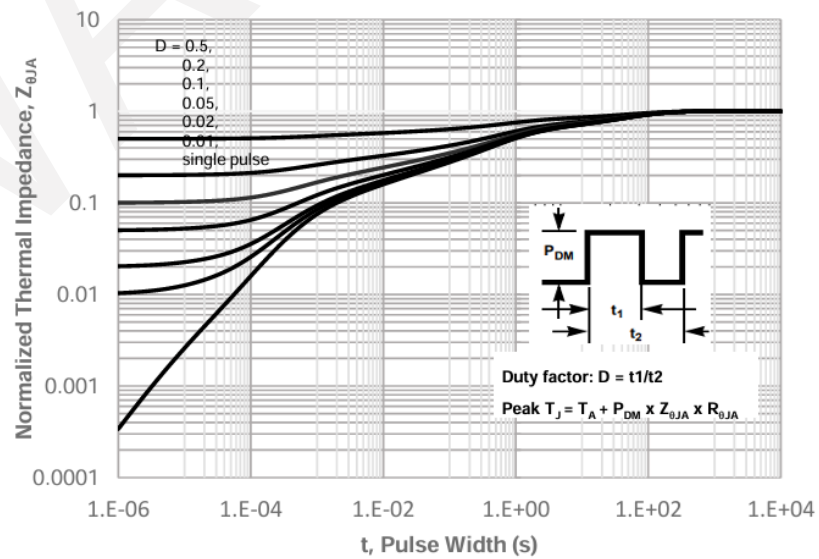
Breakdown Voltage vs. Junction Temperature

On Resistance vs. Junction Temperature



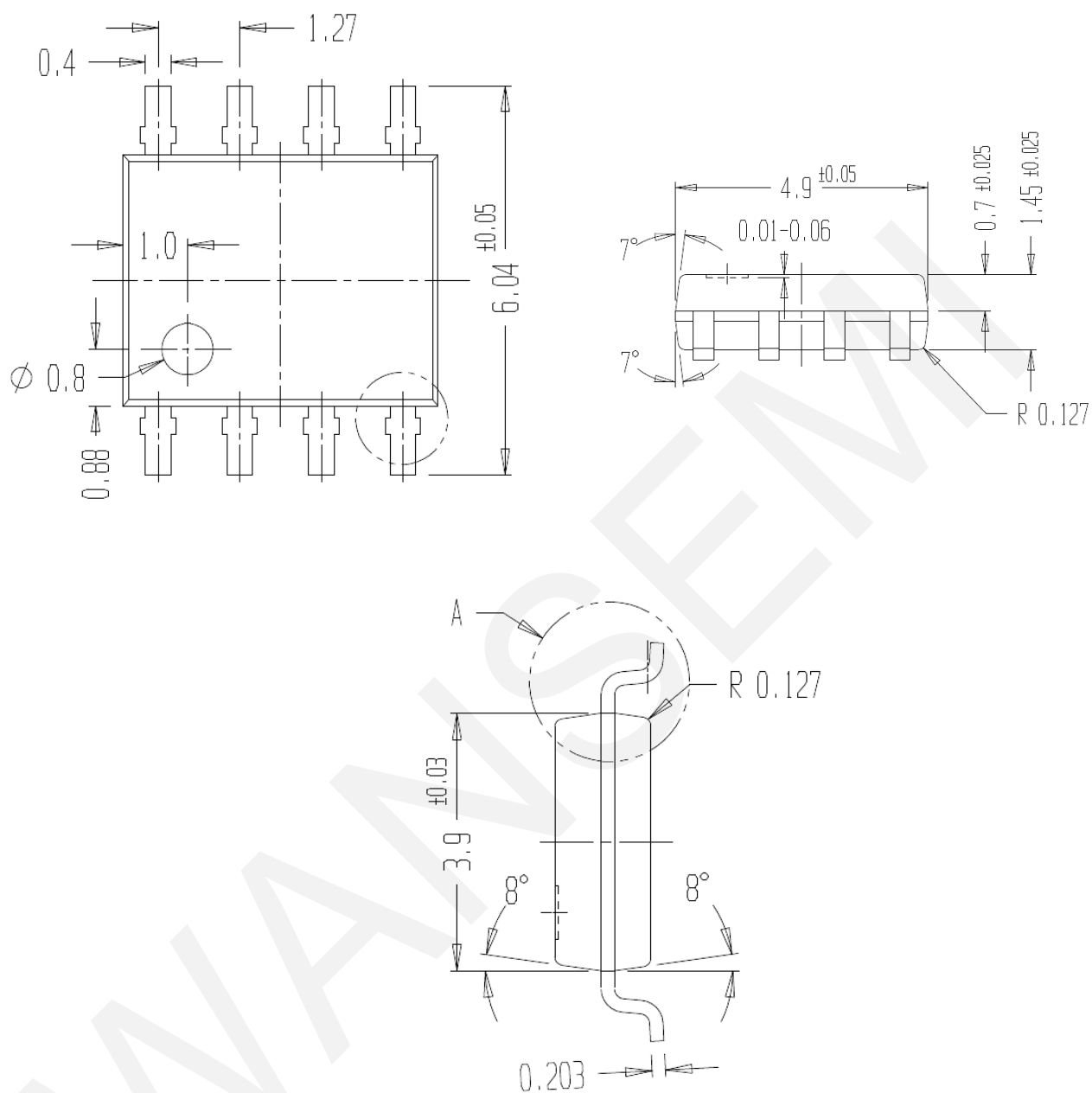
Maximum Safe Operating Area

Maximum Continuous Drain Current
vs. Ambient Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

8.Package Dimensions



9.Important Notice

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