WANSEMI
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WP9926A

Enhancement Mode N-Channel Power MOSFET

SOP8/NMOS/20V/±12V/0.75V/6A/21.8mΩ

Rev0.5

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

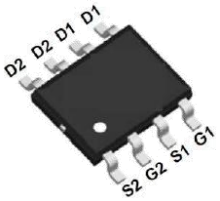
1.Features

- High Power and current handing 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	

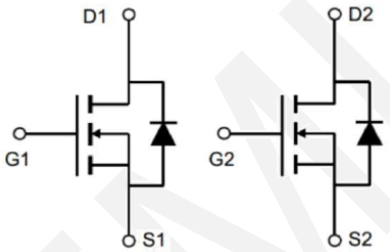
2.Applications

- 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℃ (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	℃
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 to +150	℃

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	℃/W

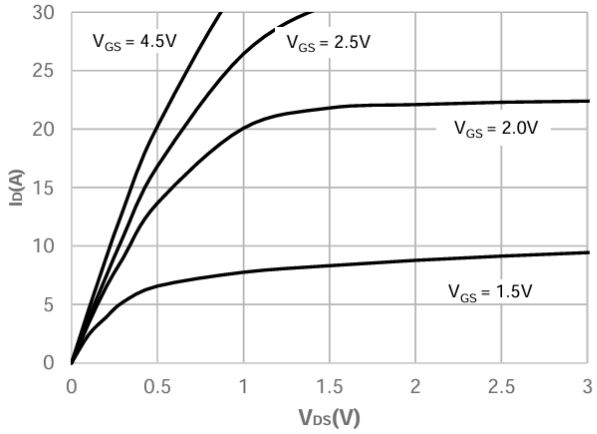
Note 2：When mounted on 1 inch square copper board t ≤ 10sec The value in any given application depends on the user's specific board design.

6.Electrical Characteristics at Ta=25℃ (Note 3)

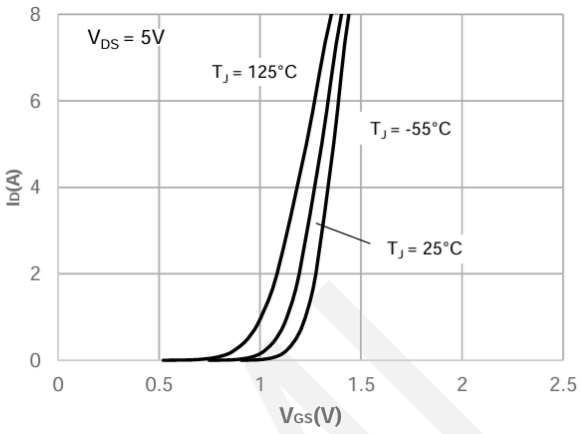
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250μA, V_{GS} = 0V	20	-	-	V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250μA	0.5	0.75	1.2	V
Drain to Source On-State Resistance	$R_{DS(on)}$	I_D = 6A, V_{GS} = 4.5V	-	21.8	26	mΩ
		I_D = 5A, V_{GS} = 2.5V	-	26.7	33	mΩ
Diode Forward Voltage	V_{SD}	I_S = 6A, V_{GS} = 0	-	-	1.2	V
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, 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} = 10V, V_{GS} = 4.5V, R_{GEN} = 3Ω, I_D=2A	-	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} = 10V, V_{GS} =0 to 4.5V, I_D = 2A	-	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.

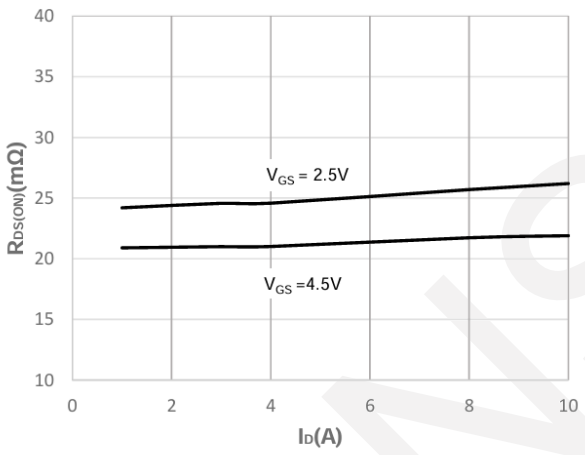
7.Typical electrical and thermal characteristics



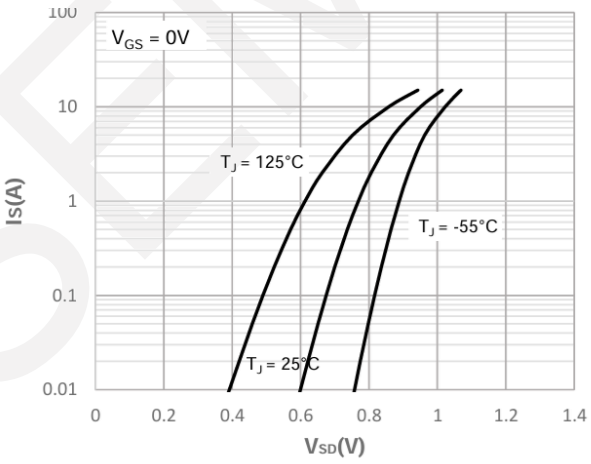
Output Characteristics



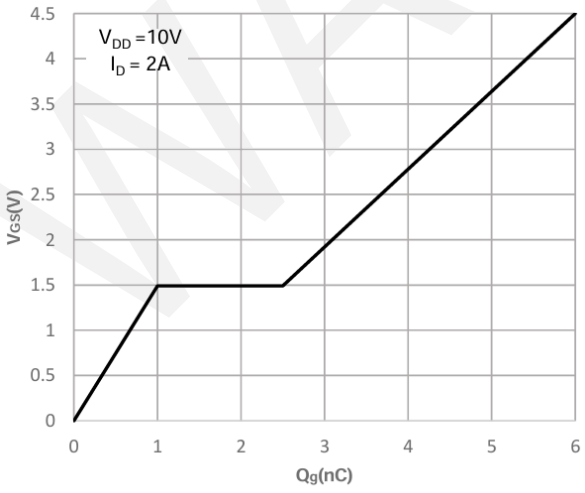
Transfer Characteristics



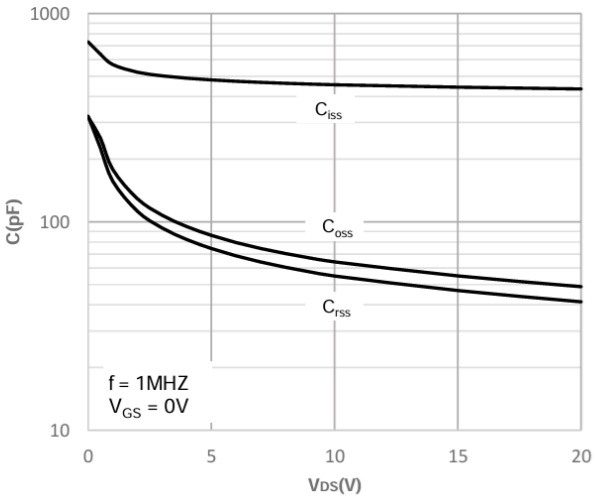
On-Resistance vs. Drain Current



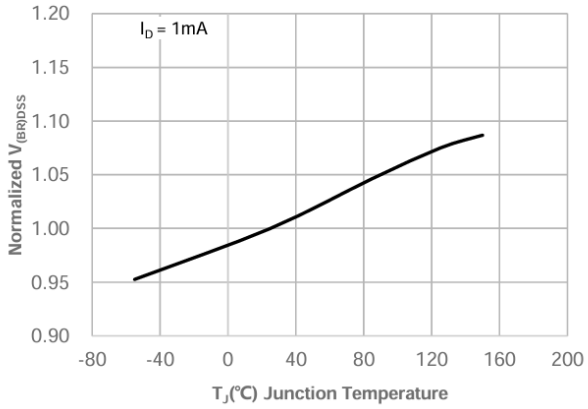
Body Diode Characteristics



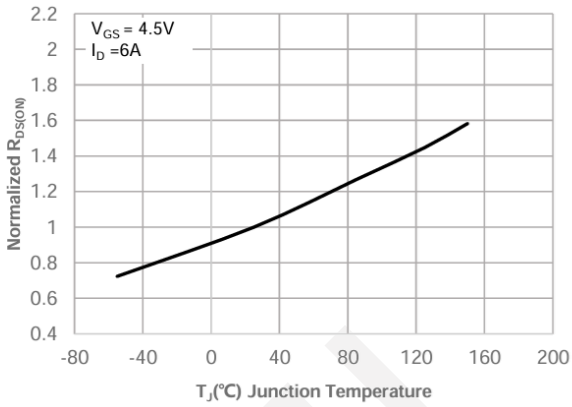
Gate Charge Characteristics



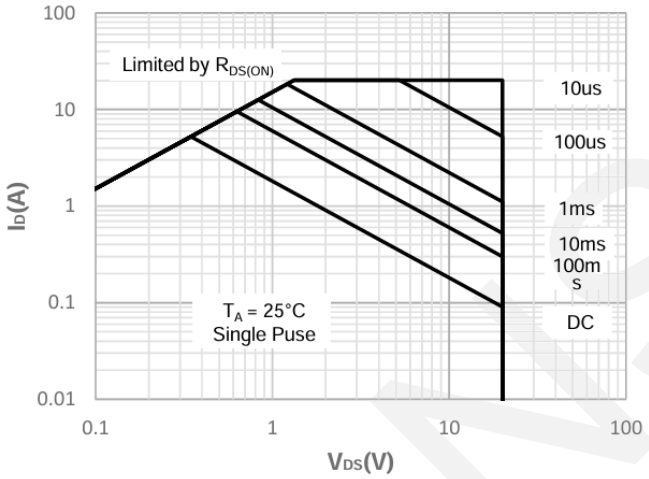
Capacitance Characteristics



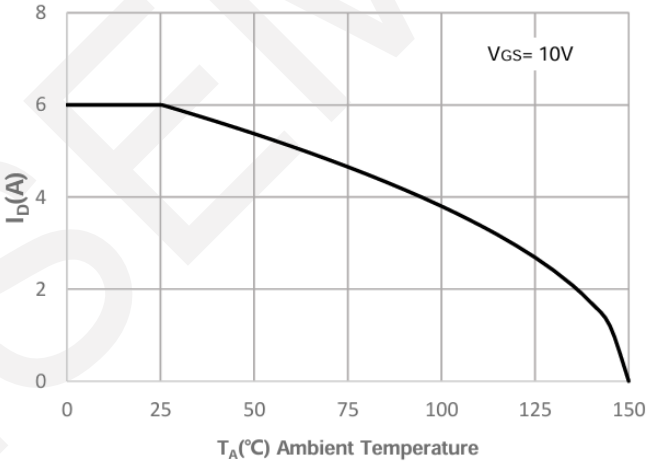
Breakdown Voltage vs. Junction Temperature



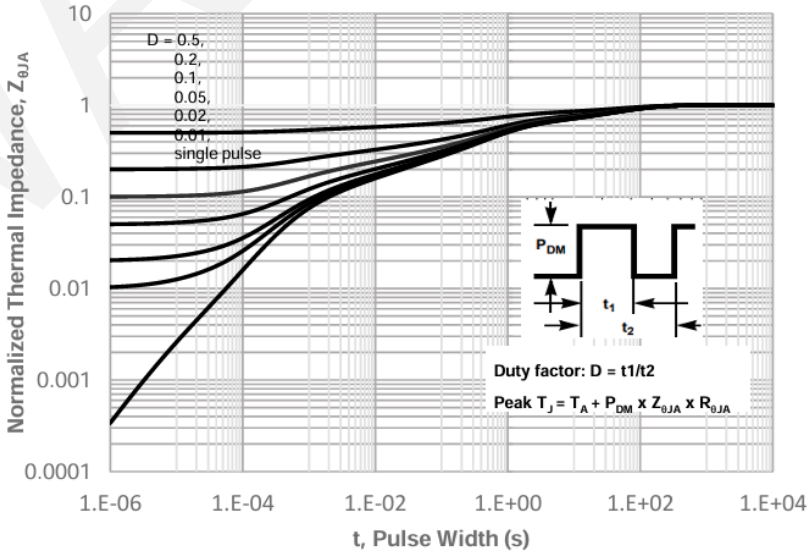
On Resistance vs. Junction Temperature



Maximum Safe Operating Area

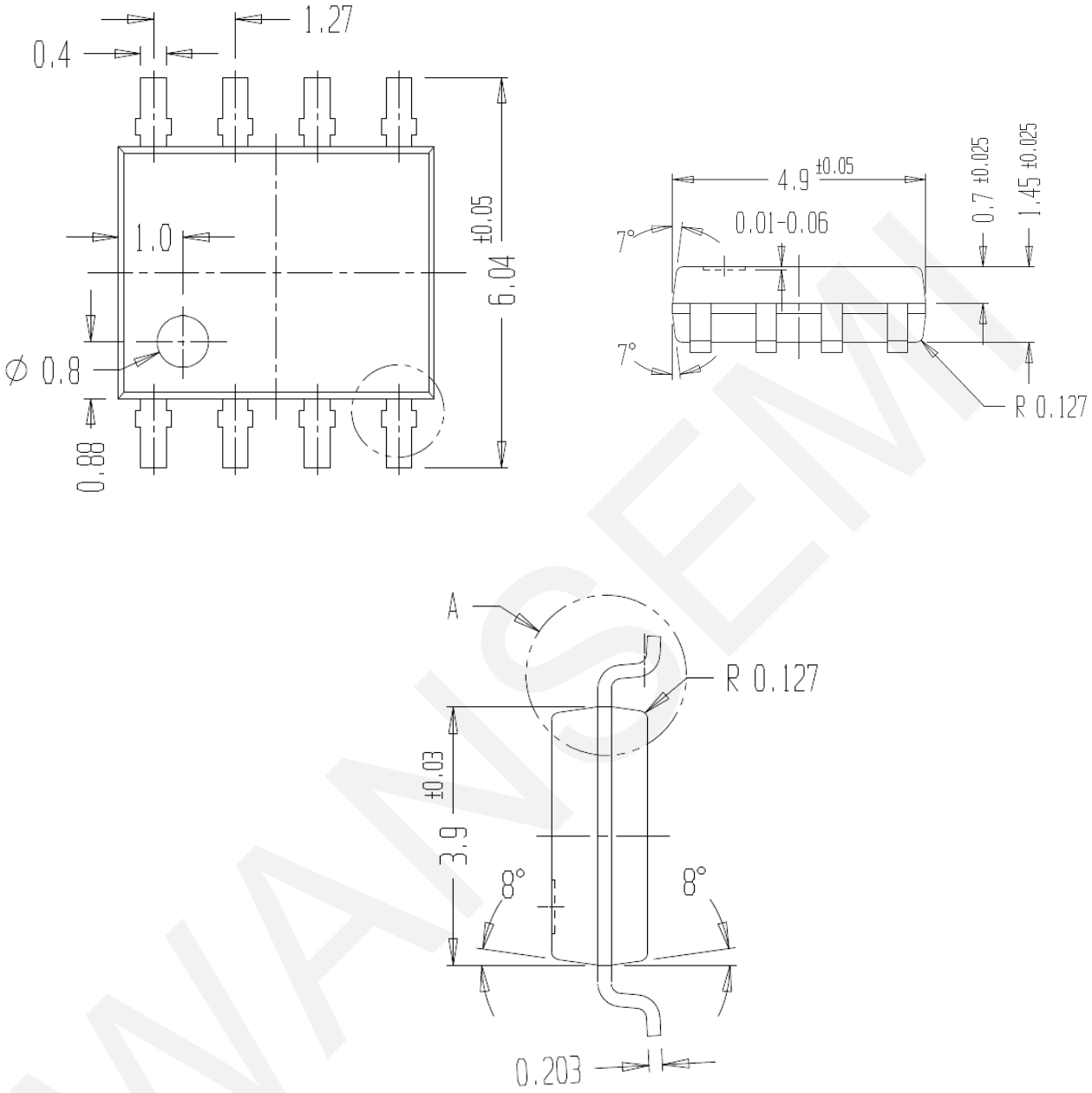


Maximum Continuous Drain Current vs. Ambient Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

8.Package Dimensions



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