



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



NTHD5905T1

Power MOSFET Dual P-Channel ChipFET™

3.0 Amps, 8 Volts

Features

- Low $R_{DS(on)}$ for Higher Efficiency
- Logic Level Gate Drive
- Miniature ChipFET Surface Mount Package

Applications

- Power Management in Portable and Battery-Powered Products; i.e., Cellular and Cordless Telephones and PCMCIA Cards

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	5 secs	Steady State	Unit
Drain-Source Voltage	V_{DS}	-8.0		V
Gate-Source Voltage	V_{GS}	± 8.0		V
Continuous Drain Current ($T_J = 150^\circ\text{C}$) (Note 1)	I_D	$T_A = 25^\circ\text{C}$	± 4.1	± 3.0
		$T_A = 85^\circ\text{C}$	± 2.9	± 2.2
Pulsed Drain Current	I_{DM}	± 10		A
Continuous Source Current (Diode Conduction) (Note 1)	I_S	-1.8	-0.9	A
Maximum Power Dissipation (Note 1)	P_D	$T_A = 25^\circ\text{C}$	2.1	1.1
		$T_A = 85^\circ\text{C}$	1.1	0.6
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150		$^\circ\text{C}$

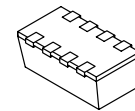
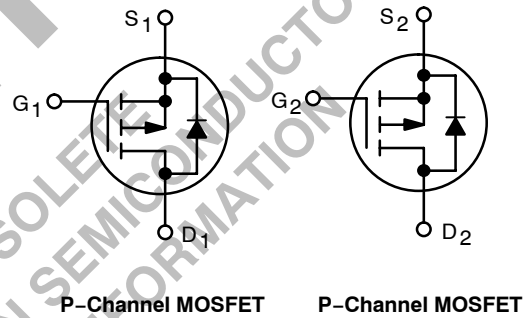
1. Surface Mounted on 1" x 1" FR4 Board.



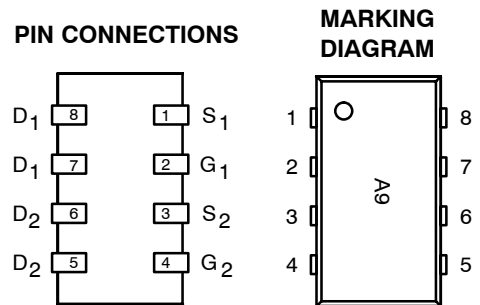
ON Semiconductor®

<http://onsemi.com>

**DUAL P-CHANNEL
3.0 AMPS, 8 VOLTS
 $R_{DS(on)} = 90 \text{ m}\Omega$**



ChipFET
CASE 1206A
STYLE 2



A9 = Specific Device Code

ORDERING INFORMATION

Device	Package	Shipping
NTHD5905T1	ChipFET	3000/Tape & Reel

NTHD5905T1

THERMAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient (Note 2) t ≤ 5 sec Steady State	R _{thJA}	50 90	60 110	°C/W
Maximum Junction-to-Foot (Drain) Steady State	R _{thJF}	30	40	°C/W

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
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Static

Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-0.45	-	-	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±8.0 V	-	-	±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -6.4 V, V _{GS} = 0 V	-	-	-1.0	μA
		V _{DS} = -6.4 V, V _{GS} = 0 V, T _J = 85°C	-	-	-5.0	
On-State Drain Current (Note 3)	I _{D(on)}	V _{DS} ≤ -5.0 V, V _{GS} = -4.5 V	-10	-	-	A
Drain-Source On-State Resistance (Note 3)	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -3.0 A	-	0.075	0.090	Ω
		V _{GS} = -2.5 V, I _D = -2.5 A	-	0.110	0.130	
		V _{GS} = -1.8 V, I _D = -1.0 A	-	0.150	0.180	
Forward Transconductance (Note 3)	g _{fs}	V _{DS} = -5.0 V, I _D = -3.0 A	-	7.0	-	S
Diode Forward Voltage (Note 3)	V _{SD}	I _S = -0.9 A, V _{GS} = 0 V	-	-0.8	-1.2	V

Dynamic (Note 4)

Total Gate Charge	Q _g	V _{DS} = -4.0 V, V _{GS} = -4.5 V, I _D = -3.0 A	-	5.5	9.0	nC
Gate-Source Charge	Q _{gs}		-	0.5	-	
Gate-Drain Charge	Q _{gd}		-	1.5	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} = -4.0 V, R _L = 4 Ω I _D = -1.0 A, V _{GEN} = -4.5 V, R _G = 6 Ω	-	10	15	ns
Rise Time	t _r		-	45	70	
Turn-Off Delay Time	t _{d(off)}		-	30	45	
Fall Time	t _f		-	10	15	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -0.9 A, di/dt = 100 A/μs	-	30	60	

2. Surface Mounted on 1" x 1" FR4 Board.
3. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL CHARACTERISTICS

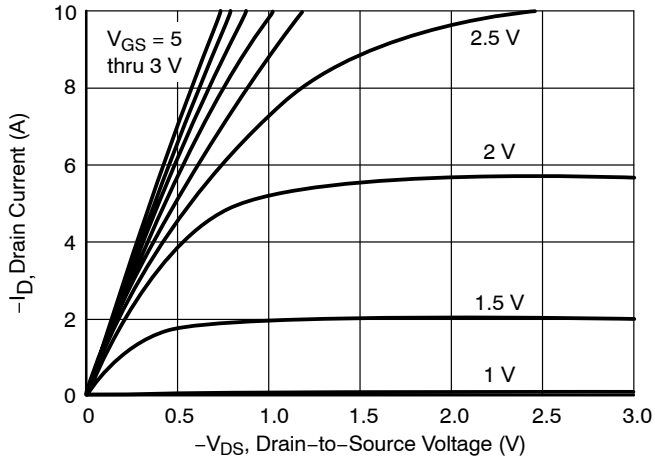


Figure 1. Output Characteristics

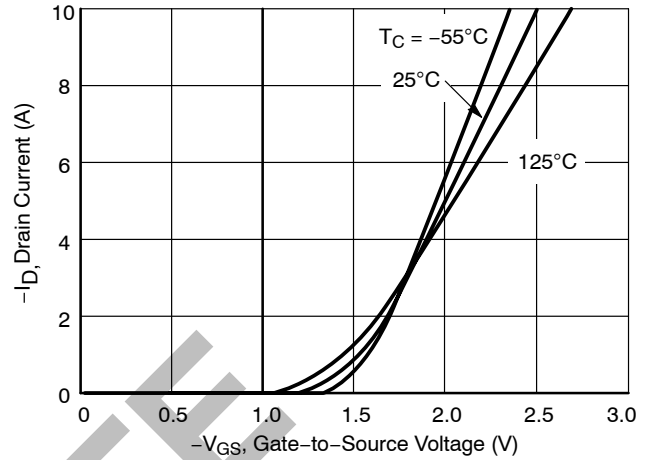


Figure 2. Transfer Characteristics

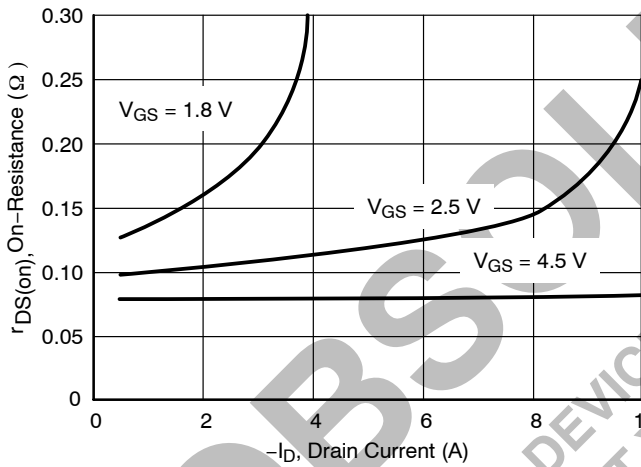


Figure 3. On-Resistance vs. Drain Current

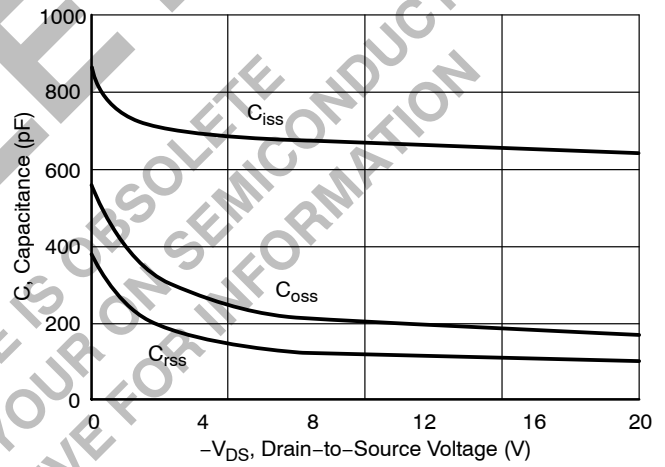


Figure 4. Capacitance

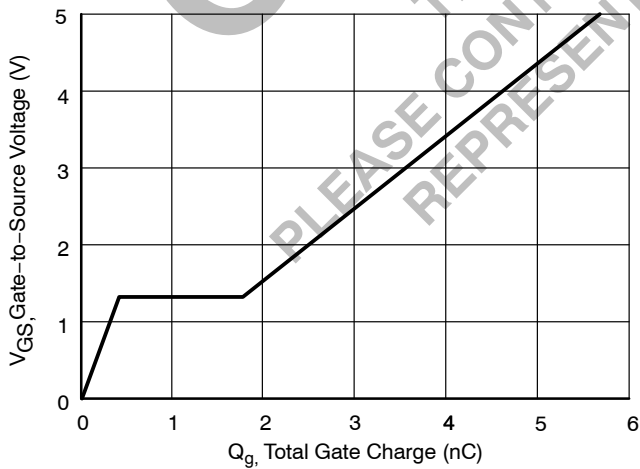


Figure 5. Gate Charge

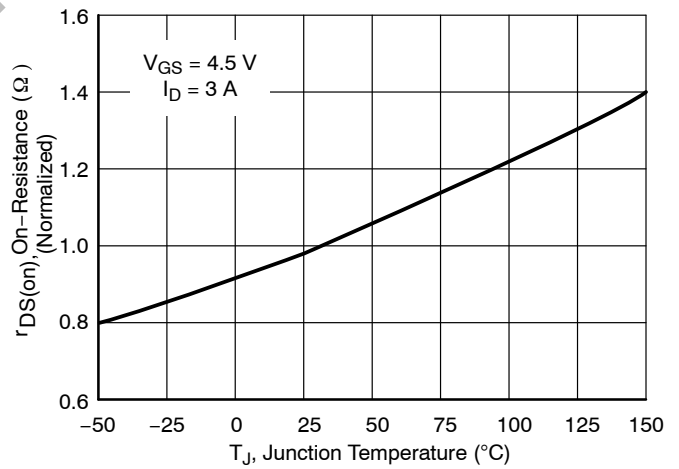


Figure 6. On-Resistance vs. Junction Temperature

TYPICAL ELECTRICAL CHARACTERISTICS

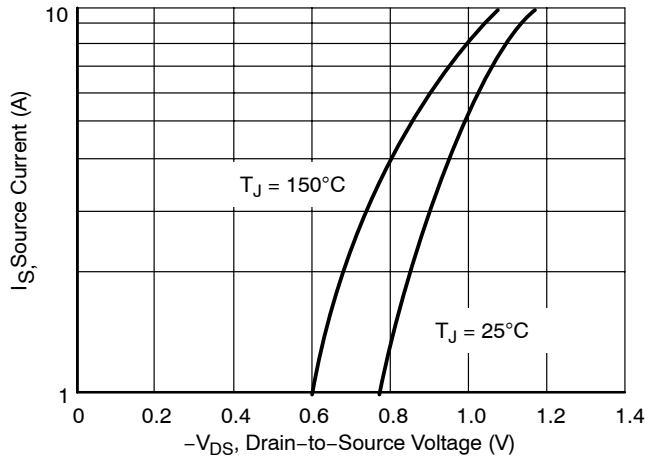


Figure 7. Source Diode Forward Voltage

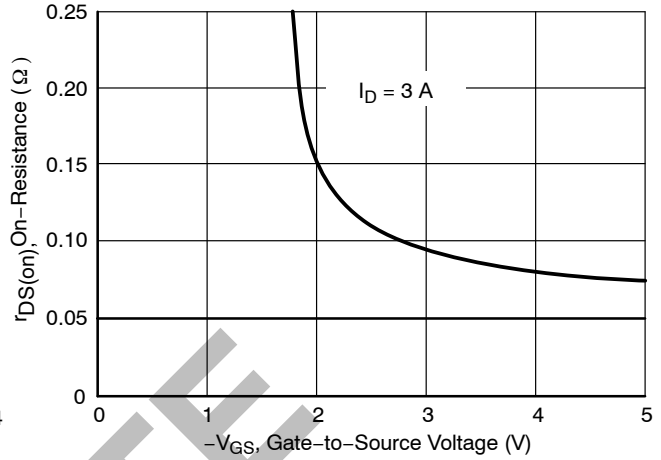


Figure 8. On-Resistance vs. Gate-to-Source Voltage

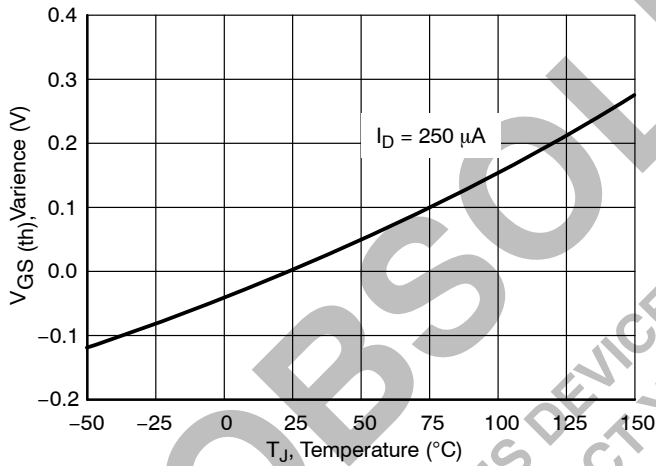


Figure 9. Threshold Voltage

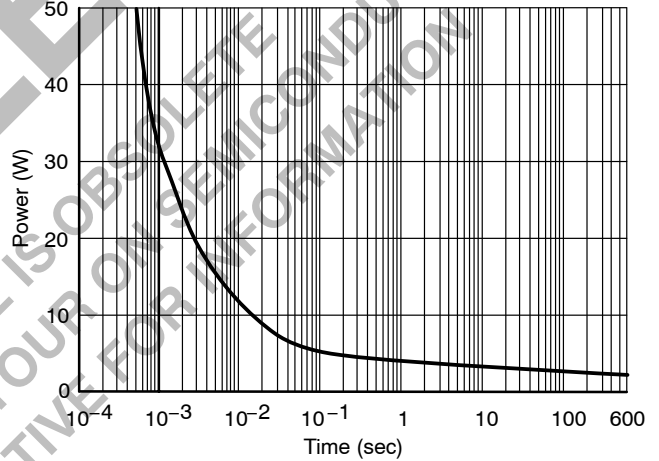


Figure 10. Single Pulse Power

TYPICAL ELECTRICAL CHARACTERISTICS

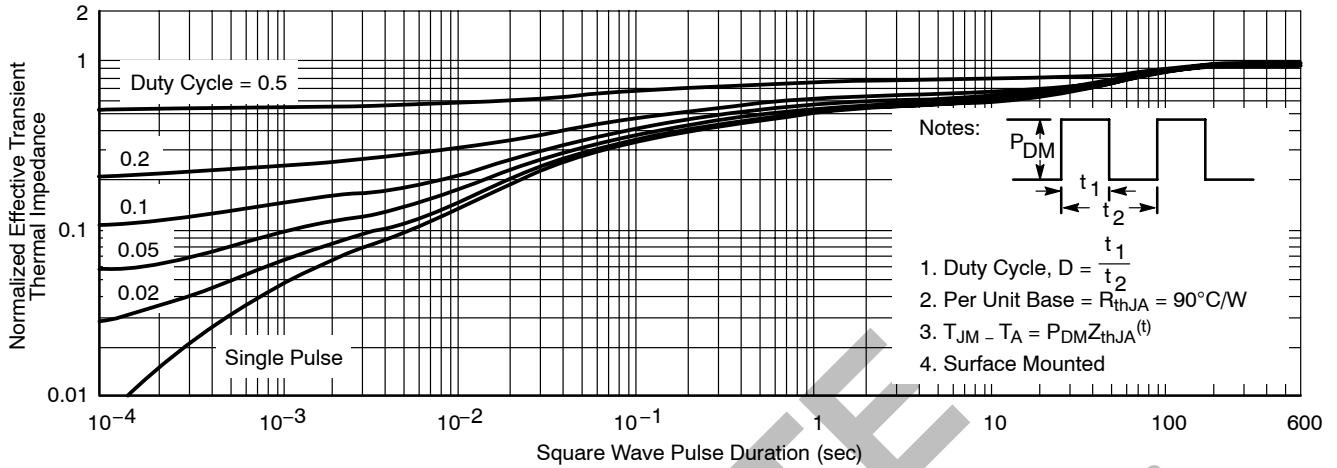


Figure 11. Normalized Thermal Transient Impedance, Junction-to-Ambient

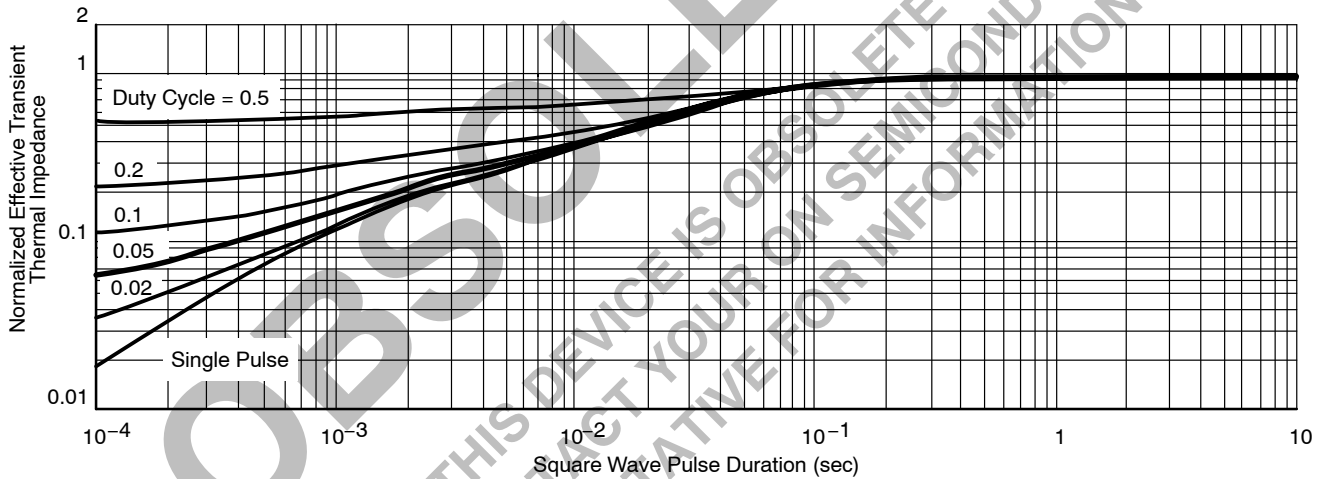


Figure 12. Normalized Thermal Transient Impedance, Junction-to-Foot

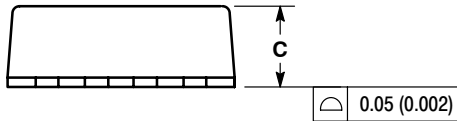
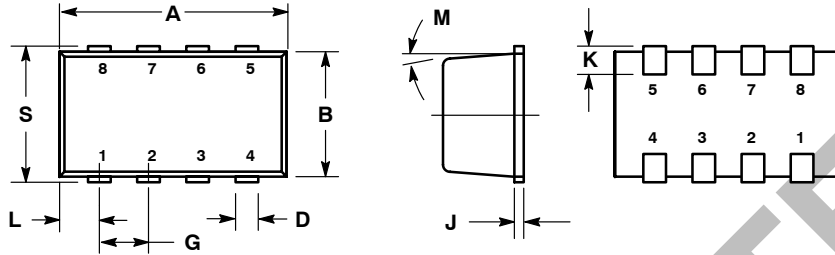
Notes

OBSOLETE
THIS DEVICE IS OBSOLETE
PLEASE CONTACT YOUR ON SEMICONDUCTOR
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NTHD5905T1

PACKAGE DIMENSIONS

ChipFET
CASE 1206A-03
ISSUE D



STYLE 2:
PIN 1. SOURCE 1
2. GATE 1
3. SOURCE 2
4. GATE 2
5. DRAIN 2
6. DRAIN 2
7. DRAIN 1
8. DRAIN 1

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. MOLD GATE BURRS SHALL NOT EXCEED 0.13 MM PER SIDE.
4. LEADFRAME TO MOLDED BODY OFFSET IN HORIZONTAL AND VERTICAL SHALL NOT EXCEED 0.08 MM.
5. DIMENSIONS A AND B EXCLUSIVE OF MOLD GATE BURRS.
6. NO MOLD FLASH ALLOWED ON THE TOP AND BOTTOM LEAD SURFACE.
7. 1206A-01 AND 1206A-02 OBSOLETE. NEW STANDARD IS 1206A-03.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.95	3.10	0.116	0.122
B	1.55	1.70	0.061	0.067
C	1.00	1.10	0.039	0.043
D	0.25	0.35	0.010	0.014
G	0.65 BSC		0.025 BSC	
J	0.10	0.20	0.004	0.008
K	0.28	0.42	0.011	0.017
L	0.55 BSC		0.022 BSC	
M	5° NOM		5° NOM	
S	1.80	2.00	0.072	0.080


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