SemTron Microtech Corporation

SMC9926

20V Dual N-Channel Enhancement Mode MOSFET

Dual N-Channel Enhancement Mode

DESCRIPTION

The SMC9926 is the Dual N-Channel logic enhancement mode power field effect transistor is produced using high cell density. advanced trench technology to provide excellent R_{DS}(ON).low gate charge and operation gate as 1.8V.
This device is suitable for use as a load switch or other general applications.

SMC9926M-TRG ROHS Compliant This is Halogen Free

FEATURE

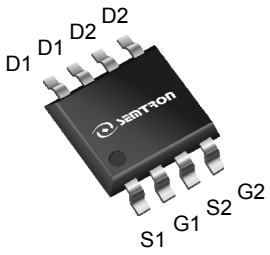
- ***20V/8.0A, $R_{DS(ON)}$ =17mΩ(typ.)@V_{GS} =10V***
- ***20V/7.0A, $R_{DS(ON)}$ =18mΩ(typ.)@V_{GS} =4.5V***
- ***20V/6.0A, $R_{DS(ON)}$ =23mΩ(typ.)@V_{GS} =2.5V***
- ***20V/2.8A, $R_{DS(ON)}$ =33mΩ(typ.)@V_{GS} =1.8V***
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability

APPLICATIONS

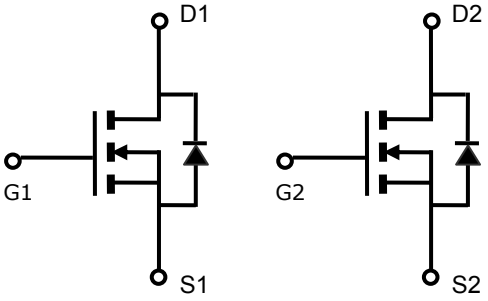
- Power Management
- Portable Equipment
- DSC
- LCD Display inverter
- Battery Powered System

Green Product

PIN CONFIGURATION



SOP-8
Top View



PART NUMBER INFORMATION

SMC 9926 M - TR G a b c d e	**a : Company name.** **b : Product Serial number.** **c : Package code** **d : Handling code** **e : Green produce code**

■ORDERING INFORMATION

Part Number	Package Code	Handling Code	Shipping
SMC9926M-TRG	M : SOP-8	TR : Tape&Reel	2.5K/Reel

※ Year Code : 0 ~ 9, 2010 : 0
※ Week Code : A(1~2) ~ Z(53~54)
※ SOP-8 : Only available in tape and reel packaging.

■ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current (T_C=25°C) [A]	V_{GS}=4.5V	8	A
	Continuous Drain Current (T_C=70°C) [A]		6.5	A
I_{DM}	Pulsed Drain Current [B]		30	A
P_D	Power Dissipation	T_A=25°C T_A=70°C	2 1.4	W
T_J	Operation Junction Temperature		-55 to150	°C
T_{STG}	Storage Temperature Range		-55 to150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■THERMAL DATA

Symbol	Parameter		Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient [A]	Steady-State	-	85	°C/W
$R_{\theta JL}$	Thermal Resistance Junction to Lead [A]	Steady-State	-	50	°C/W

■ELECTRICAL CHARACTERISTICS(T_J = 25℃ Unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Parameters						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250μA	20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	0.5	0.7	1.0	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V,V_{GS}=±12V			±100	nA
I_{DSS}	Zero Gate Voltage, Drain-Source Leakage Current	V_{DS}=20V,V_{GS}=0V T_J=25°C			1	μA
		V_{DS}=20V,V_{GS}=0V T_J=55°C			5	
$R_{DS(ON)}$	Drain-source On-Resistance[B]	V_{GS}=10V, I_D=8.0A V_{GS}=4.5V,I_D=7.0A V_{GS}=2.5V,I_D=6.0A V_{GS}=1.8V,I_D=2.8A		17 18 23 33	18 20 25 40	mΩ
Source-Drain Doide						
V_{SD}	Diode Forward Voltage	I_S=1.7A,V_{GS}=0V		0.75	1.0	V
I_S	Continuous Source Current[AD]				2.5	A
Dynamic Parameters						
Q_g (4.5V)	Total Gate Charge	V_{DS}=10V V_{GS}=4.5V I_D=8.0A		11.5		nC
Q_{gs}	Gate-Source Charge			3.2		
Q_{gd}	Gate-Drain Charge			3.2		
C_{iss}	Input Capacitance	V_{DS}=10V V_{GS}=0V f=1MHz		605		pF
C_{oss}	Output Capacitance			120		
C_{rss}	Reverse Transfer Capacitance			105		
$t_{d(on)}$	Turn-On Time	V_{DD}=10V I_D=1.0A V_{GEN}=4.5V R_G=6Ω		4.8		nS
t_r				12.2		
$t_{d(off)}$	Turn-Off Time			32		
t_f				13		

Note:

A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in 2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C.

B. The data tested by pulsed , pulse width ≦ 300uS , duty cycle ≦ 2%

C. The EAS data shows Max. rating . The test condition is V_{DD}=20V,V_{GS}=12V,L=0.1mH.

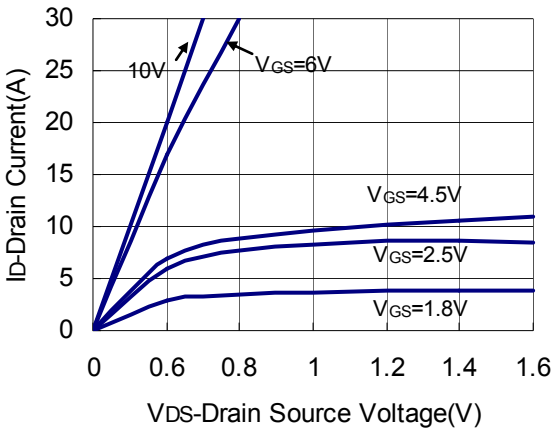
D. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

The products and product specifications contained herein are subject to change without notice to improve performance characteristics. Consult us, or our representatives before use, to confirm that the information in this datasheet is up to date

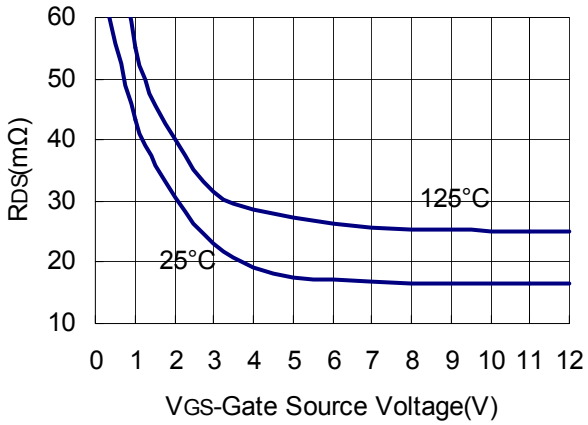
We assume no responsibility for any infringement of patents, patent rights, or other rights arising from the use of any information and circuitry in this datasheet.

TYPICAL CHARACTERISTICS (25℃ Unless Note)

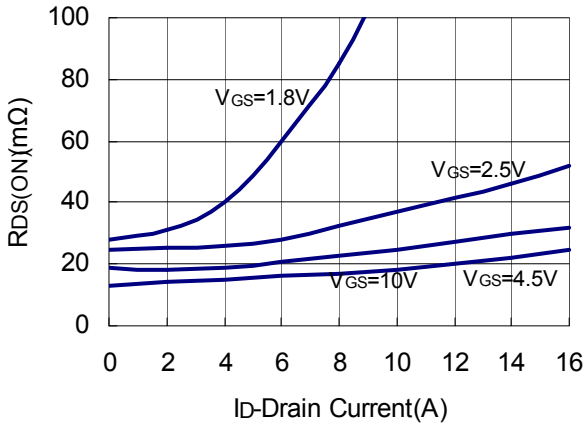
Output Characteristics



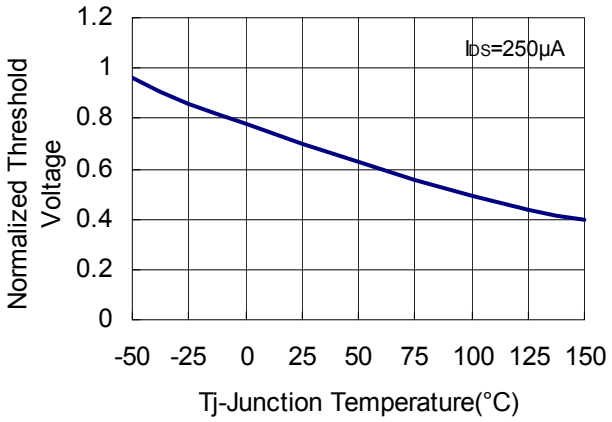
Drain-Source On Resistance



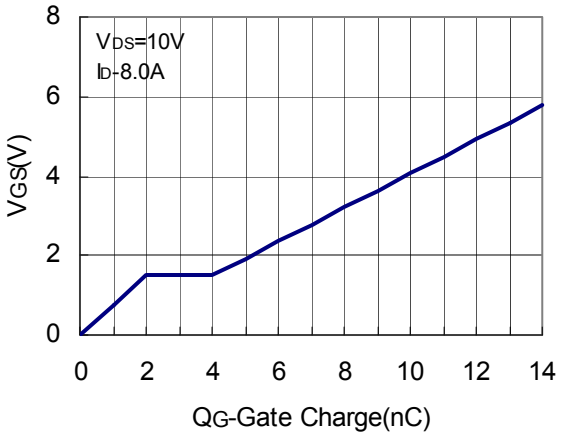
Drain Source On Resistance



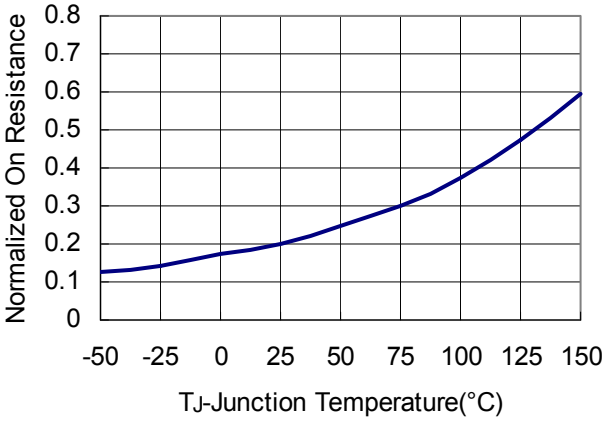
Gate Threshold Voltage



Gate Charge

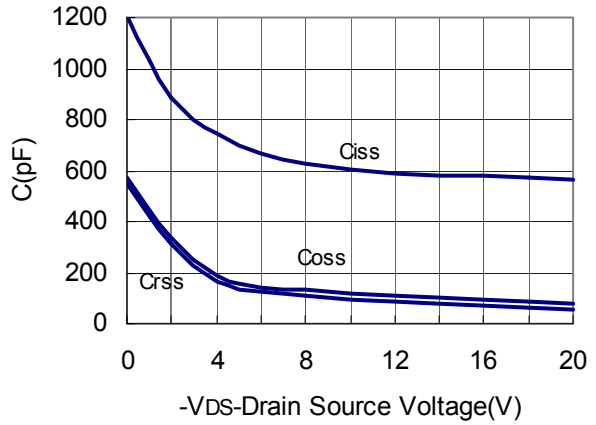


Drain Source On Resistance

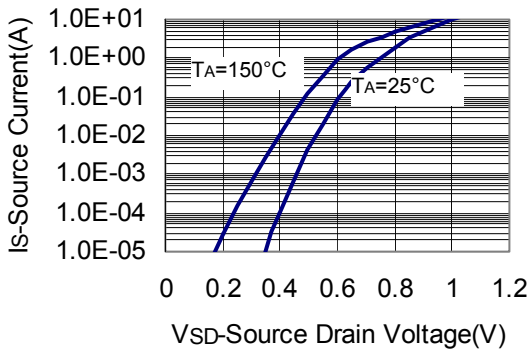


TYPICAL CHARACTERISTICS (25℃ Unless Note)

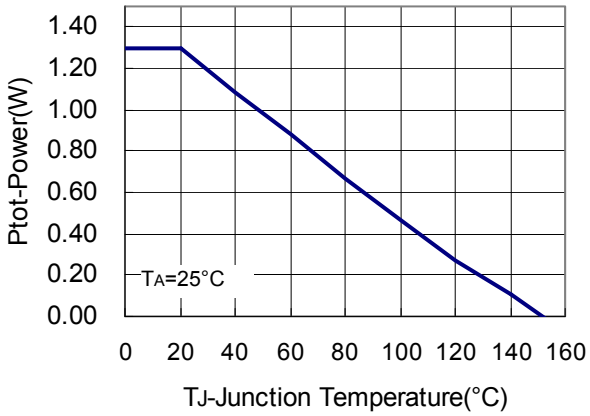
Capacitance



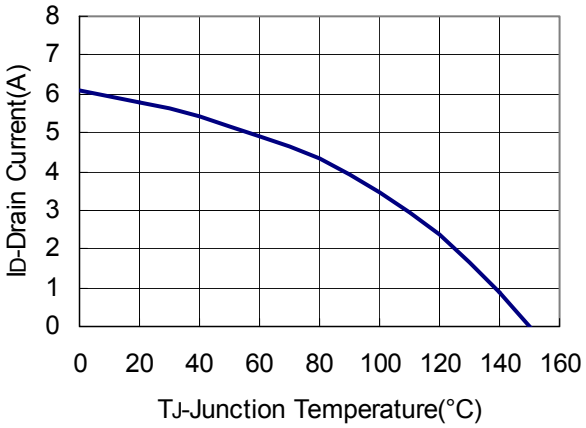
Source Drain Diode Forward



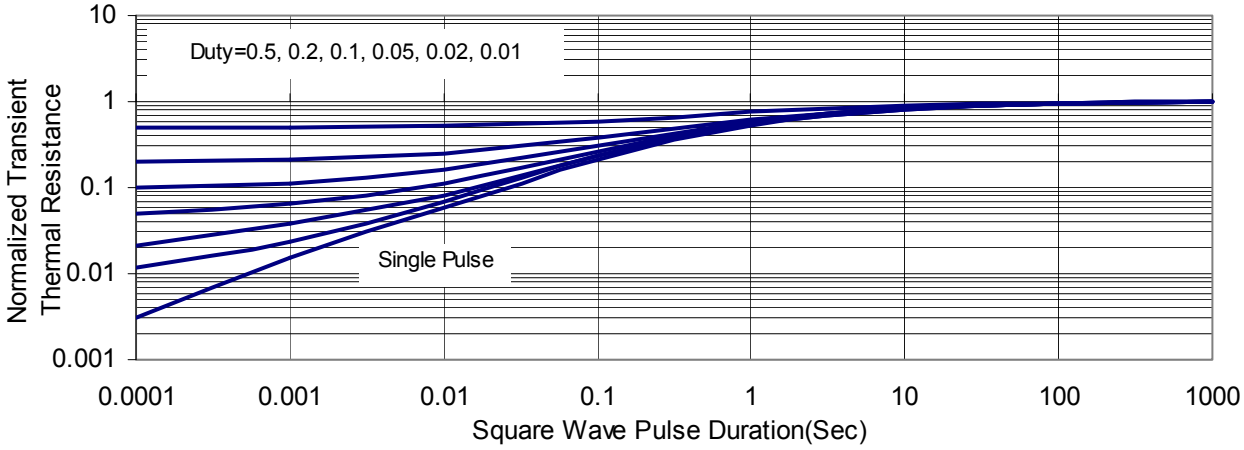
Power Dissipation



Drain Current



Thermal Transient Impedance



■SOP-8 PACKAGE DIMENSIONS

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.040	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 BSC		0.050 BSC	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°