DP9926

N-Channel Enhancement Mode Field Effect Transistor

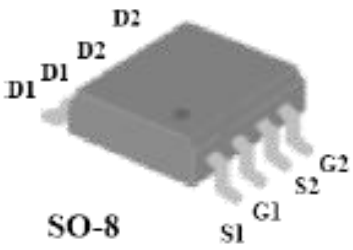
FEATURES

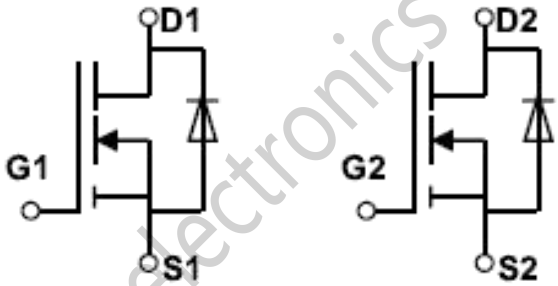
- Super high dense cell design for low RDS(ON)
- Rugged and reliable
- Simple drive requirement
- SOP-8 package

NOTE:The 9926 is available

In a lead-free package

PRODUCT SUMMARY		
VDSS	ID	RDS(ON)(mΩ)Typ
20V	6A	22@VGS=4.5V
		35@VGS=2.5V





FXXX The F represents fixed ,the first X represents the last year,2014 is 4;The second X represents the week,inA-G 7 letters; The last X represents the wafer batch code

ABSOLUTE MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous @ T_J=25℃	I_D	6	A
Pulsed[b]	I_{DM}	20	A
Drain-Sourse Diode Forward Current[a]	I_S	1.7	A
Maximum Power Dissipation[a]	P_D	2.5	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

THERMAL CHARACTERISTIC

Parameter	Symbol	Limit	Unit
Thermal rResistance,Junction-to-Ambient [a]	$R_{\theta JA}$	80	℃/W

ELECTRICAL CHARACTERISTICS (TA=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-16V V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±8V,V_{DS}=0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	0.5	0.8	1.5	V
Drain-Source On-State	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=6A	-	22	25	mΩ

Resistance		V_{GS}=2.5V, I_D=2.8A	-	35	38	
Forward Transconductance	g_{FS}	V_{GS} =5V,ID=5A	-	5	-	S
Dynamic Characteristics						
Input Capacitance	C_{lss}	V_{DS}=-10V, V_{GS}=0V, F=1.0MHz	-	608	-	pF
Output Capacitance	C_{oss}		-	115	-	
Reverse Transfer Capacitance	C_{rss}		-	86	-	
Switching Characteristics [b]						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V, I_D=6A V_{GS}=-4.5V, R_{GEN}=10Ω , R_L=10Ω	-	10	-	nS
Turn-on Rise Time	t_r		-	14	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	39	-	nS
Turn-Off Fall Time	t_f		-	26	-	nS
Total Gate Charge	Q_g	V_{DD}=10V, I_D=-1A, V_{GS}=4.5V	-	9.2	-	nC
Gate-Source Charge	Q_{gs}		-	1.6	-	nC
Gate-Drain Charge	Q_{gd}		-	2.6	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=-1.7A	-	0.848	-1.3	V

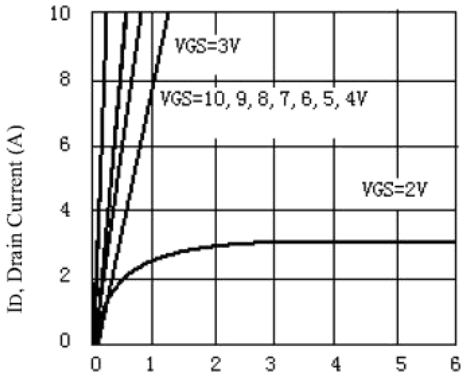
Note:

a. Surface mounted on FR4 Board,t≤10sec

b. Pulse Test:Pulse Width≤300Us,Duty Cycle≤2%

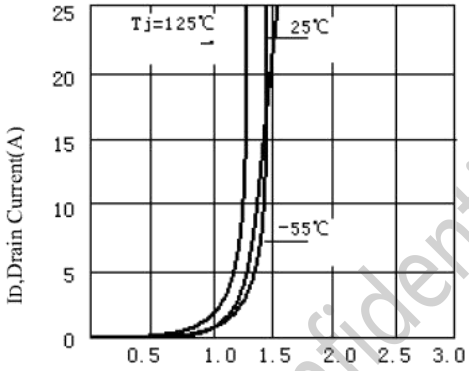
c. Guaranteed by design,not subject to production testing.

CHARACTERIZATION PLOTS



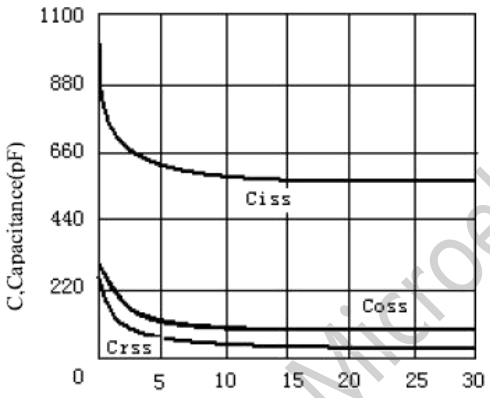
VDS, Drain-to-Source Voltage (V)

Figure 1. Output Characteristics



VGS, Gate-to-source Voltage (V)

Figure 2. Transfer Characteristics



VGS, Drain-to Source Voltage

Figure3, Capacitance

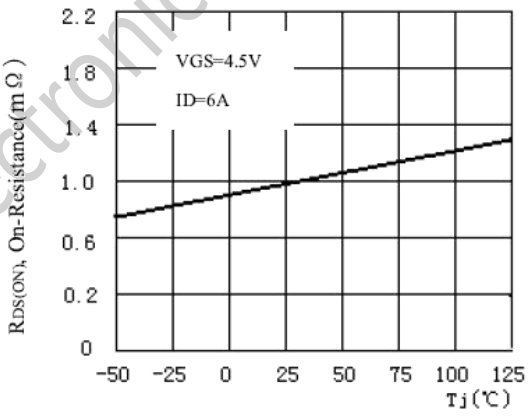


Figure4. On-Resistance Variation with Temperature

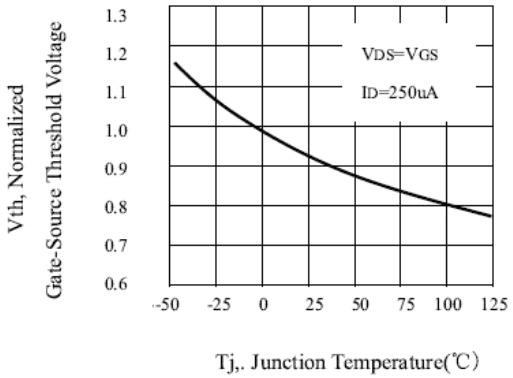


Figure5.Gate Threshold Variation With Temperature

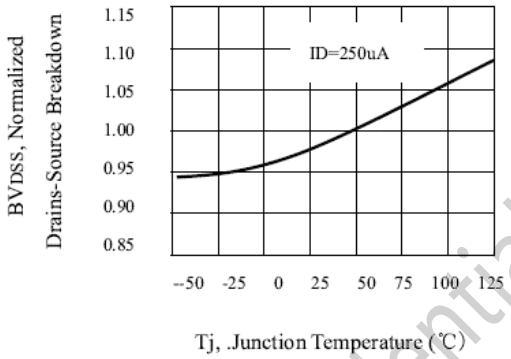


Figure6.Breakdown Voltage Variation With Temperature

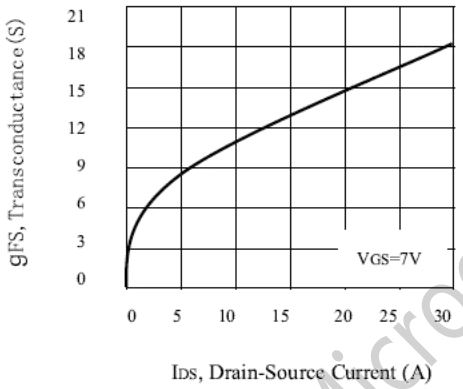


Figure7.Transconductance Variation With Drain Current

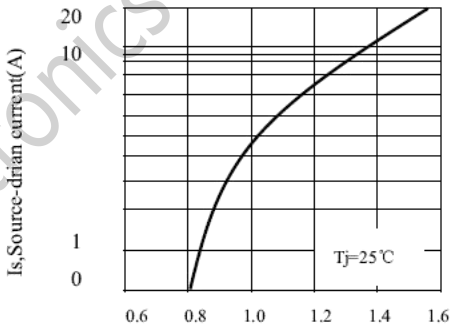


Figure8.Body Diode Forward Voltage Variation with Source Current

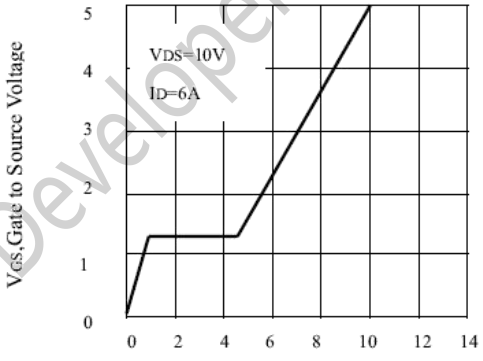


Figure9. Gate Charge

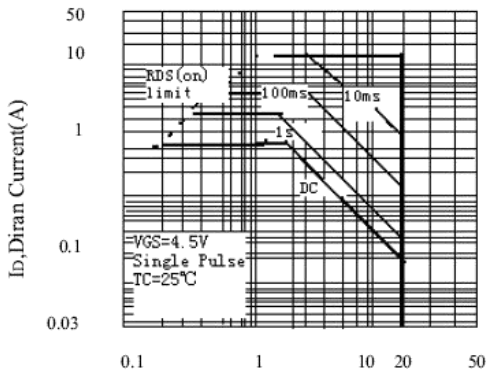
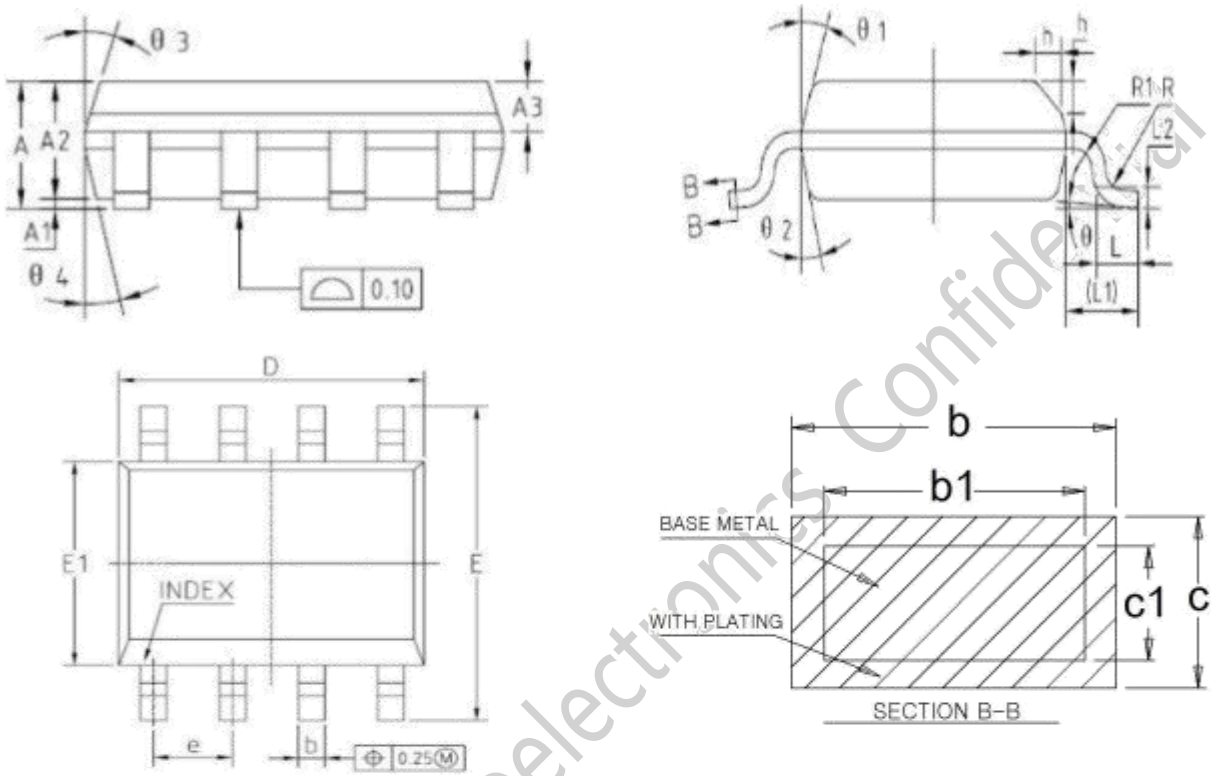


Figure10.Maximum Safe Operating Area

PACKAGE OUTLINE

SOP8



Symbol	Dimensions in Millimeters		
	Min	Nom	Max
A	1.45	1.55	1.65
A1	0.10	0.15	0.20
A2	1.353	1.40	1.453
A3	0.55	0.60	0.65
b	0.38	-	0.51
b1	0.37	0.42	0.47
c	0.17	-	0.25
c1	0.17	0.20	0.23
D	4.85	4.90	4.95
E	5.85	600	6.15
E1	3.85	3.90	3.95
e	1.245	1.27	1.295
L	0.45	0.60	0.75
L1	-	1.050REF	-
L2	-	0.250BSC	-
Θ1-Θ4	12° REF		
h	0.40REF		
R	0.15° REF		
R1	0.15° REF		

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