Elektronische Bauelemente

SSG4920N

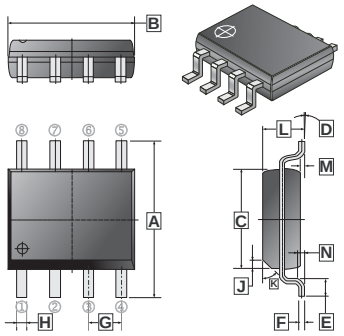
6.9 A, 30 V, $R_{DS(ON)}$ 34 mΩ
Dual N-Channel Mode Power MOSFET

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

These miniature surface mount MOSFETs utilize high cell density process Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are PWMDC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

SOP-8



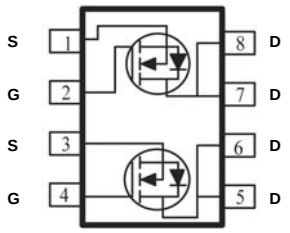
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375 REF.	
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25 REF.	
G	1.27 TYP.				

FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Miniature SOP-8 surface mount package saves board space.
- High power and current handling capability.
- Low side high current DC-DC Converter applications.

PRODUCT SUMMARY

SSG4920N		
V_{DS}(V)	R_{DS}(on) m(Ω)	I_D(A)
30	34@V_{GS}=10V	6.9
	41@V_{GS}=4.5V	6.0



PACKAGE INFORMATION

Package	MPQ	LeaderSize
SOP-8	2.5K	13' inch

MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]		I_D @ T_A = 25°C	±6.9	A
		I_D @ T_A = 70°C	±5.6	A
Pulsed Drain Current [2]		I_{DM}	±40	A
Continuous Source Current (Diode Conduction) [1]		I_S	1.7	A
Total Power Dissipation [1]		P_D @ T_A = 25°C	2.1	W
		P_D @ T_A = 70°C	1.3	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	°C
THERMAL RESISTANCE RATINGS				
Thermal Resistance Junction-Ambient (Max.) [1]	t ≦ 10 sec	$R_{\theta JA}$	62.5	°C / W
	Steady State		110	°C / W

Notes

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

2 Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
STATIC						
Gate Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}= V_{GS}, I_D= 250μA
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}= 0V, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}= 24V, V_{GS}= 0V
		-	-	10	μA	V_{DS}= 24V, V_{GS}= 0V, T_J= 55°C
On-State Drain Current [1]	$I_{D(on)}$	20	-	-	A	V_{DS}= 5V, V_{GS}= 10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	34	mΩ	V_{GS}= 10V, I_D= 6.9A
		-	-	41		V_{GS}= 4.5V, I_D= 6.0A
Forward Transconductance [1]	g_{fs}	-	25	-	S	V_{DS}= 15V, I_D= 6.9A
Diode Forward Voltage	V_{SD}	-	0.77	-	V	I_S= 1.7A, V_{GS}= 0V
DYNAMIC [2]						
Total Gate Charge	Q_g	-	4.0	-	nC	I_D= 6.9A V_{DS}= 15V V_{GS}= 4.5V
Gate-Source Charge	Q_{gs}	-	1.1	-		
Gate-Drain Charge	Q_{gd}	-	1.4	-		
Turn-On Delay Time	$T_{d(on)}$	-	12	-	nS	V_{DD}= 15V I_D= 1A V_{GEN}= 10V R_L= 15Ω
Rise Time	T_r	-	10	-		
Turn-Off Delay Time	$T_{d(off)}$	-	60	-		
Fall Time	T_f	-	15	-		
Source-Ddrain Reverse Recovery Time	T_{rr}	-	50	-		I_F=1.7A, Di / Dt = 100A/μs

Notes

1 Pulse test : PW ≦ 300μs duty cycle ≦ 2%.

2 Guaranteed by design, not subject to production testing.

TYPICAL ELECTRICAL CHARACTERISTICS

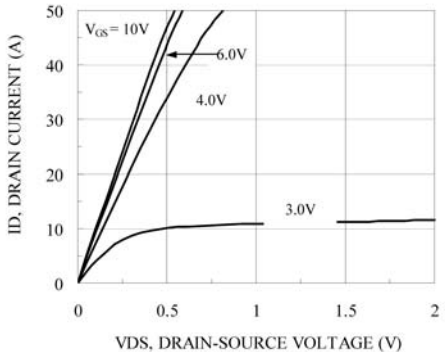


Figure 1. On-Region Characteristics

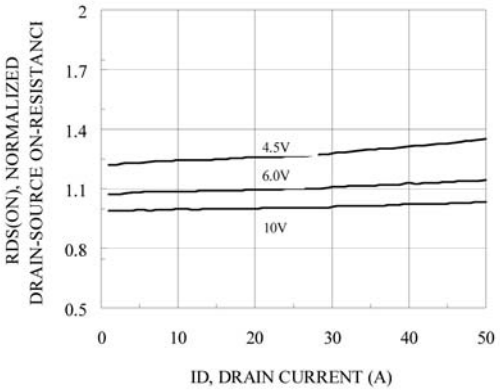


Figure 2. On-Resistance with Drain Current

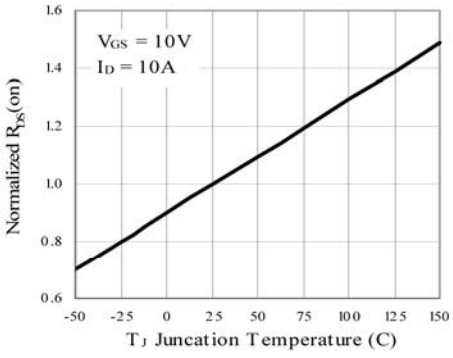


Figure 3. On-Resistance Variation with Temperature

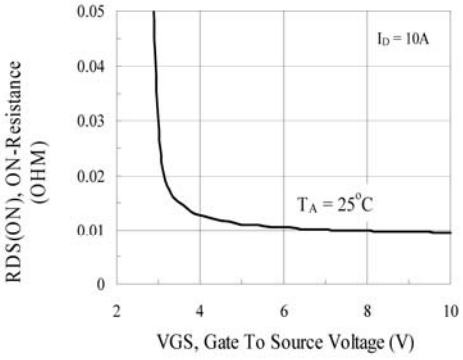


Figure 4. On-Resistance Variation with Gate to Source Voltage

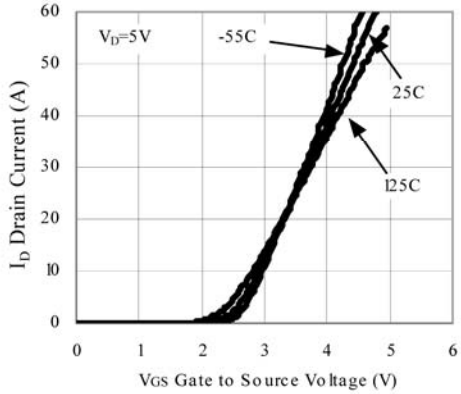


Figure 5. Transfer Characteristics

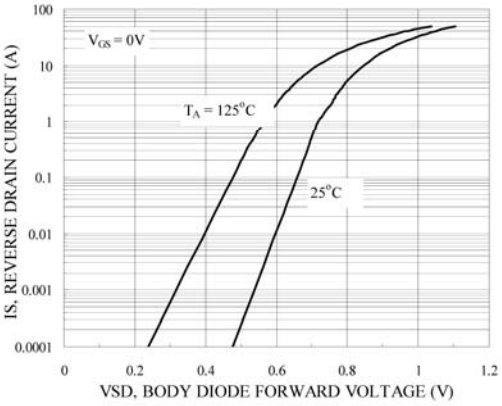


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature

TYPICAL ELECTRICAL CHARACTERISTICS

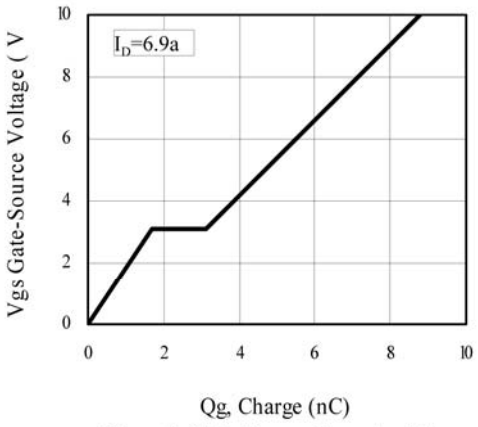


Figure 7. Gate Charge Characteristics

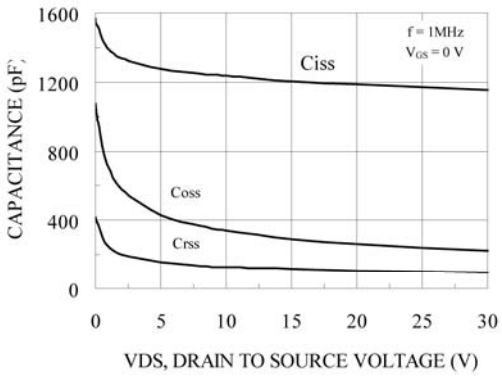


Figure 8. Capacitance Characteristics

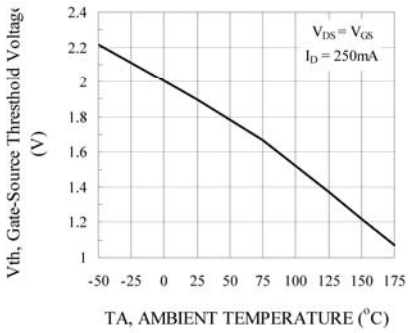


Figure 9. Threshold Vs Ambient Temperature

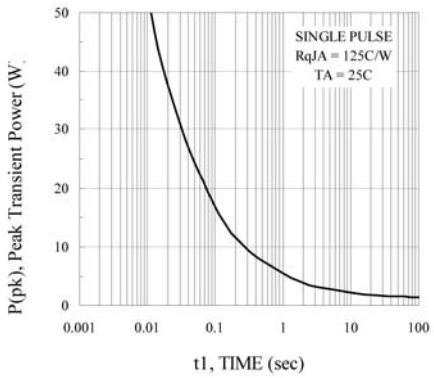


Figure 10. Single Pulse Maximum Power Dissipation

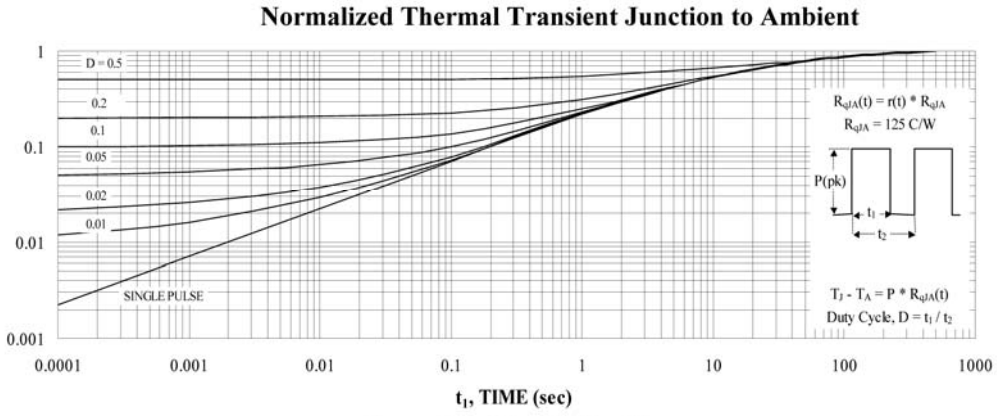


Figure 11. Transient Thermal Response Curve