Elektronische Bauelemente

SSG4935P

P-Ch Enhancement Mode Power MOSFET

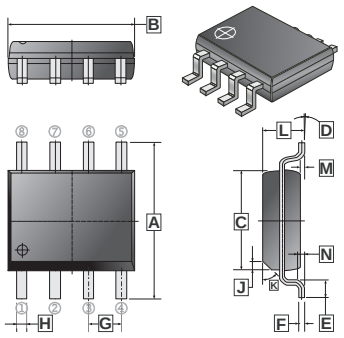
-7.8 A, -30 V, $R_{DS(ON)}$ 21 mΩ

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..
- Extended V_{GS} range (±25) for battery pack applications.

PRODUCT SUMMARY

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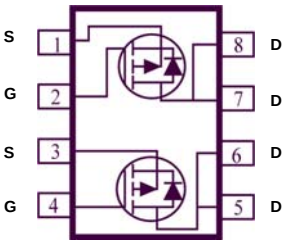
V_{DS}(V)	R_{DS}(on) (mΩ)	I_D(A)
-30	21@V_{GS}= -10V	-7.8
	35@V_{GS}= -4.5V	-6.0



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}	±25	V
Continuous Drain Current [a]		I_D @ T_A = 25°C	-7.8	A
		I_D @ T_A = 70°C	-6.2	A
Pulsed Drain Current [b]		I_{DM}	±30	A
Continuous Source Current (Diode Conduction) [a]		I_S	-1.7	A
Total Power Dissipation [a]		P_D @ T_A = 25°C	2.0	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.) [a]	t≦10 sec	$R_{\theta JA}$	62.5	°C / W
	Steady State		110	°C / W

Notes

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

b. Pulse width limited by maximum junction temperature.

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

PARAMETER	SYMBO	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
STATIC						
Gate Threshold Voltage	$V_{GS(th)}$	-1	-	-3	V	V_{DS}= V_{GS}, I_D= -250μA
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}= 0V, V_{GS}= ±25V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}= 0V
		-	-	-5	μA	V_{DS}= -24V, V_{GS}= 0V, T_J=55°C
On-State Drain Current [a]	$I_{D(on)}$	-40	-	-	A	V_{DS}= -5V, V_{GS}= -10V
Drain-Source On-Resistance [a]	$R_{DS(ON)}$	-	19	21	mΩ	V_{GS}= -10V, I_D= -7.8A
		-	28	35		V_{GS}= -4.5V, I_D= -6.0A
Forward Transconductance [a]	g_{fs}	-	22	-	S	V_{DS}= -10V, I_D= -7.8A
Diode Forward Voltage	V_{SD}	-	-0.7	-1.2	V	I_S= -1.7A, V_{GS}= 0V
DYNAMIC [b]						
Total Gate Charge	Q_g	-	15	-	nC	I_D= -7.8A
Gate-Source Charge	Q_{gs}	-	5.2	-		V_{DS}= -15V
Gate-Drain Charge	Q_{gd}	-	5.8	-		V_{GS}= -5V
Turn-On Delay Time	$T_{d(on)}$	-	15	-	nS	V_{DD}= -15V
Rise Time	T_r	-	12	-		I_D= -1A
Turn-Off Delay Time	$T_{d(off)}$	-	62	-		V_{GEN}= -10V
Fall Time	T_f	-	46	-		R_L= 6Ω

Notes

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

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

CHARACTERISTIC CURVES

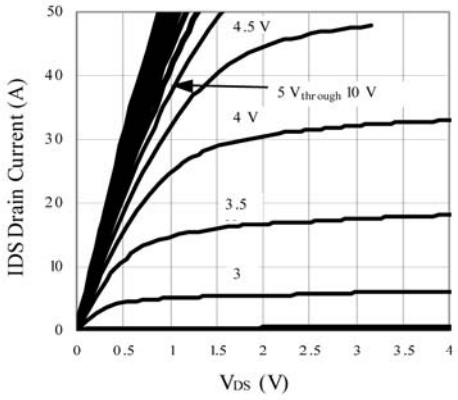


Figure 1. Output Characteristics

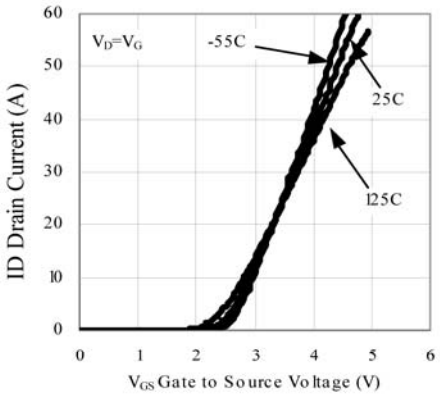


Figure 2. Transfer Characteristics

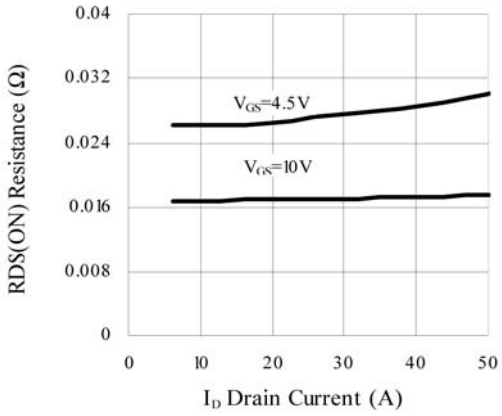


Figure 3. On-Resistance vs. Drain Current

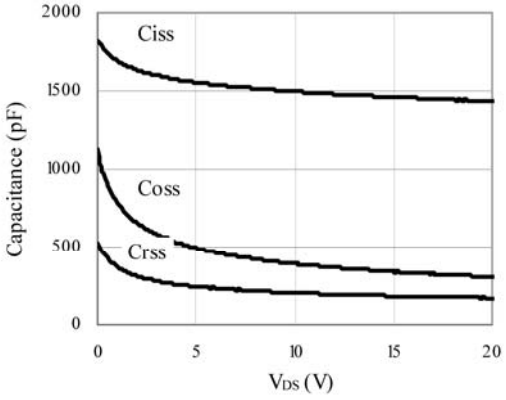


Figure 4. Capacitance

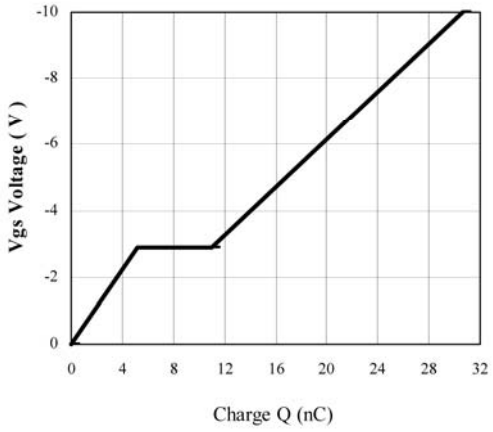


Figure 5. Gate Charge

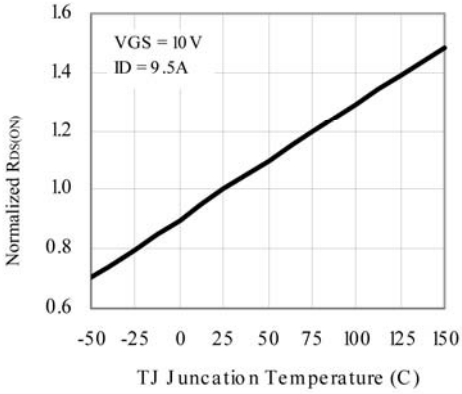


Figure 6. On-Resistance vs. Junction Temperature

CHARACTERISTIC CURVES

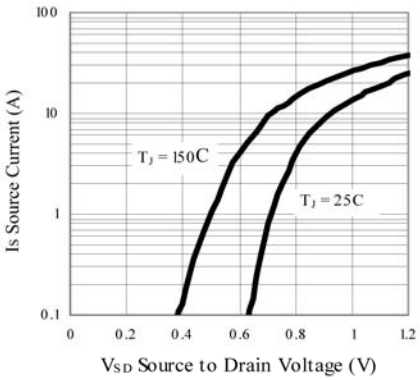


Figure 7. Source-Drain Diode Forward Voltage

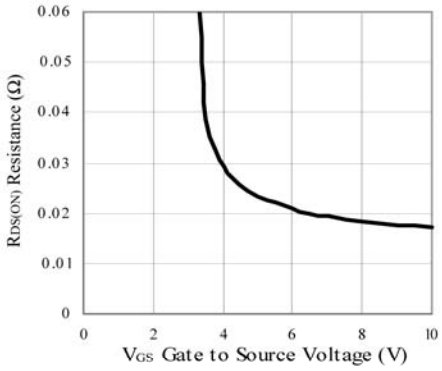


Figure 8. On-Resistance vs. Gate-to-Source Voltage

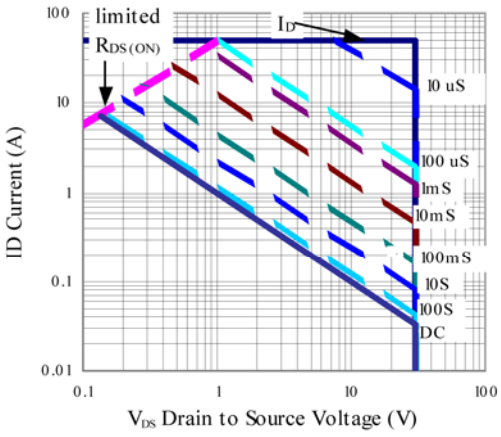


Figure 9. Maximum Safe Operating Area

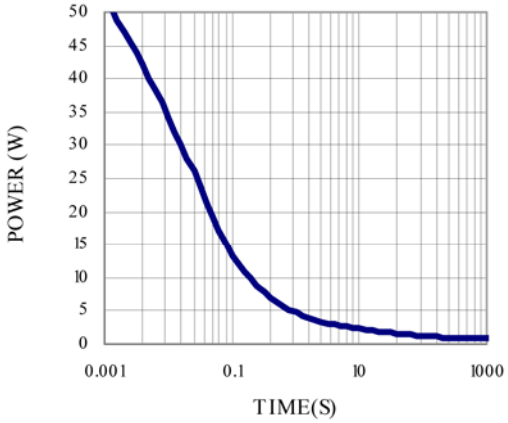


Figure 10. Single Pulse Maximum Power Dissipation

Normalized Thermal Transient Junction to Ambient

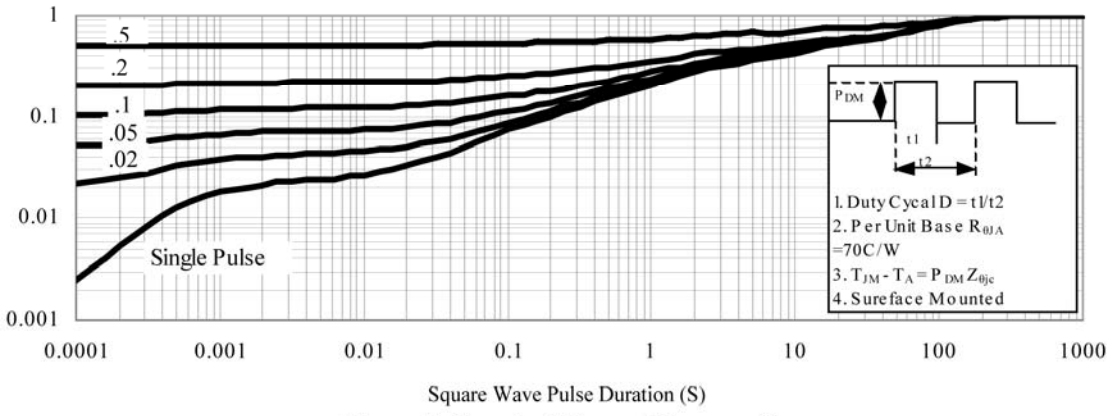


Figure 11. Transient Thermal Response Curve