

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

DESCRIPTION

SSG4410J uses advanced trench technology to provide excellent $R_{DS(ON)}$, shoot-through immunity, body diode characteristics and ultra-low gate resistance. This device is ideally suited for the use as a low side switch in Notebook CPU core power conversion.

FEATURES

- Battery switch
- Load switch

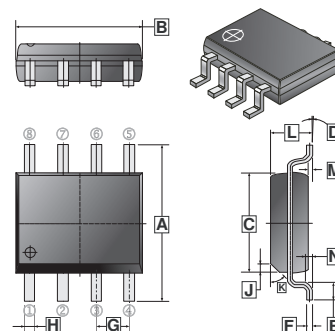
MARKING



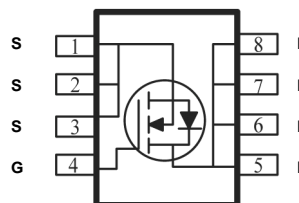
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	4K	13 inch

SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.33	0.51
B	4.700	5.10	J	0.375 REF.	
C	3.80	4.00	K	45° REF.	
D	0°	8°	L	1.35	1.75
E	0.40	1.27	M	0.10	0.25
F	0.17	0.25	N	0.25 REF.	
G	1.27 TYP.				



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	7.5	A
Pulsed Drain Current	I _{DM}	50	A
Single Pulse Avalanche Energy ¹	E _{AS}	72	mJ
Power Dissipation	P _D	1.4	W
Thermal Resistance from Junction to Ambient	R _{θJA}	89	°C / W
Lead Temperature for Soldering Purposes @ 1/8" from case for 10s	T _L	260	°C
Junction and Storage Temperature Range	T _J , T _{STG}	150, -55~150	°C

Notes:

1. E_{AS} condition: V_{DD}=50V, L=0.5mH, R_G=25Ω, Starting T_J=25°C.

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

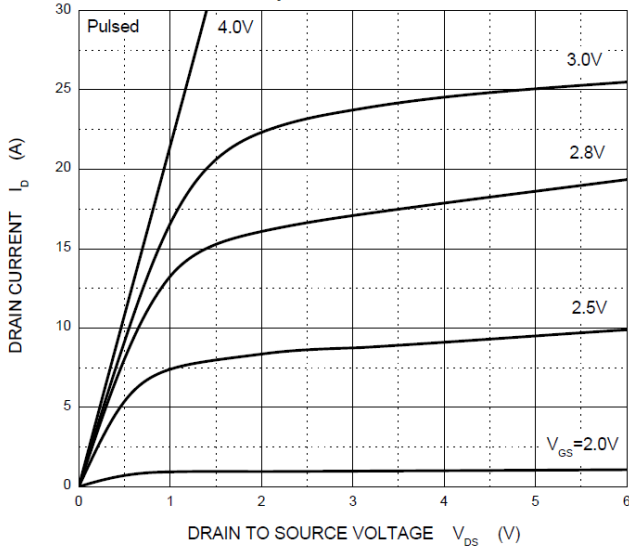
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=30\text{V}, V_{GS}=0$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
On Characteristics ¹						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	3	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	13.5	m Ω	$V_{GS}=10\text{V}, I_D=10\text{A}$
		-	-	20		$V_{GS}=4.5\text{V}, I_D=5\text{A}$
Forward Transfer Conductance	G_{fs}	-	8	-	S	$V_{DS}=15\text{V}, I_D=5\text{A}$
Dynamic Characteristics						
Input Capacitance	C_{iss}	-	9130	-	pF	$V_{DS}=15\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	625	-		
Reverse Transfer Capacitance	C_{rss}	-	387	-		
Switching Characteristics						
Total Gate Charge	Q_g	-	40	-	nC	$V_{DS}=15\text{V}$ $V_{GS}=10\text{V}$ $I_D=10\text{A}$
Gate-Source Charge	Q_{gs}	-	5.5	-		
Gate-Drain ("Miller") Charge	Q_{gd}	-	3.7	-		
Turn-On Delay Time	$T_{d(on)}$	-	15	-	nS	$V_{DD}=25\text{V}$ $V_{GS}=10\text{V}$ $R_G=6\Omega$ $R_L=25\Omega$ $I_D=1\text{A}$
Rise Time	T_r	-	15	-		
Turn-Off Delay Time	$T_{d(off)}$	-	60	-		
Fall Time	T_f	-	25	-		
Gate Resistance	R_g	0.2	-	0.8	Ω	$V_{DS}=0\text{V}, V_{GS}=0, f=1\text{MHz}$
Source-Drain Diode						
Forward On Voltage ¹	V_{DS}	-	-	1.1	V	$I_S=2.3\text{A}, V_{GS}=0$
Continuous Diode Forward Current	I_S	-	-	7.5	A	
Pulsed Diode Forward Current	I_{SM}	-	-	50	A	

Notes:

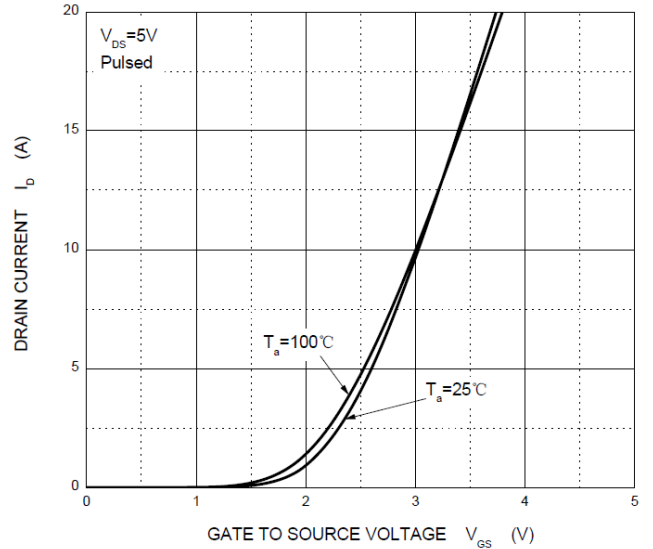
1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

CHARACTERISTICS CURVE

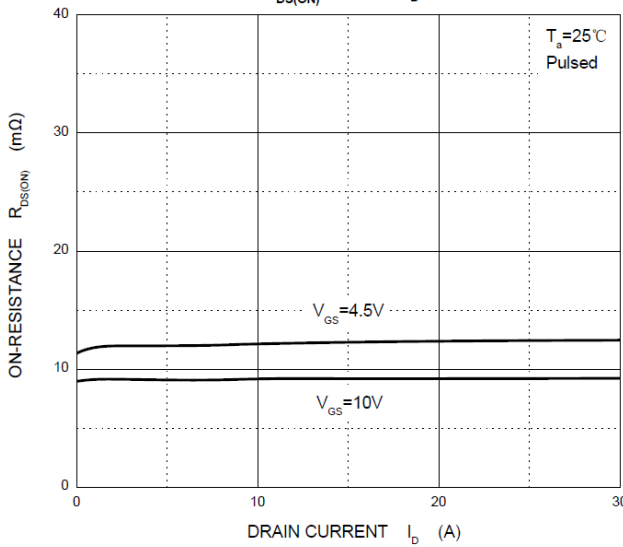
Output Characteristics



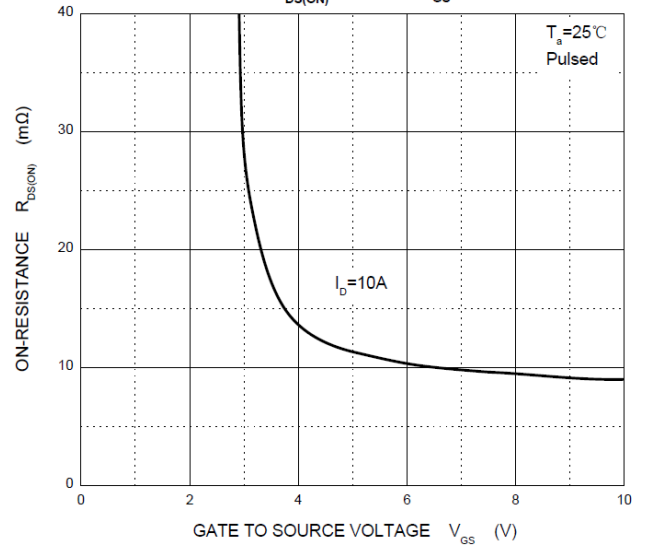
Transfer Characteristics



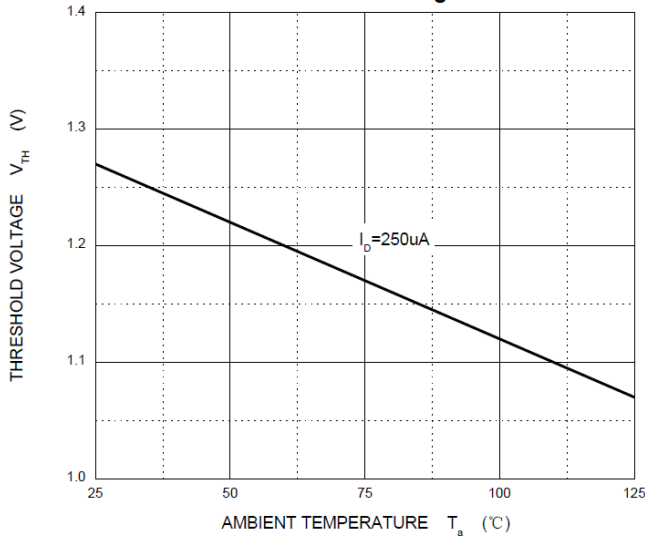
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



Threshold Voltage



I_S — V_{SD}

