Elektronische Bauelemente

SSG4406J-C

10A, 30V, $R_{DS(ON)}$ 12mΩ
N-Ch Enhancement Mode Power MOSFET

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

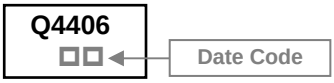
DESCRIPTION

SSG4406J-C uses advanced trench technology to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for high side switch in SMPS and general purpose applications.

FEATURES

- High Side Switch in SMPS
- Load Switch

MARKING



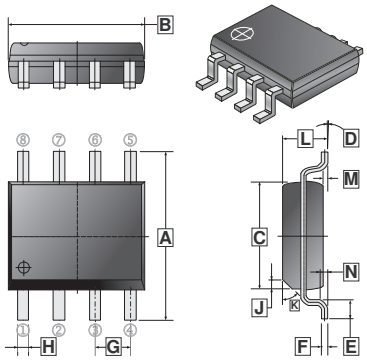
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	4K	13 inch

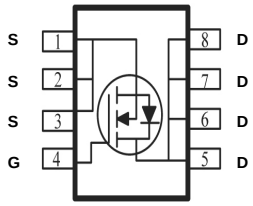
ORDER INFORMATION

Part Number	Type
SSG4406J-C	Lead (Pb)-free and Halogen-free

SOP-8



REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	5.79	6.20	H	0.33	0.51
B	4.70	5.11	J	0.375 REF.	
C	3.80	4.00	K	45°REF.	
D	0°	8°	L	1.3	1.752
E	0.40	1.27	M	0	0.25
F	0.10	0.25	N	0.25 REF.	
G	1.27 TYP.				



ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	10	A
Pulsed Drain Current [1]	I_{DM}	40	A
Single Pulse Avalanche Energy [2]	E_{AS}	60	mJ
Power Dissipation	P_D	2.5	W
Thermal Resistance from Junction-Ambient [3]	$R_{\theta JA}$	50	℃/W
Junction & Storage Temperature Range	T_J,T_{STG}	-55~150	℃

Notes:
1. Pulse Test: Pulse width≦10μs, duty cycle≦1%
2. E_{AS} condition: V_{DD}=15V, V_{GS}=10V, L=0.5mH, R_G=25Ω, starting T_J=25℃.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25℃,t ≤10sec.

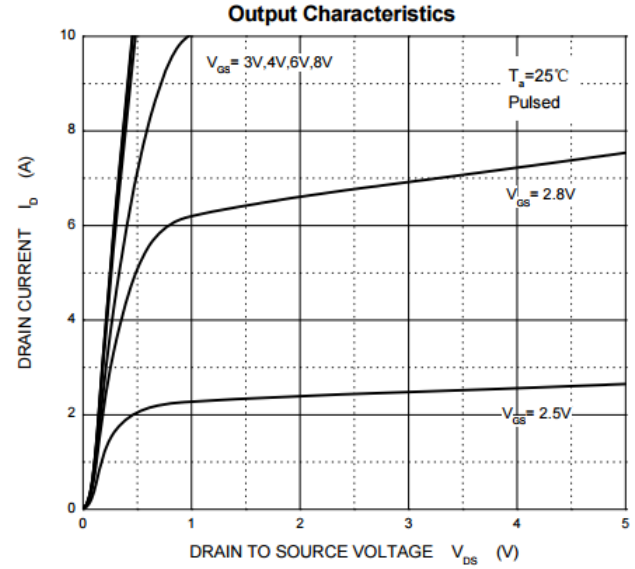
ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=30V, V_{GS}=0
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0, V_{GS}= ±20V
Gate-Threshold Voltage [1]	$V_{GS(th)}$	1	1.5	3	V	V_{DS}=V_{GS}, I_D=250μA
Static Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	7.6	12	mΩ	V_{GS}=10V, I_D=12A
		-	11	16		V_{GS}=4.5V, I_D=10A
Forward Transconductance [1]	g_{fs}	-	15	-	S	V_{DS}=5V, I_D=10A
Total Gate Charge	Q_g	-	9.1	-	nC	V_{DS}=15V V_{GS}=5V I_D=10A
Gate-Source Charge	Q_{gs}	-	1.7	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	3.9	-		
Turn-on Delay Time	$T_{d(on)}$	-	30	-	nS	V_{DD}=25V V_{GS}=10V R_G=6Ω R_L=6.7Ω I_D=1A
Rise Time	T_r	-	20	-		
Turn-off Delay Time	$T_{d(off)}$	-	100	-		
Fall Time	T_f	-	80	-		
Input Capacitance	C_{iss}	-	843	-	pF	V_{DS}=15V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	128	-		
Reverse Transfer Capacitance	C_{rss}	-	97	-		
Gate Resistance	R_g	-	5	-	Ω	V_{DS}=0, V_{GS}=0, f=1MHz
Source-Drain Diode Characteristics						
Diode Forward Voltage [1]	V_{SD}	-	-	1.2	V	V_{GS}=0, I_S=10A
Continuous Source Current	I_S	-	-	10	A	
Pulsed Source Current [2]	I_{SM}	-	-	40		

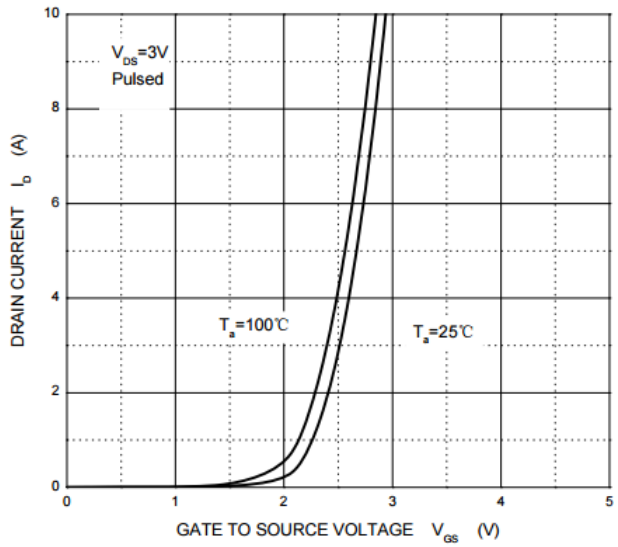
Note:
1. Pulse Test: Pulse width≦300μs, duty cycle≦2%.
2. Pulse Test: Pulse width≦10μs, duty cycle≦1%

CHARACTERISTICS CURVE

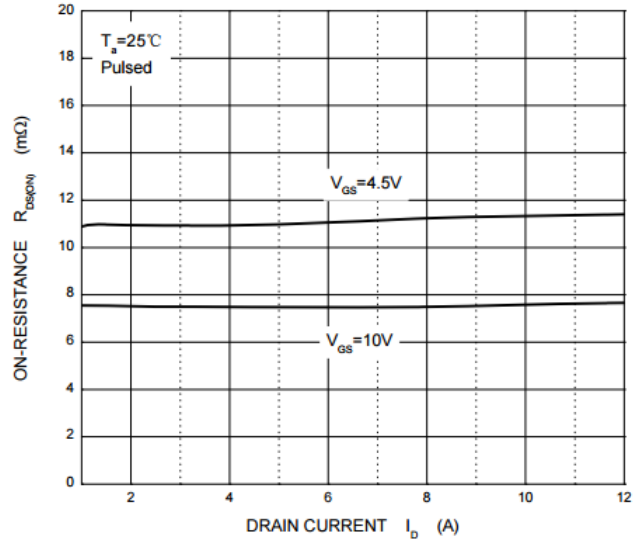
Output Characteristics



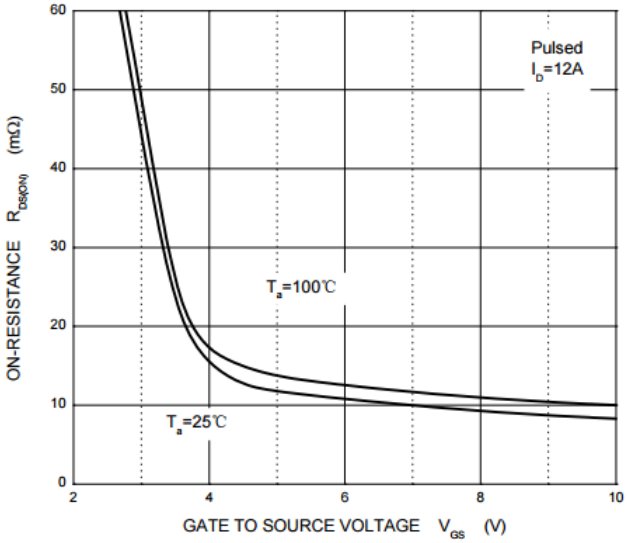
Transfer Characteristics



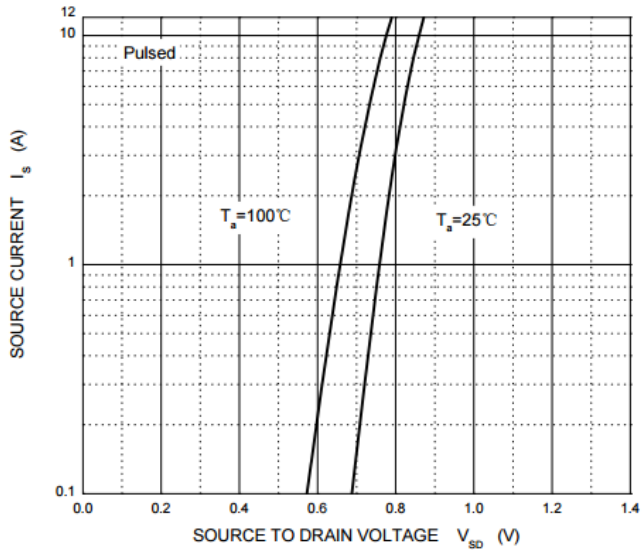
$R_{DS(ON)}$ — I_D



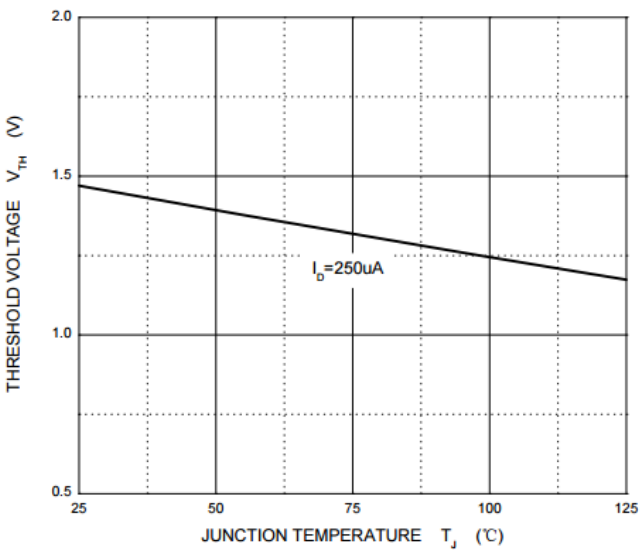
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

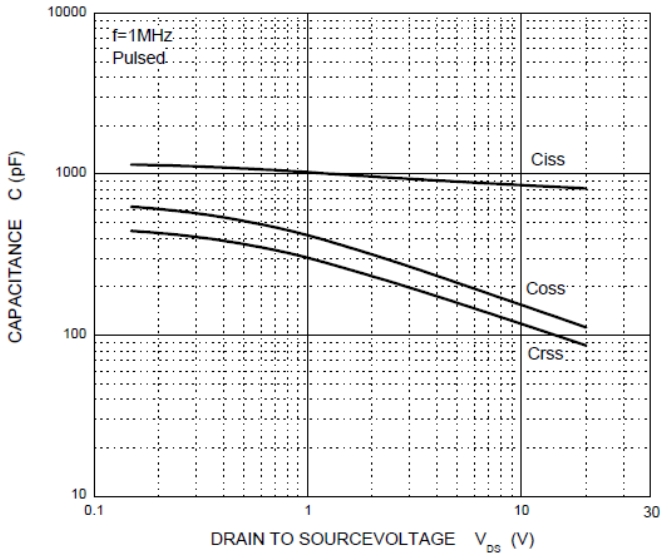


Threshold Voltage

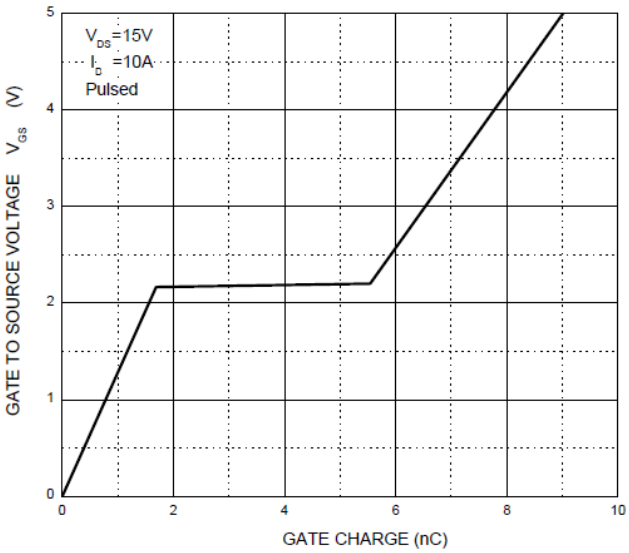


CHARACTERISTICS CURVE

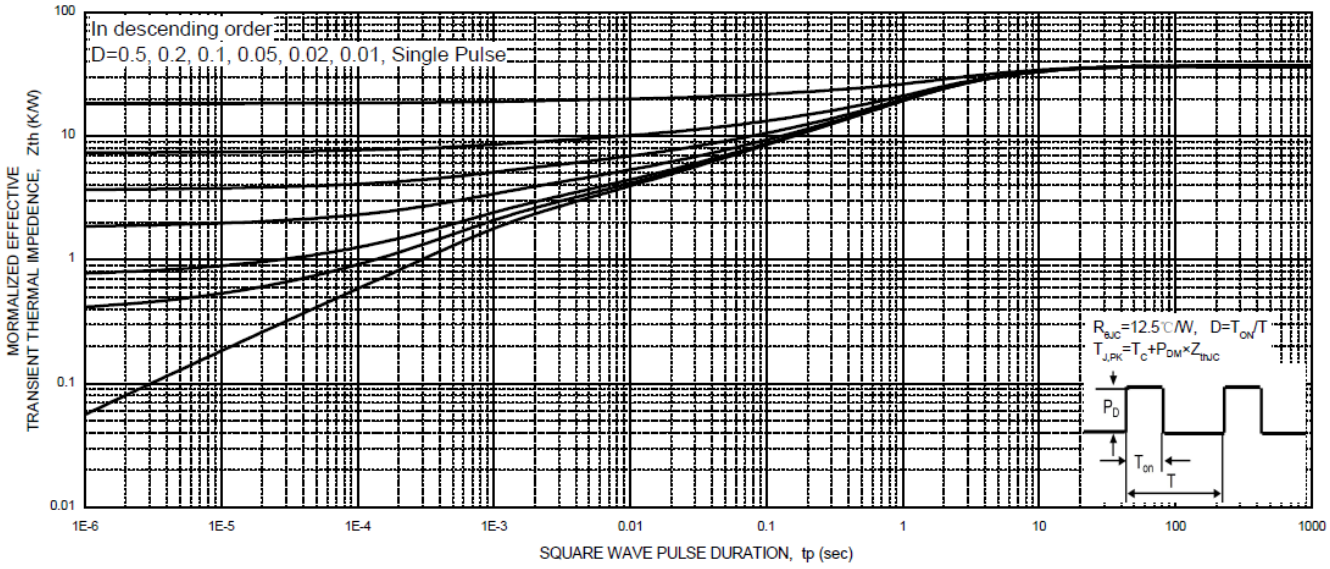
Capacitances



Gate Charge



NORMALIZED MAXIMUM TRAISIENT THERMAL IMPENDANCE



MAXIMUM FORWARD BIASED SAFE OPERATING AREA