

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

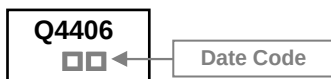
DESCRIPTION

SSG4406J 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

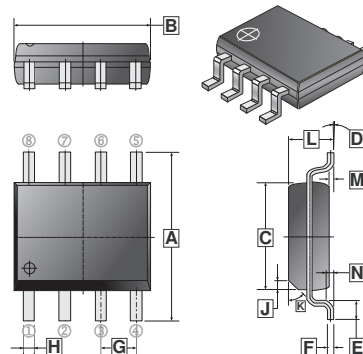
MARKING



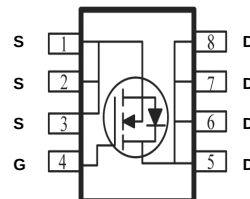
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	4K	13 inch

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 ($T_A=25^\circ\text{C}$ 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	10	A
Pulsed Drain Current	I_{DM}	40	A
Single Pulse Avalanche Energy ¹	E_{AS}	105	mJ
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	89	$^\circ\text{C/W}$
Lead Temperature for Soldering Purposes@1/8" form case for 10s	T_L	260	$^\circ\text{C}$
Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$

Notes:

1. E_{AS} condition : $V_{DD}=50\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$, starting $T_J=25^\circ\text{C}$.

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	$V_{GS}=0, I_D=250\mu A$
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	$V_{DS}=30V, V_{GS}=0$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{DS}=0V, V_{GS}= \pm 20V$
On Characteristics ¹						
Gate-Threshold Voltage	$V_{GS(th)}$	1	1.5	3	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	7.6	12	m Ω	$V_{GS}=10V, I_D=12A$
		-	11	16		$V_{GS}=4.5V, I_D=10A$
Forward Transconductance	g_{FS}	-	15	-	S	$V_{DS}=5V, I_D=10A$
Dynamic Characteristics						
Input Capacitance	C_{iss}	-	1550	-	pF	$V_{DS}=15V$ $V_{GS}=0$ $f=1MHz$
Output Capacitance	C_{oss}	-	300	-		
Reverse Transfer Capacitance	C_{rss}	-	180	-		
Switching Characteristics						
Total Gate Charge	Q_g	-	13	-	nC	$V_{DS}=15V$ $V_{GS}=5V$ $I_D=10A$
Gate-Source Charge	Q_{gs}	-	5.5	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	3.5	-		
Turn-on Delay Time	$T_{d(on)}$	-	30	-	nS	$V_{DD}=25V$ $V_{GS}=10V$ $R_G=6\Omega$ $R_L=6.7\Omega$ $I_D=1A$
Rise Time	T_r	-	20	-		
Turn-off Delay Time	$T_{d(off)}$	-	100	-		
Fall Time	T_f	-	80	-		
Gate Resistance	R_g	0.8	-	2.4	Ω	$V_{DS}=0V, V_{GS}=0, f=1MHz$
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	I_{SM}	-	-	40	A	

Notes:

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

CHARACTERISTICS CURVE

