

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

DESCRIPTION

The SSG13P04J-C uses advanced trench MOSFETs technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

APPLICATIONS

- Battery protection applications
- Load switch

MARKING



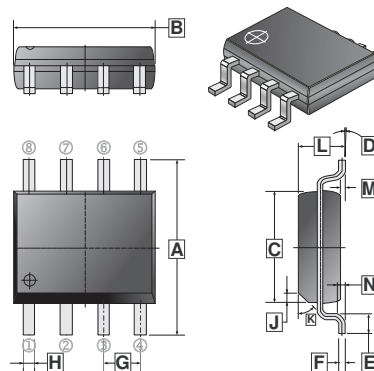
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	4K	13 inch

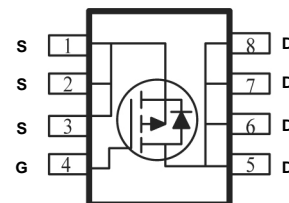
ORDER INFORMATION

Part Number	Type
SSG13P04J-C	Lead (Pb)-free and Halogen-free

SOP-8



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	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	1.30	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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-13	A
	$T_C=25^\circ\text{C}$		
Pulsed Drain Current ²	I_{DM}	-52	A
Single Pulsed Avalanche Energy ³	E_{AS}	230	mJ
Power Dissipation	P_D	3	W
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$
Thermal Resistance Ratings			
Thermal Resistance from Junction-Ambient ¹	$t \leq 10\text{sec}$	$R_{\theta JA}$	41.7
			$^\circ\text{C/W}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-40	-	-	V	$V_{GS}=0, I_D = -250\mu A$
Drain-Source Leakage Current	I_{DSS}	$T_J=25^\circ C$	-	-1	μA	$V_{DS} = -32V, V_{GS}=0$
		$T_J=125^\circ C$	-	-100		
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{DS}=0, V_{GS} = \pm 20V$
Gate-Threshold Voltage ⁴	$V_{GS(th)}$	-1	-	-2.5	V	$V_{DS}=V_{GS}, I_D = -250\mu A$
Drain-Source On-Resistance ⁴	$R_{DS(ON)}$	-	11	15	m Ω	$V_{GS} = -10V, I_D = -10A$
		-	14.5	22		$V_{GS} = -4.5V, I_D = -8A$
Gate Resistance	R_g	-	6.5	-	Ω	$f=1MHz$
Total Gate Charge	Q_g	-	22.2	-	nC	$V_{GS} = -4.5V$ $V_{DS} = -32V$ $I_D = -10A$
Gate-Source Charge	Q_{gs}	-	8.2	-		
Gate-Drain ("Miller") Charge	Q_{gd}	-	8.8	-		
Turn-on Delay Time	$T_{d(on)}$	-	23	-		
Rise Time	T_r	-	10	-	nS	$V_{GS} = -10V$ $V_{DS} = -20V$ $I_D = -1A$ $R_G=6\Omega$
Turn-off Delay Time	$T_{d(off)}$	-	135	-		
Fall Time	T_f	-	46	-		
Input Capacitance	C_{iss}	-	2757	-	pF	$V_{GS}=0$ $V_{DS} = -25V$ $f=1MHz$
Output Capacitance	C_{oss}	-	240	-		
Reverse Transfer Capacitance	C_{rss}	-	137	-		
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁴	V_{SD}	-	-	-1.2	V	$I_S = -1A, V_{GS}=0$
Continuous Source Current	I_S	-	-	-13	A	
Pulsed Source Current ²	I_{SM}	-	-	-52	A	

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. Pulse width $\leq 10\mu s$, Duty cycle $\leq 1\%$.
3. E_{AS} condition: $V_{DD} = -20V, V_{GS} = -10V, L=0.5mH, R_G=25\Omega$, Starting $T_J=25^\circ C$.
4. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

CHARACTERISTIC CURVES

