

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

DESCRIPTION

The SSG08P04-C is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SSG08P04-C meet the RoHS and Green Product requirement with full function reliability approved.

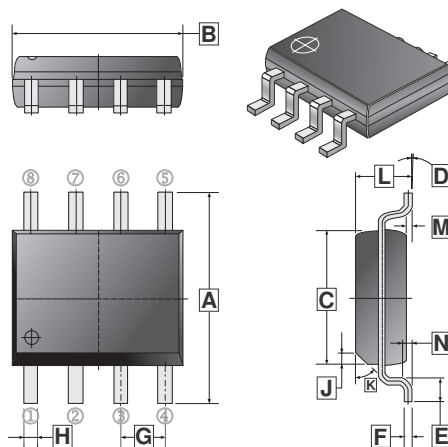
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13' inch

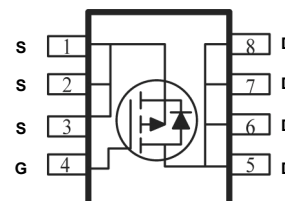
ORDER INFORMATION

Part Number	Type
SSG08P04-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	1.3	1.752
E	0.40	1.27	M	0	0.25
F	0.10	0.25	N	0.25 REF.	
G	1.27 TYP.				



MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current $V_{GS}@ -10V$ ¹	$T_A=25^\circ C$	-8	A
	$T_A=70^\circ C$	-6.9	A
Pulsed Drain Current ²	I_{DM}	-32	A
Total Power Dissipation ³	P_D	2.5	W
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	$^\circ C$
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	50	$^\circ C / W$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-40	-	-	V	$V_{GS}=0, I_D = -250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	$V_{DS}=V_{GS}, I_D = -250\mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	± 100	nA	$V_{DS}=0\text{V}, V_{GS}= \pm 20\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	$V_{DS}= -32\text{V}, V_{GS}= 0\text{V}, T_J=25^\circ\text{C}$
		-	-	-5		$V_{DS}= -32\text{V}, V_{GS}= 0\text{V}, T_J=55^\circ\text{C}$
Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	32	m Ω	$V_{GS}= -10\text{V}, I_D = -5\text{A}$
		-	-	46		$V_{GS}= -4.5\text{V}, I_D = -4\text{A}$
Forward Transconductance	g_{fs}	-	10.7	-	S	$V_{DS}= -5\text{V}, I_D = -8\text{A}$
Total Gate Charge	Q_g	-	11.5	-	nC	$I_D = -1\text{A}$ $V_{DS}= -15\text{V}$ $V_{GS}= -4.5\text{V}$
Gate-Source Charge	Q_{gs}	-	3.5	-		
Gate-Drain Charge	Q_{gd}	-	3.3	-		
Turn-On Delay Time	$T_{d(on)}$	-	22	-	nS	$V_{DD}= -15\text{V},$ $I_D = -1\text{A}$ $V_{GS}= -10\text{V},$ $R_G=3.3\Omega$
Rise Time	T_r	-	15.7	-		
Turn-Off Delay Time	$T_{d(off)}$	-	59	-		
Fall Time	T_f	-	5.5	-		
Input Capacitance	C_{iss}	-	1415	-	pF	$V_{DS}= -15\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	134	-		
Reverse Transfer Capacitance	C_{rss}	-	102	-		
Source-Drain Diode						
Continuous Source Current ¹	I_S	-	-	-8	A	
Diode Forward Voltage ²	V_{SD}	-	-	-1.2	V	$V_{GS}=0\text{V}, I_S = -1\text{A}, T_J=25^\circ\text{C}$

Notes:

1. Surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Pulse width limited by maximum junction temperature.

CHARACTERISTIC CURVES

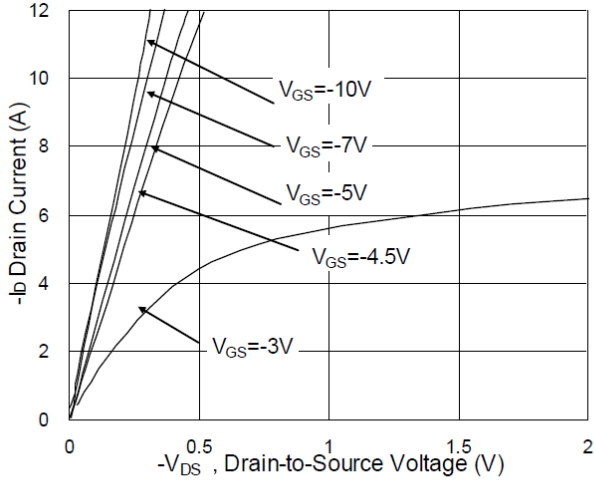


Fig.1 Typical Output Characteristics

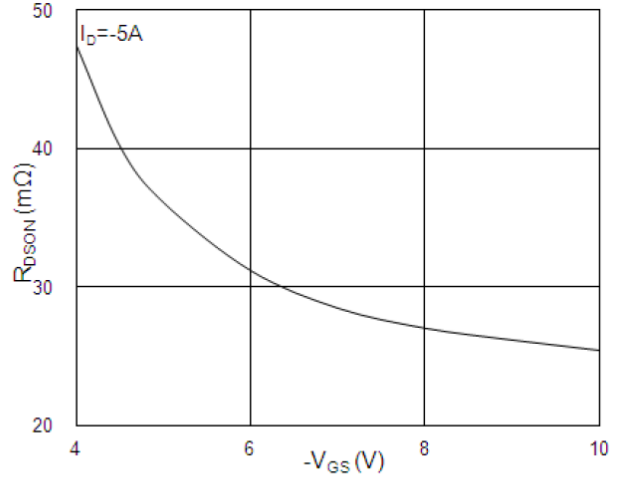


Fig.2 On-Resistance vs G-S Voltage

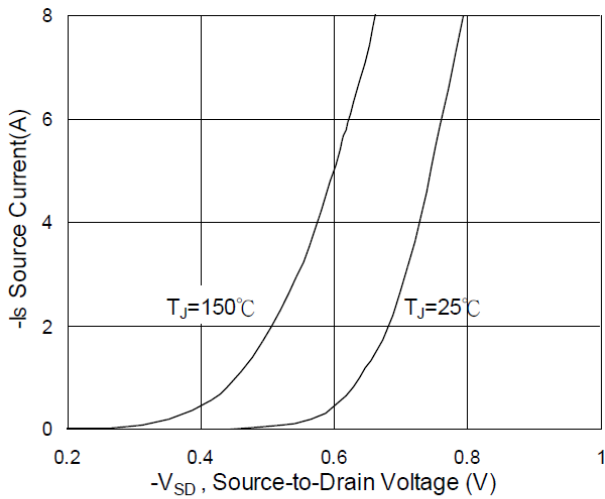


Fig.3 Source Drain Forward Characteristics

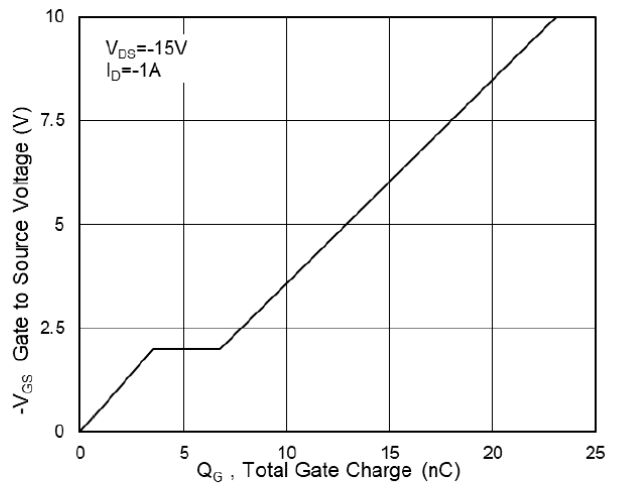


Fig.4 Gate Charge Characteristics

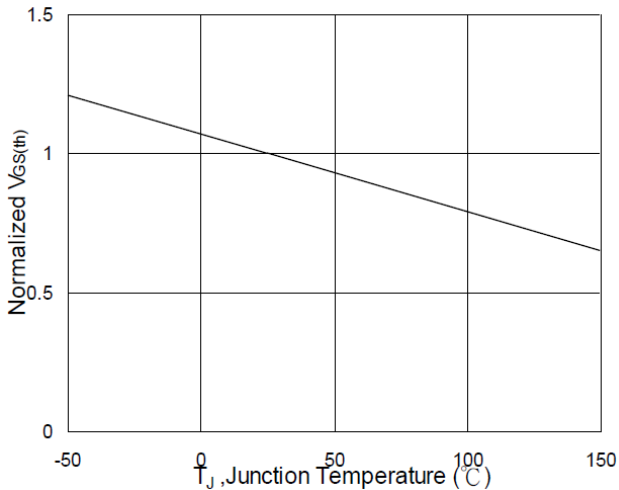


Fig.5 Normalized $V_{GS(th)}$ vs T_J

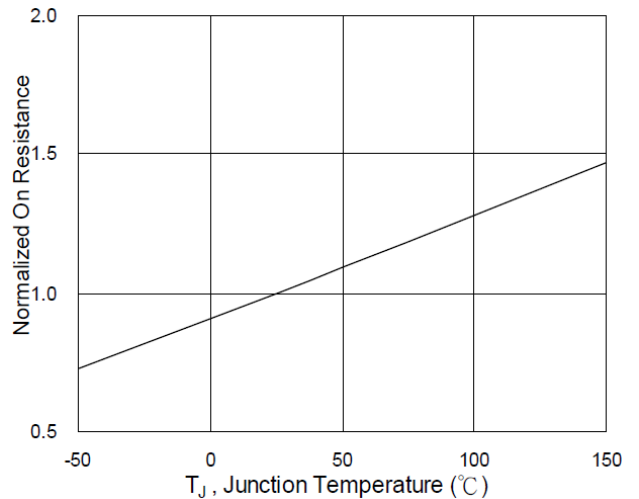


Fig.6 Normalized $R_{DS(ON)}$ vs T_J

CHARACTERISTIC CURVES

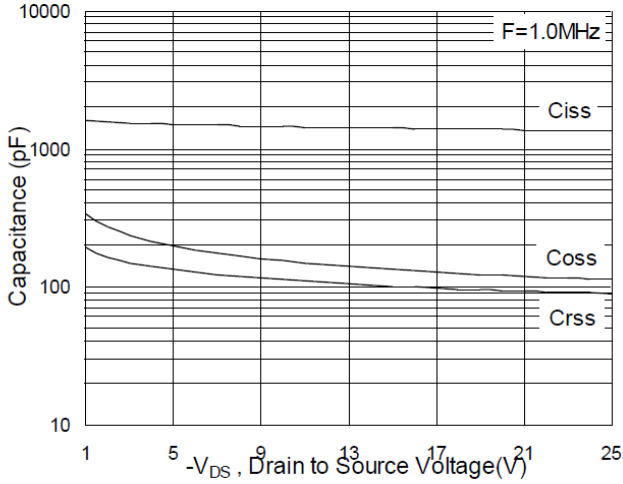


Fig.7 Capacitance

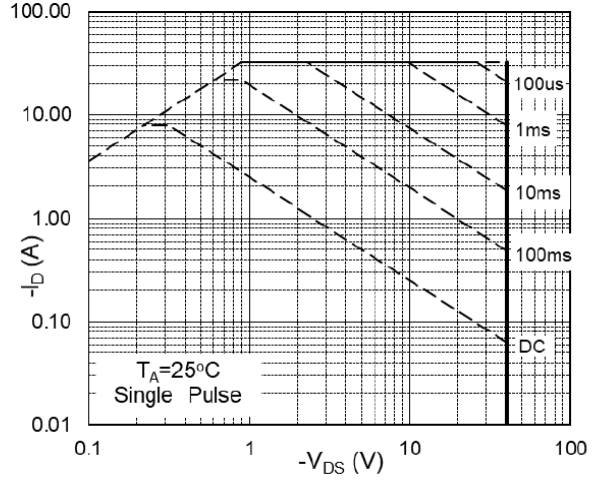


Fig.8 Safe Operating Area

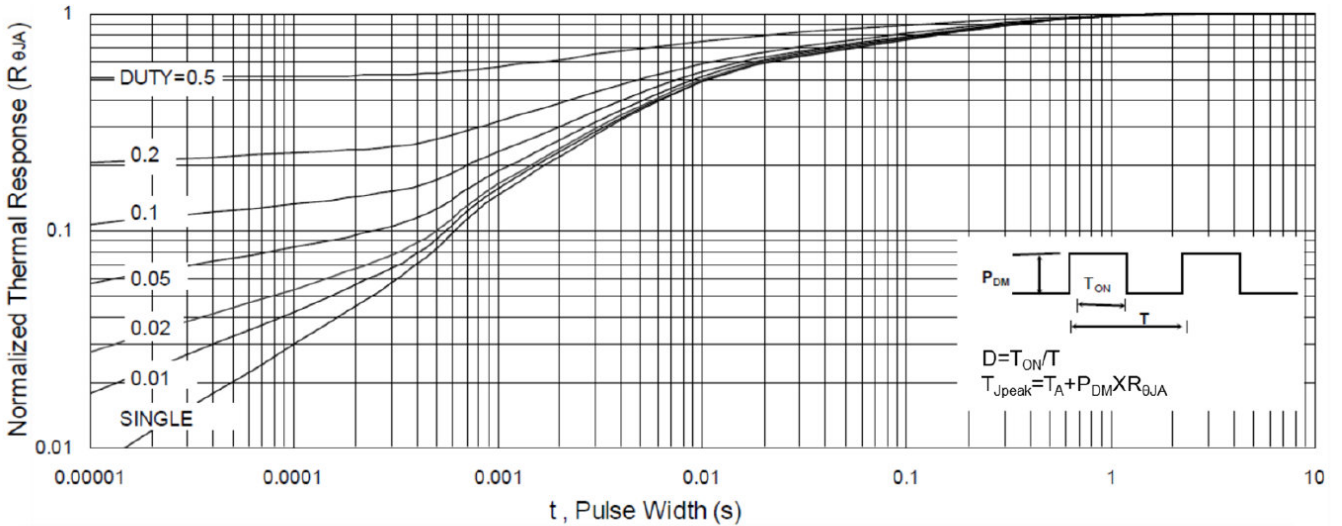


Fig.9 Normalized Maximum Transient Thermal Impedance

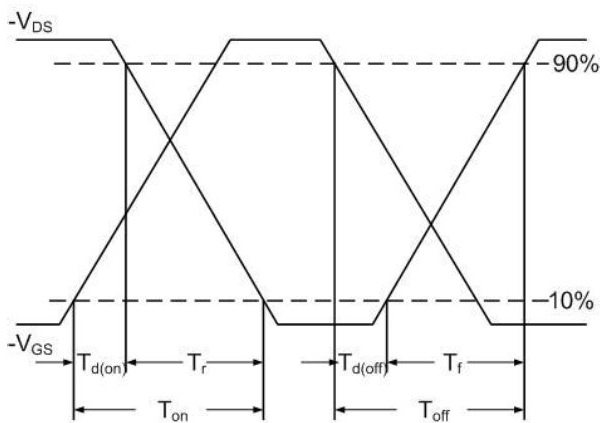


Fig.10 Switching Time Waveform

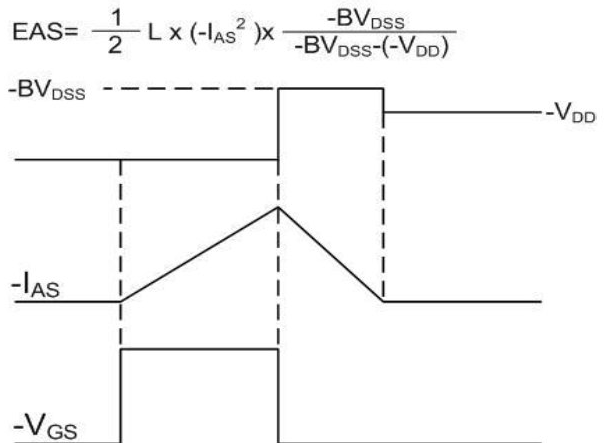


Fig.11 Unclamped Inductive Switching Waveform