Elektronische Bauelemente

SSG4760-C

3A, 60V, $R_{DS(ON)}$ 90mΩ

Dual-N Enhancement Mode Power MOSFET

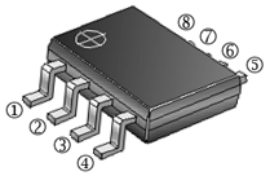
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSG4760-C is the highest performance trench dual N-ch MOSFETs with extreme high cell density, which provide excellent R_{DSON} and gate charge for most of the synchronous buck converter applications.

The SSG4760-C meet the RoHS and Green Product requirement, 100% E_{AS} guaranteed with full function reliability approved.

SOP-8



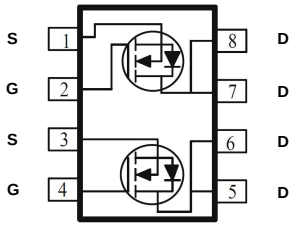
FEATURES

- Advanced High Cell Density Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch



ORDER INFORMATION

Part Number	Type
SSG4760-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current @V_{GS}=10V [1]	T_A=25℃	I_D	3	A
	T_A=70℃		2.4	
Pulsed Drain Current [2]		I_{DM}	12	A
Power Dissipation [3]	T_A=25℃	P_D	1.5	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	85	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	60	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-Source Breakdown Voltage		BV_{DSS}	60	-	-	V	V_{GS}=0V, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer conductance		g_{fs}	-	5.8	-	S	V_{DS}=5V, I_D=3A
Gate-Body Leakage		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V, V_{DS}=0
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=48V, V_{GS}=0
	T_J=55℃		-	-	5		
Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	90	mΩ	V_{GS}=10V, I_D=3A
			-	-	100		V_{GS}=4.5V, I_D=2A
Total Gate Charge		Q_g	-	4	-	nC	I_D=3A V_{DS}=48V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	1.31	-		
Gate-Drain (“Miller”) Charge		Q_{gd}	-	1.78	-		
Turn-On Delay Time		$T_{d(on)}$	-	5.3	-	nS	V_{DS}=30V I_D=3A V_{GS}=10V R_G=3.3Ω
Rise Time		T_r	-	17.5	-		
Turn-Off Delay Time		$T_{d(off)}$	-	14.2	-		
Fall Time		T_f	-	2.4	-		
Input Capacitance		C_{iss}	-	511	-	pF	V_{GS}=0V V_{DS}=15V f=1MHz
Output Capacitance		C_{oss}	-	38	-		
Reverse Transfer Capacitance		C_{rss}	-	25	-		
Source-Drain Diode							
Forward On Voltage [2]		V_{DS}	-	-	1.2	V	I_S=1A, V_{GS}=0V, T_J=25℃
Continuous Source Current [1 4]		I_S	-	-	3	A	V_G=V_D=0V, Force Current
Pulsed Source Current [2 4]		I_{SM}	-	-	12	A	

Notes:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. The data tested by pulsed, pulse width≦300us, duty cycle≦2%.
3. The power dissipation is limited by 150℃ juncti on temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

CHARACTERISTICS CURVE

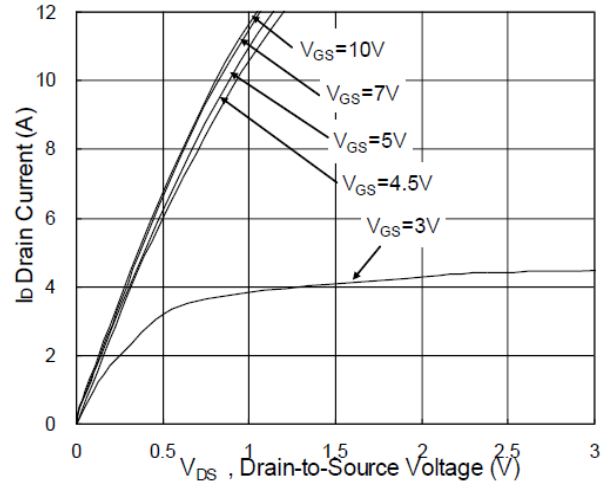


Fig.1 Typical Output Characteristics

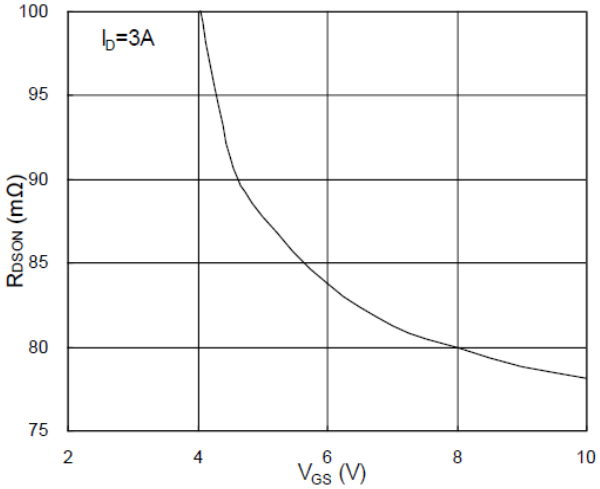


Fig.2 On-Resistance v.s Gate-Source

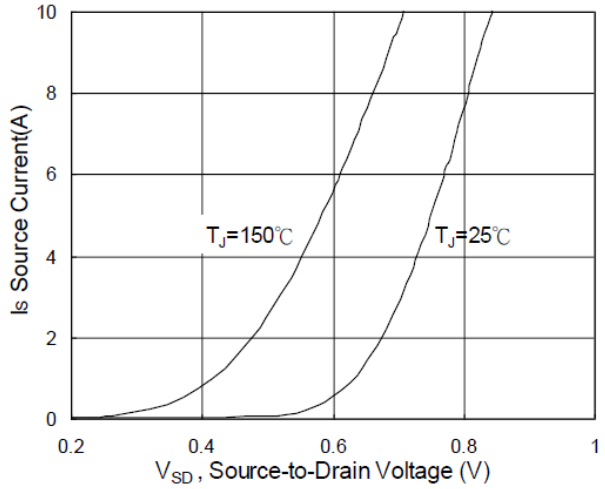


Fig.3 Forward Characteristics of Reverse

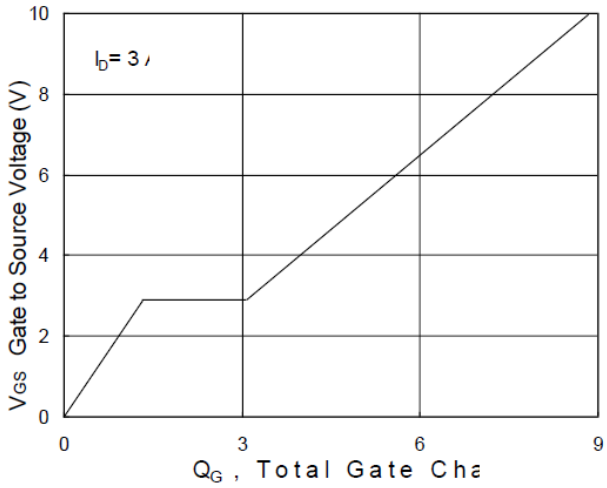


Fig.4 Gate-Charge Characteristics

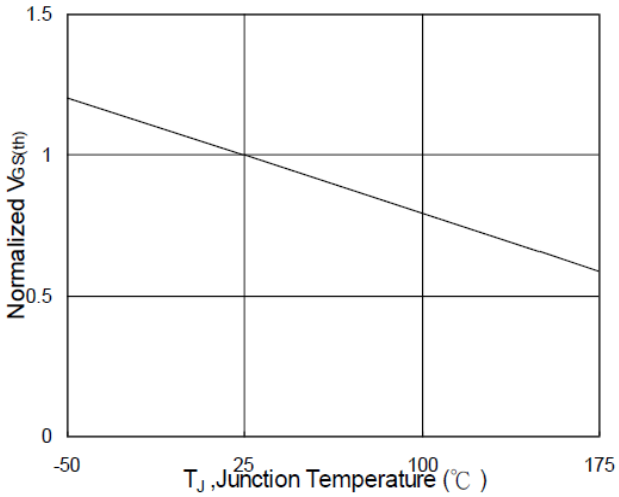


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

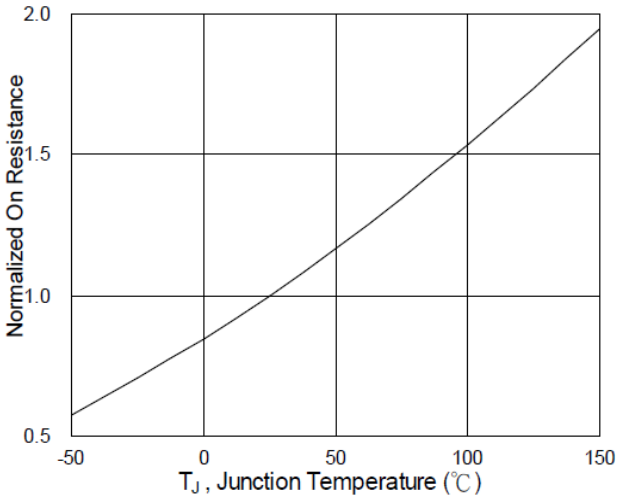


Fig.6 Normalized R_{DSON} v.s T_J

CHARACTERISTICS CURVE

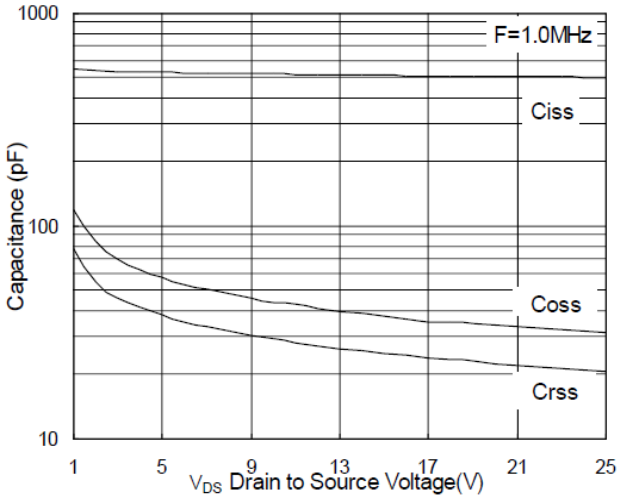


Fig.7 Capacitance

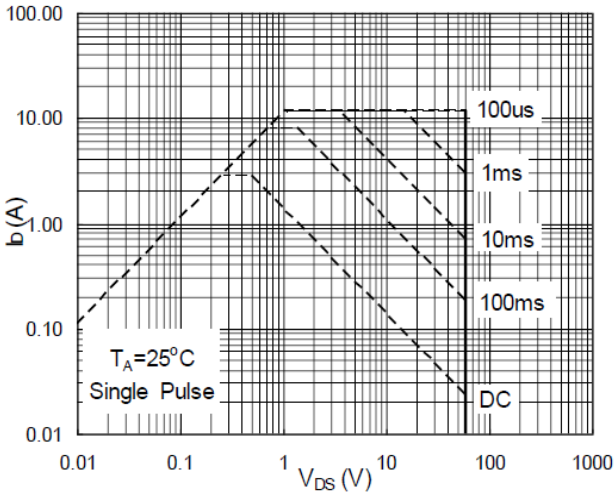


Fig.8 Safe Operating Area

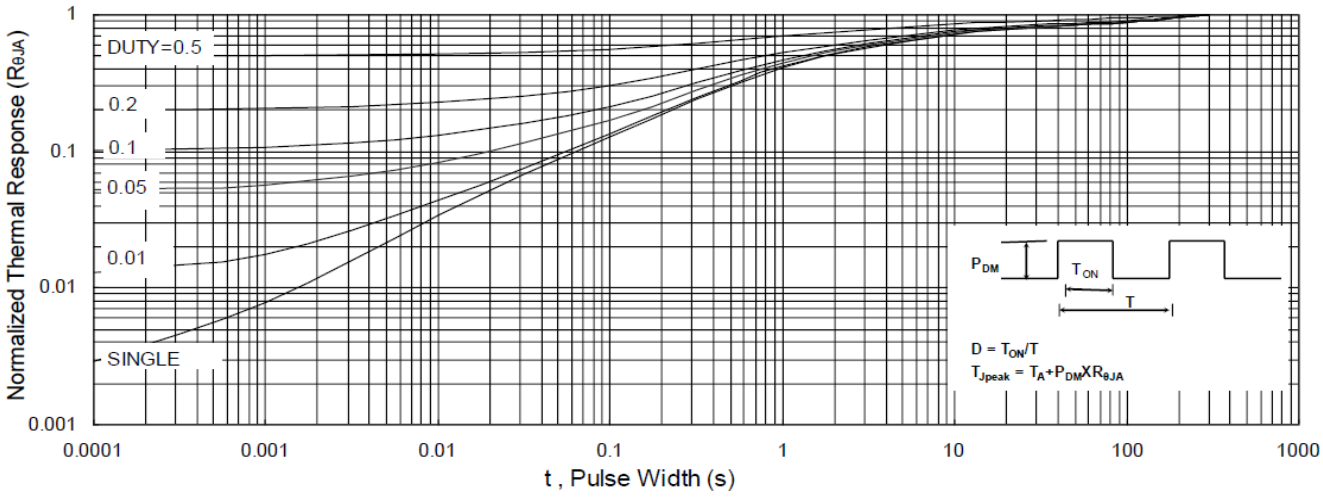


Fig.9 Normalized Maximum Transient Thermal Impedance

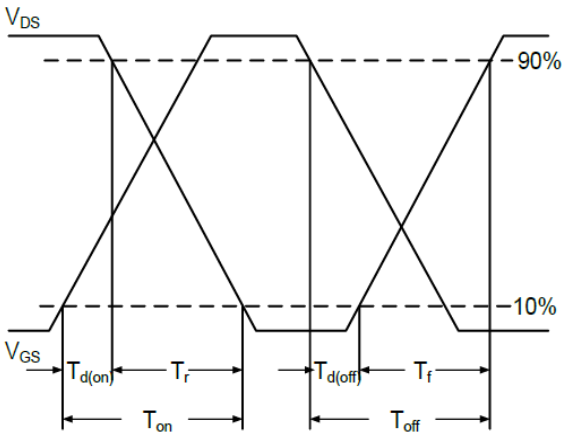


Fig.10 Switching Time Waveform

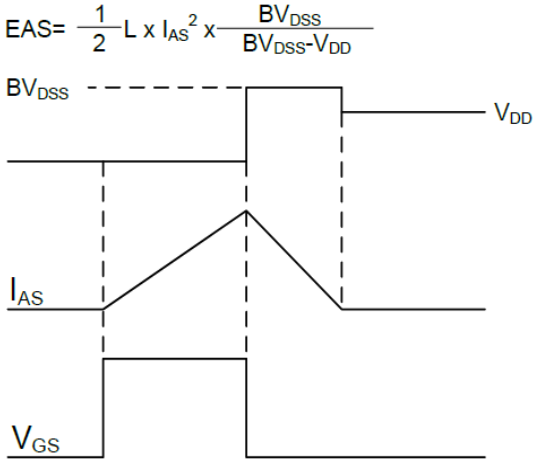


Fig.11 Unclamped Inductive Switching Waveform

PACKAGE OUTLINE DIMENSIONS

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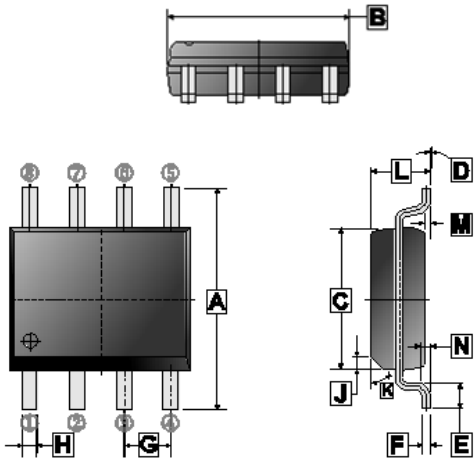

REF.	Millimeter	
	Min.	Max.
A	5.79	6.20
B	4.70	5.11
C	3.80	4.00
D	0°	8°
E	0.40	1.27
F	0.10	0.25
G	1.27 TYP.	
H	0.33	0.51
J	0.375 REF.	
K	45° REF.	
L	1.30	1.752
M	0	0.25
N	0.25 REF.	

MOUNTING PAD LAYOUT

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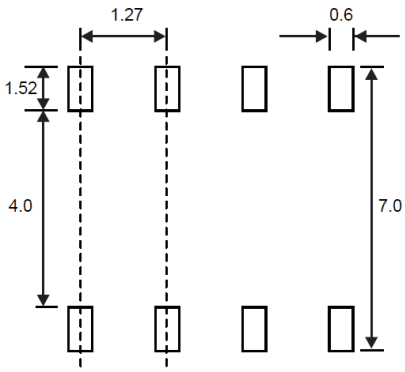

*Dimensions in millimeters