

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

## DESCRIPTION

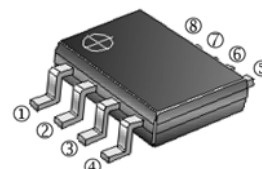
The SSG4A5N15SV-C is the Shielded Gate Technology N-ch MOSFETs with extreme high cell density, which provide excellent  $R_{DS(ON)}$  and gate charge for most of the synchronous buck converter applications.

The SSG4A5N15SV-C meet the RoHS and Green Product requirement with full function reliability approved.

## FEATURES

- Battery Protection
- Load Switch
- Uninterruptible power supply

SOP-8

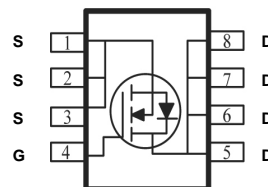


## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	3K	13 inch

## ORDER INFORMATION

Part Number	Type
SSG4A5N15SV-C	Lead (Pb)-free and Halogen-free



## ABSOLUTE MAXIMUM RATINGS ( $T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	150	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current @ $V_{GS}=10\text{V}$	$I_D$	4.5	A
$T_A=25^\circ\text{C}$			
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	13.5	A
Total Power Dissipation	$P_D$	2.7	W
$T_A=25^\circ\text{C}$			
Operating Junction & Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$
<b>Thermal Resistance Ratings</b>			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	55.5	$^\circ\text{C/W}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	150	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	1.2	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Gate-Source Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
Drain-Source Leakage Current	$I_{DSS}$	-	-	1	$\mu A$	$V_{DS}=120V, V_{GS}=0V$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	60	m $\Omega$	$V_{GS}=10V, I_D=2A$
		-	-	70		$V_{GS}=4.5V, I_D=1A$
Total Gate Charge <sup>3</sup>	$Q_g$	-	23	-	nC	$V_{DS}=75V$ $V_{GS}=10V$ $I_D=4A$
Gate-Source Charge <sup>3</sup>	$Q_{gs}$	-	5.8	-		
Gate-Drain Change <sup>3</sup>	$Q_{gd}$	-	4.2	-		
Turn-on Delay Time <sup>3</sup>	$T_{d(on)}$	-	16.2	-	nS	$V_{DD}=75V$ $V_{GS}=10V$ $I_D=4A$ $R_G=3.3\Omega$
Rise Time <sup>3</sup>	$T_r$	-	18.6	-		
Turn-off Delay Time <sup>3</sup>	$T_{d(off)}$	-	28.5	-		
Fall Time <sup>3</sup>	$T_f$	-	6.5	-		
Input Capacitance <sup>3</sup>	$C_{iss}$	-	1190	-	pF	$V_{DS}=75V$ $V_{GS}=0V$ $f=1MHz$
Output Capacitance <sup>3</sup>	$C_{oss}$	-	73	-		
Reverse Transfer Capacitance <sup>3</sup>	$C_{rss}$	-	4	-		
<b>Source-Drain Diode</b>						
Continuous Source Current	$I_S$	-	-	4.5	A	$V_{GS}=V_{DS}=0V$ , Force Current
Forward on Voltage <sup>2</sup>	$V_{SD}$	-	-	1.2	V	$I_S=1A, V_{GS}=0V$

Notes:

1. Repetitive rating : pulsed width limited by maximum junction temperature
2. The data tested by pulsed , pulse width  $\leq 300\mu s$  , duty cycle  $\leq 2\%$ .
3. This value is guaranteed by design hence it is not included in the production test.

**TYPICAL CHARACTERISTICS CURVE**

FIG. 1- $R_{DS(on)}$  vs.  $V_{GS}$

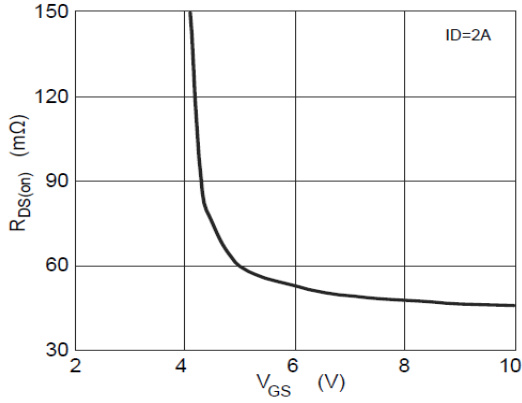


FIG. 2-Normalized  $R_{DS(on)}$  vs.  $T_J$

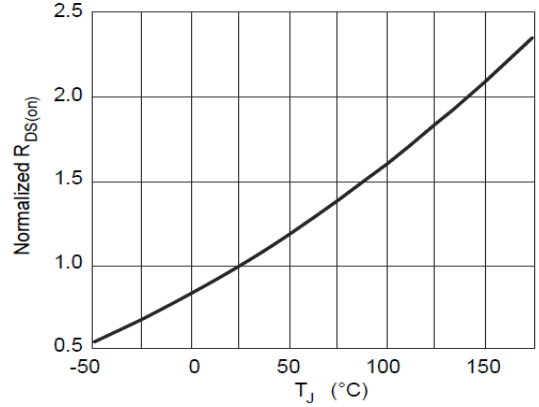


FIG. 3-Normalized  $V_{GS(th)}$  vs.  $T_J$

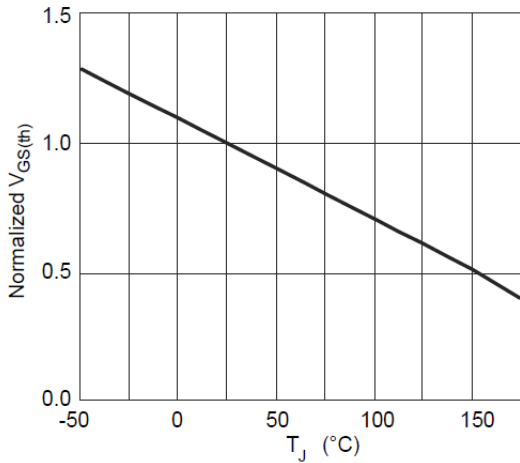


FIG. 4-Diode Forward Characteristics

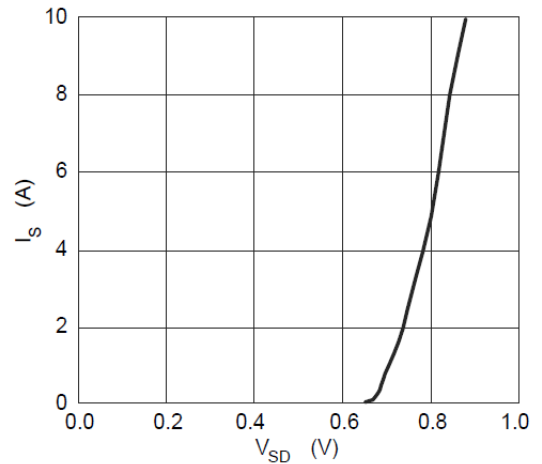


FIG. 5-Gate Charge Characteristics

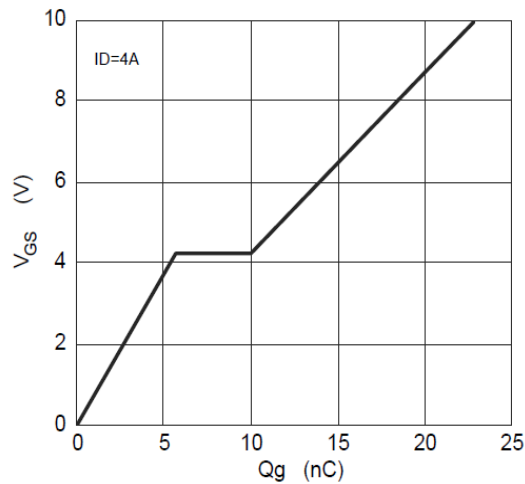
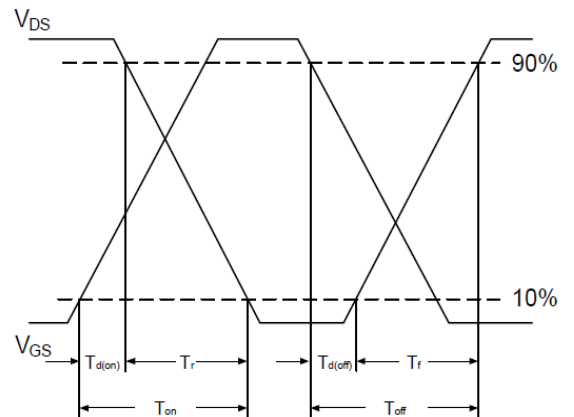
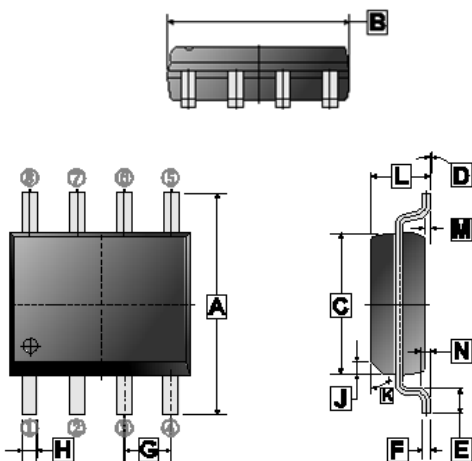


FIG. 6-Switching Time Waveform



**PACKAGE OUTLINE DIMENSIONS**

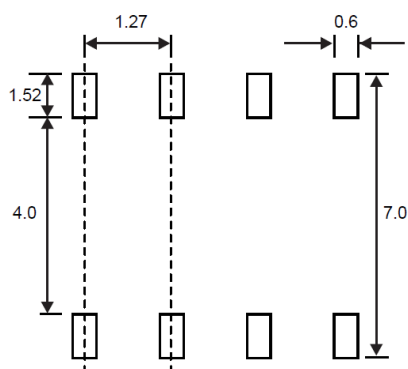
**SOP-8**



REF.	Millimeter	
	Min.	Max.
A	5.80	6.20
B	4.38	5.20
C	3.70	4.10
D	0°	8°
E	0.40	1.27
F	0.10	0.26
G	1.27 TYP.	
H	0.30	0.51
J	0.375 REF.	
K	45° REF.	
L	1.30	1.80
M	0	0.25
N	0.25 REF.	

**MOUNTING PAD LAYOUT**

**SOP-8**



\*Dimensions in millimeters