

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

DESCRIPTION

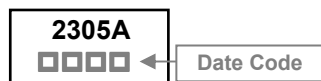
The SSG2305A-C is the highest performance trench P-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SSG2305A-C meet the RoHS and Green Product requirement with full function reliability approved.

FEATURES

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

MARKING CODE



PACKAGE INFORMATION

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

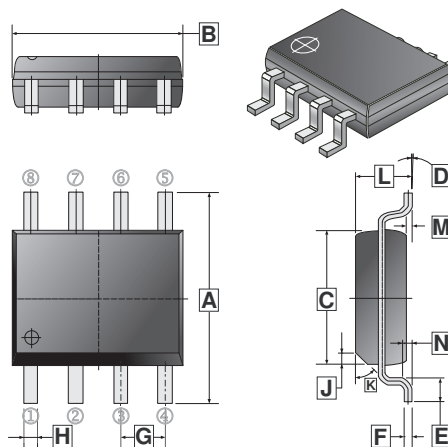
ORDER INFORMATION

Part Number	Type
SSG2305A-C	Lead (Pb)-free and Halogen-free

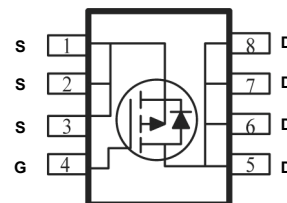
MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit	
Drain-Source Voltage	V_{DS}	-30	V	
Gate-Source Voltage	V_{GS}	± 12	V	
Continuous Drain Current $V_{GS}@ -10V$ ¹	I_D	$T_A=25^\circ C$	-6.8	A
		$T_A=70^\circ C$	-5	A
Pulsed Drain Current ²	I_{DM}	-34	A	
Total Power Dissipation ³	P_D	3	W	
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	$^\circ C$	
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	$t \leq 10s, 42$	$^\circ C / W$	
Thermal Resistance Junction-Ambient ²		Steady State, 125		
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	25		

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.				



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}	-30	-	-	V	$V_{GS}=0, I_D = -250\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	-0.5	-	-1.2	V	$V_{DS}=V_{GS}, I_D = -250\mu\text{A}$
Gate-Body Leakage	I_{GSS}	-	-	± 100	nA	$V_{DS}=0\text{V}, V_{GS}= \pm 12\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	$V_{DS}= -24\text{V}, V_{GS}= 0\text{V}, T_J=25^\circ\text{C}$
		-	-	-5		$V_{DS}= -24\text{V}, V_{GS}= 0\text{V}, T_J=55^\circ\text{C}$
Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	54	m Ω	$V_{GS}= -10\text{V}, I_D = -6\text{A}$
		-	-	65		$V_{GS}= -4.5\text{V}, I_D = -5\text{A}$
		-	-	96		$V_{GS}= -2.5\text{V}, I_D = -3\text{A}$
		-	90	-		$V_{GS}= -1.8\text{V}, I_D = -1\text{A}$
Forward Transconductance	g_{fs}	-	5.6	-	S	$V_{DS}= -5\text{V}, I_D = -3\text{A}$
Total Gate Charge	Q_g	-	11.9	-	nC	$I_D = -6\text{A}$ $V_{DS}= -15\text{V}$ $V_{GS}= -4.5\text{V}$
Gate-Source Charge	Q_{gs}	-	1.8	-		
Gate-Drain Charge	Q_{gd}	-	3	-		
Turn-On Delay Time	$T_{d(on)}$	-	6.6	-	nS	$V_{DD}= -15\text{V}$ $V_{GS}= -4.5\text{V}$ $I_D = -6\text{A}$ $R_G=3.3\Omega$ $R_L=5\Omega$
Rise Time	T_r	-	27.8	-		
Turn-Off Delay Time	$T_{d(off)}$	-	46.2	-		
Fall Time	T_f	-	20.6	-		
Input Capacitance	C_{iss}	-	920	-	pF	$V_{GS}=0\text{V}$ $V_{DS}= -15\text{V}$ $f=1.0\text{MHz}$
Output Capacitance	C_{oss}	-	73	-		
Reverse Transfer Capacitance	C_{rss}	-	71	-		
Source-Drain Diode						
Continuous Source Current ¹	I_S	-	-	-6.8	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:

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

CHARACTERISTIC CURVES

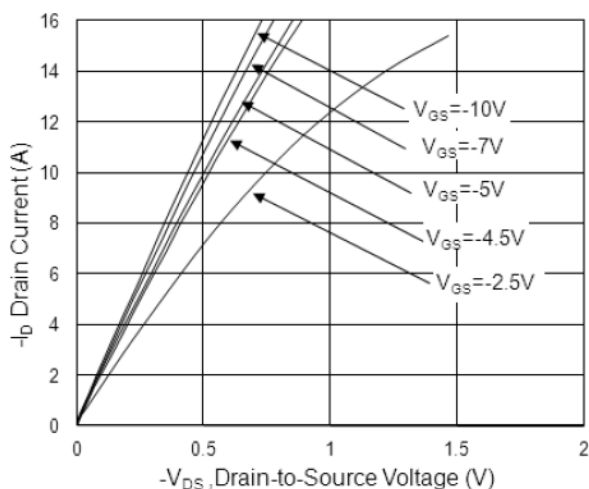


Fig.1 Typical Output Characteristics

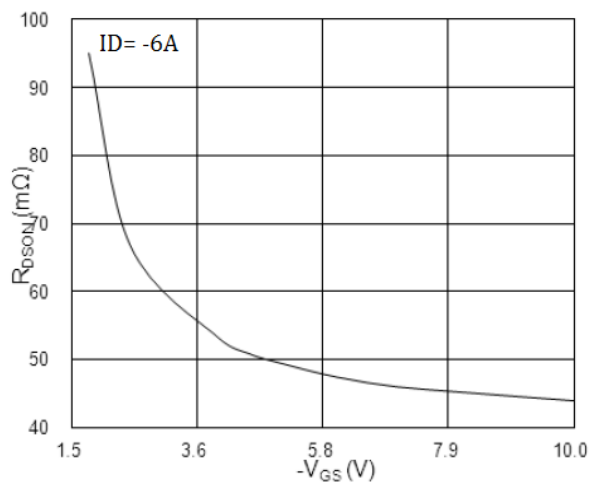


Fig.2 On-Resistance vs. G-S Voltage

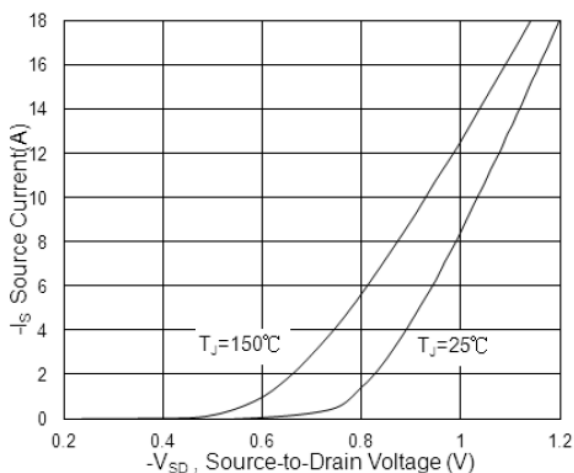


Fig.3 Forward Characteristics Of Reverse

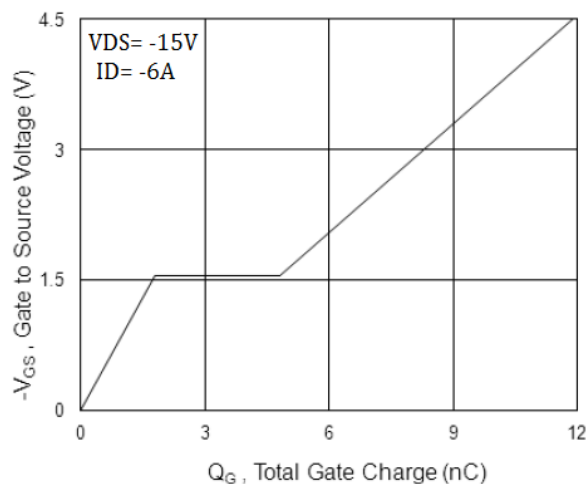


Fig.4 Gate-Charge Characteristics

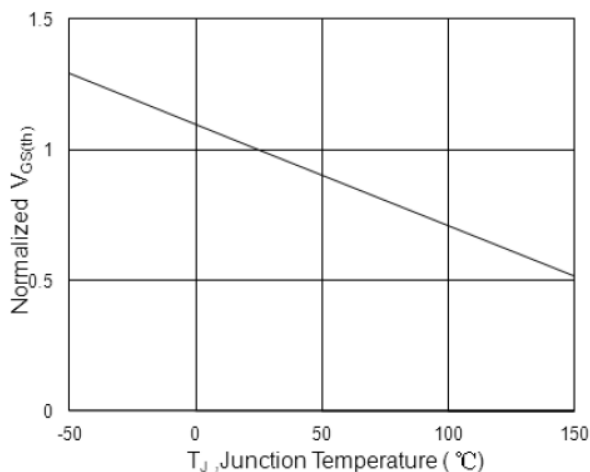


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

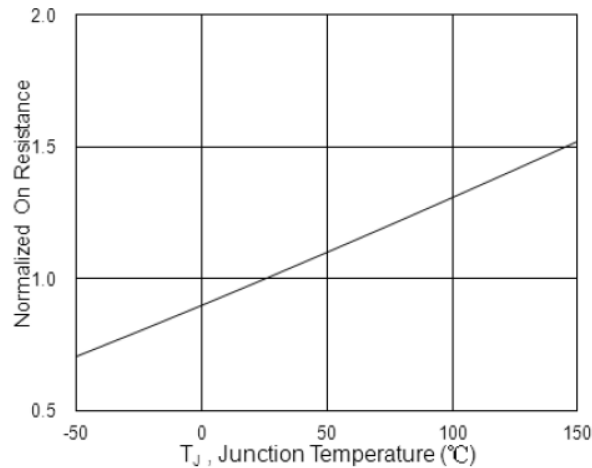


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

CHARACTERISTIC CURVES

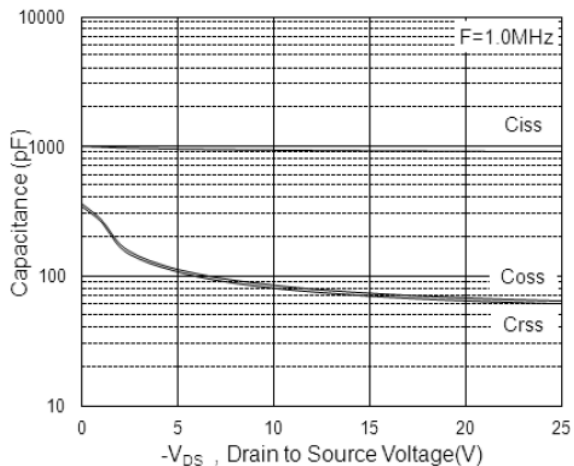


Fig.7 Capacitance

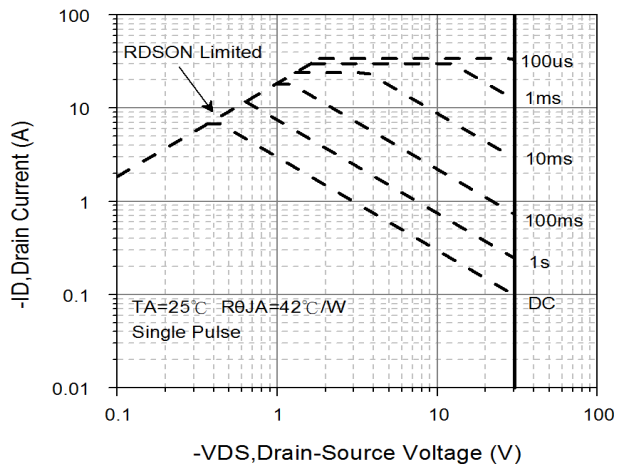


Fig.8 Safe Operating Area

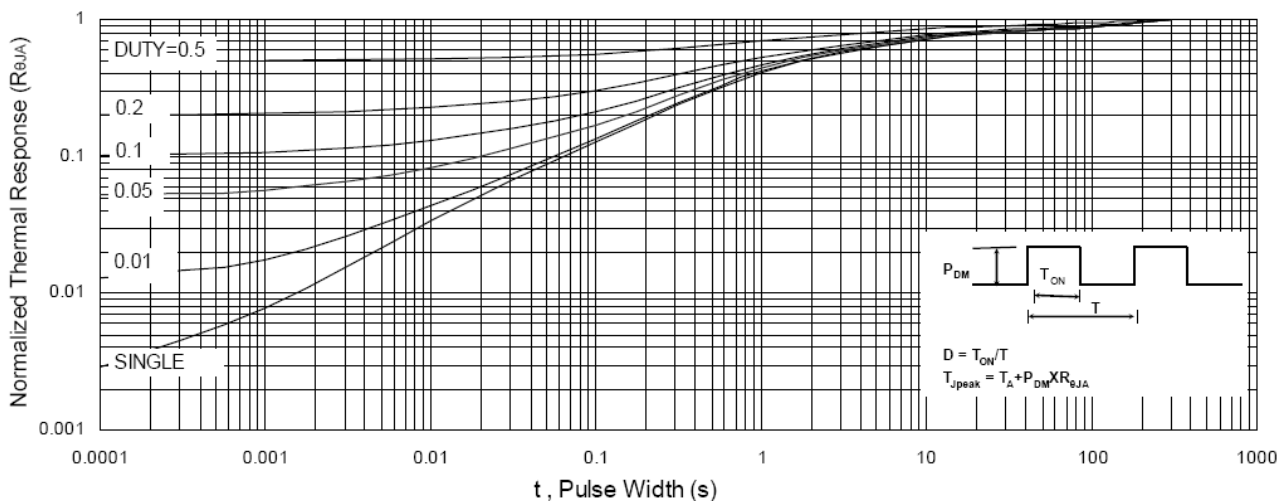


Fig.9 Normalized Maximum Transient Thermal Impedance

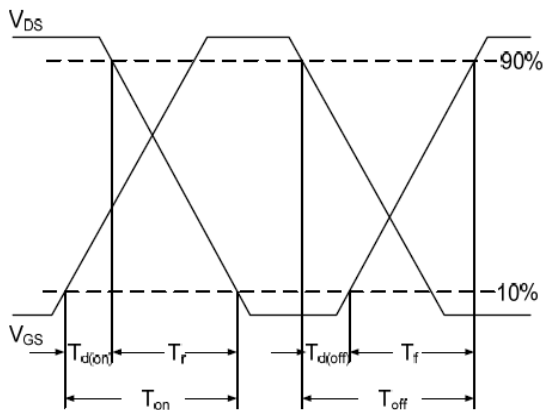


Fig.10 Switching Time Waveform

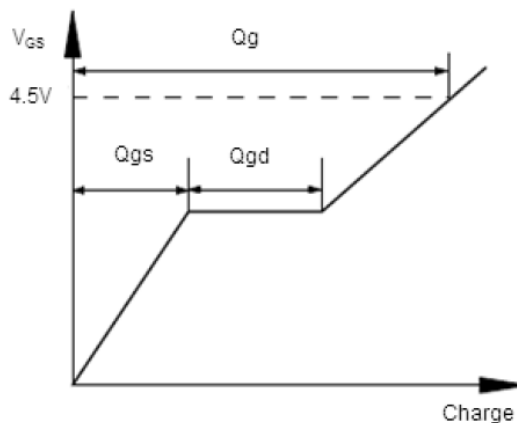


Fig.11 Gate Charge Waveform