

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

DESCRIPTION

The SSG9435J-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 SSG9435J-C meet the RoHS and Green Product requirement with full function reliability approved.

FEATURES

- Advanced High Cell Density Trench Technology
- Super Low Gate Charge

MARKING



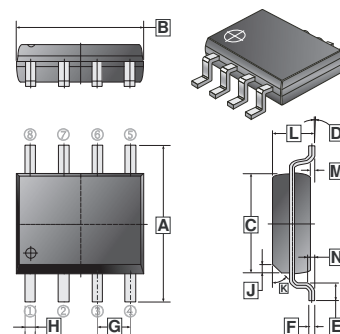
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	4K	13 inch

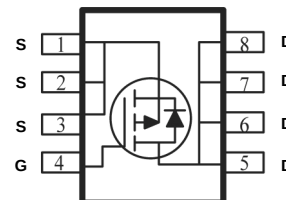
ORDER INFORMATION

Part Number	Type
SSG9435J-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
			t≤10sec	Steady State	
Drain-Source Voltage		V _{DS}	-30		V
Gate-Source Voltage		V _{GS}	±20		V
Continuous Drain Current ¹ , @V _{GS} =10V	T _A =25℃	I _D	-5.1	-4.3	A
	T _A =70℃		-4.1	-3.4	
Pulsed Drain Current ³		I _{DM}	-20		A
Power Dissipation	T _A =25℃	P _D	2		W
Operating Junction and Storage Temperature Range		T _J , T _{STG}	-55~150		℃
Thermal Data					
Thermal Resistance from Junction-Ambient ¹		R _{θJA}	t≤10sec, 62.5		℃/W
			Steady State, 89		
Thermal Resistance from Junction-Ambient ²		R _{θJA}	125		
Thermal Resistance from Junction-Case ¹		R _{θJC}	25		

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 = -250μA
Gate Threshold Voltage		V _{GS(th)}	-1	-1.5	-2	V	V _{DS} =V _{GS} , I _D = -250μA
Forward Transconductance		g _{fs}	-	11	-	S	V _{DS} = -5V, I _D = -4A
Gate-Source Leakage Current		I _{GSS}	-	-	±100	nA	V _{GS} = ±20V
Drain-Source Leakage Current	T _J =25°C	I _{DSS}	-	-	-1	μA	V _{DS} = -24V, V _{GS} =0
	T _J =55°C		-	-	-5		V _{DS} = -24V, V _{GS} =0
Static Drain-Source On-Resistance ⁴		R _{DS(ON)}	-	-	50	mΩ	V _{GS} = -10V, I _D = -4A
			-	-	75		V _{GS} = -4.5V, I _D = -3A
Total Gate Charge		Q _g	-	6.4	-	nC	I _D = -4A
Gate-Source Charge		Q _{gs}	-	2.3	-		V _{DS} = -15V
Gate-Drain (“Miller”) Charge		Q _{gd}	-	2	-		V _{GS} = -4.5V
Turn-on Delay Time		T _{d(on)}	-	2.8	-	nS	V _{DD} = -15V I _D = -4A V _{GS} = -10V R _G =3.3Ω
Rise Time		T _r	-	8.4	-		
Turn-off Delay Time		T _{d(off)}	-	39	-		
Fall Time		T _f	-	6	-		
Input Capacitance		C _{iss}	-	585	-	pF	V _{GS} =0 V _{DS} = -15V f=1MHz
Output Capacitance		C _{oss}	-	100	-		
Reverse Transfer Capacitance		C _{rss}	-	85	-		
Drain-Source Diode Characteristics							
Continuous Source Current ¹		I _S	-	-	-5.1	A	
Pulsed Source Current ³		I _{SM}	-	-	-20		
Diode Forward Voltage ⁴		V _{SD}	-	-	-1.2	V	V _{GS} =0, I _S = -2.6A T _J =25°C
Reverse Recovery Time		t _{rr}	-	7.8	-	nS	I _F = -4A dI/dt=100A/μs T _J =25°C
Reverse Recovery Charge		Q _{rr}	-	2.5	-	nC	

Notes:

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

CHARACTERISTIC CURVE

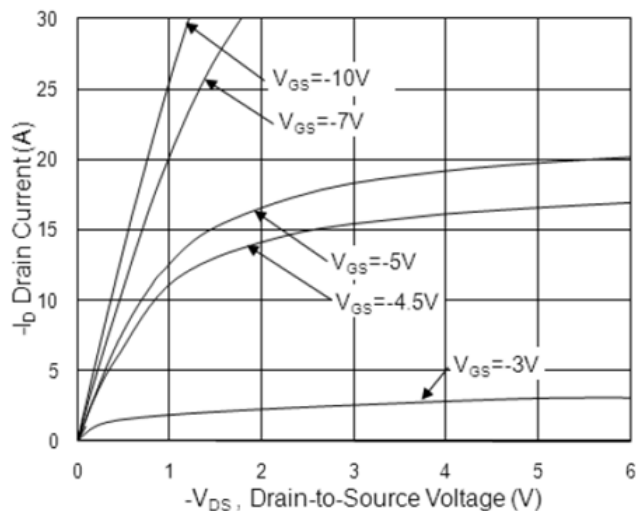


Fig.1 Typical Output Characteristics

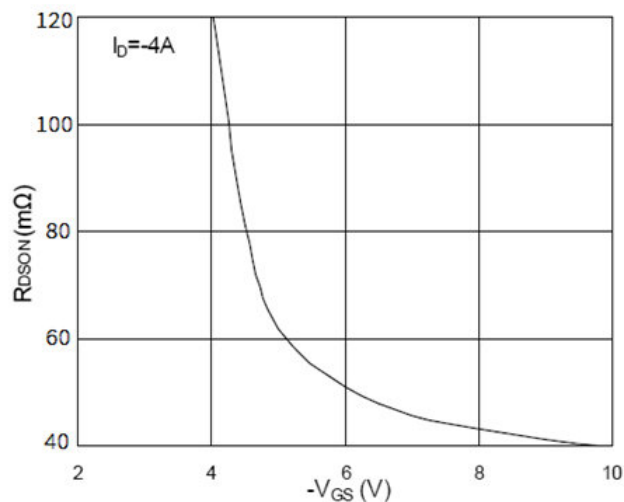


Fig.2 On-Resistance vs. Gate-Source

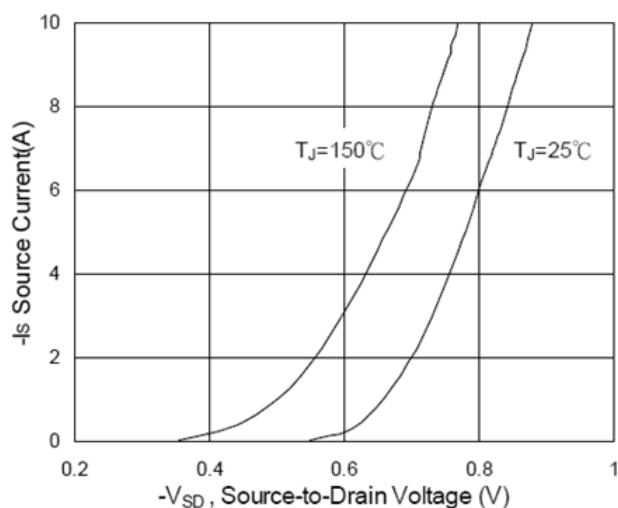


Fig.3 Forward Characteristics of Reverse

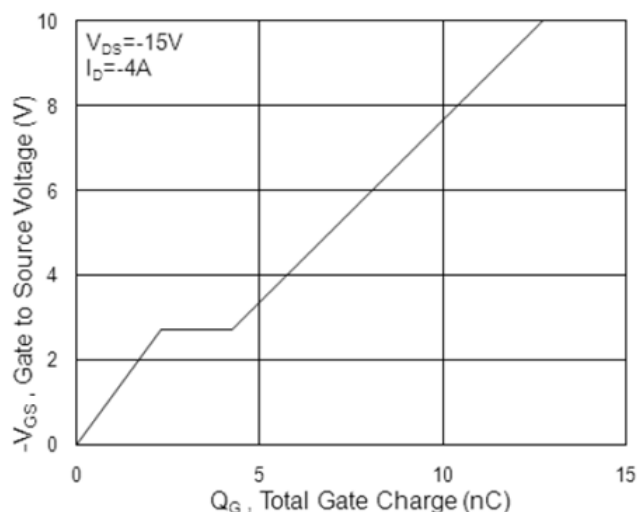


Fig.4 Gate-Charge Characteristics

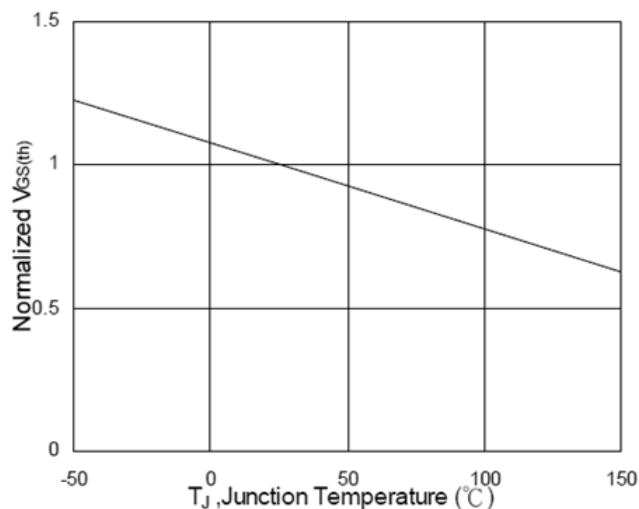


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

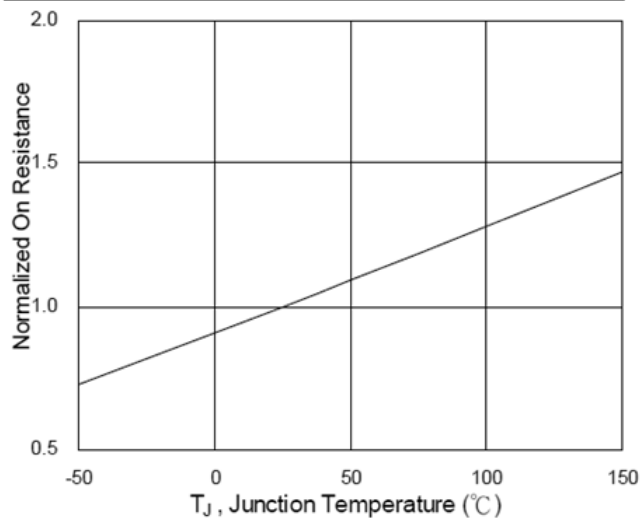


Fig.6 Normalized $R_{DS(ON)}$ vs. T_J

CHARACTERISTIC CURVE

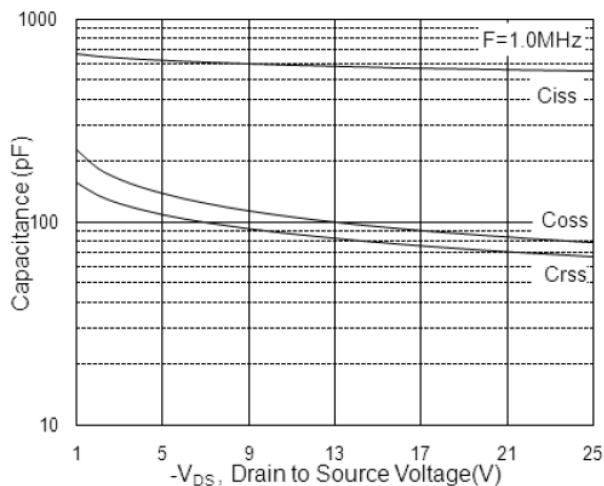


Fig.7 Capacitance

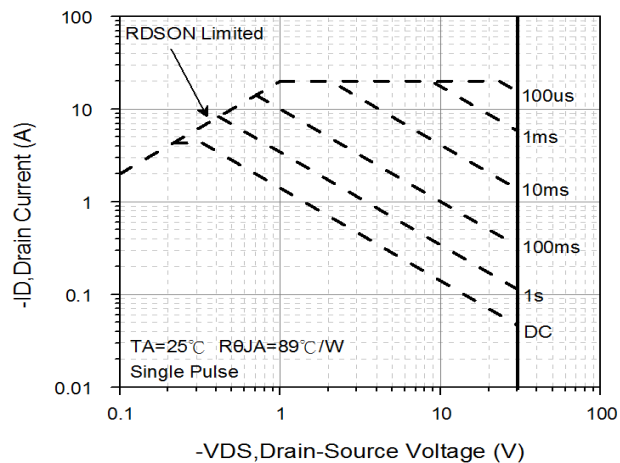


Fig.8 Safe Operating Area

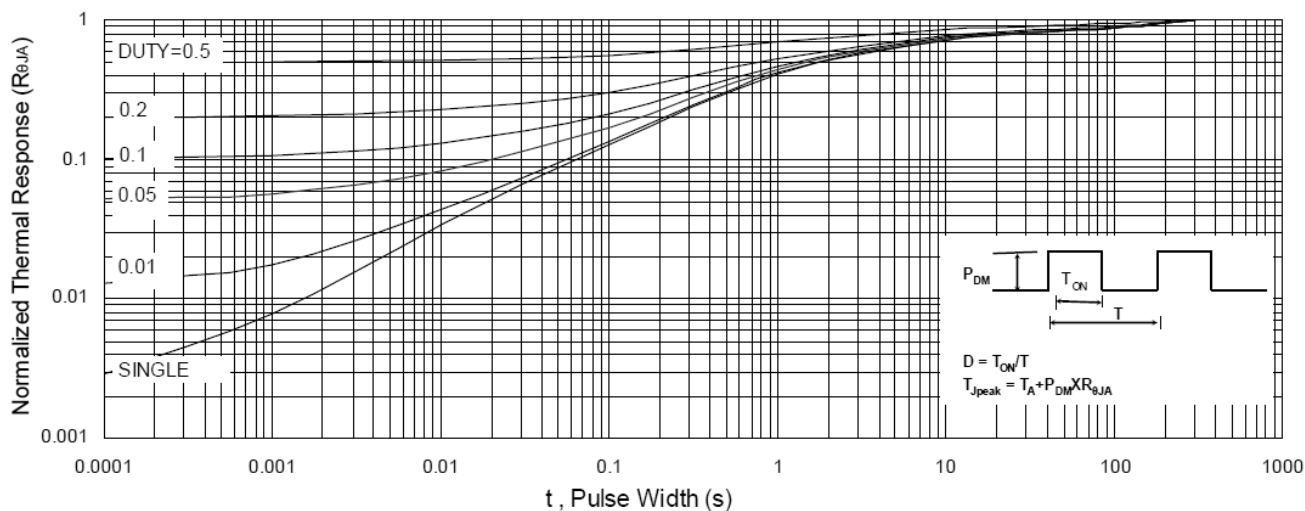


Fig.9 Normalized Maximum Transient Thermal Impedance

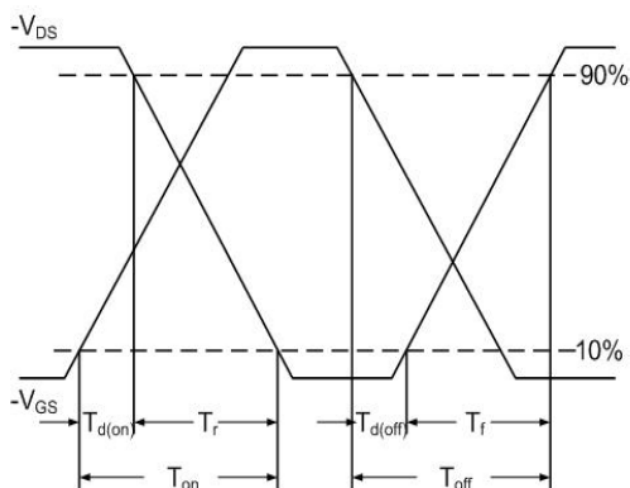


Fig.10 Switching Time Waveform

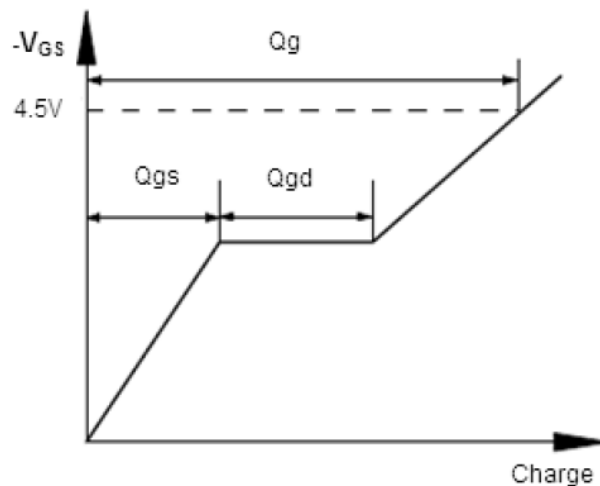


Fig.11 Gate Charge Waveform