Elektronische Bauelemente

SSG04N15-C

4.5A, 150V, $R_{DS(ON)}$ 70mΩ

N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

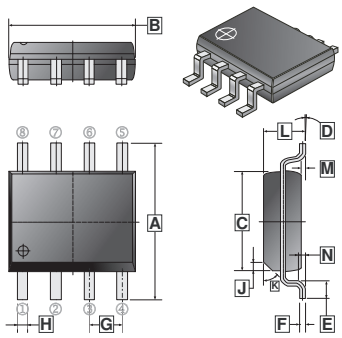
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSG04N15-C is the highest performance trench N-Ch MOSFETs with extreme high cell density, which provides excellent $R_{DS(ON)}$ and gate charge for most synchronous buck converter applications.

The SSG04N15-C meet the RoHS and Green Product requirement with full function reliability approved.

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.				

FEATURES

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

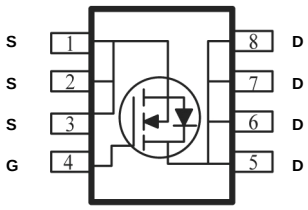
MARKING

04N15

□□□□ ← □ = Date Code

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch



ORDER INFORMATION

Part Number	Type
SSG04N15-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current [1] @V_{GS}=10V	T_A=25℃	I_D	4.5	A
	T_A=70℃		3.6	
Pulsed Drain Current [2]		I_{DM}	20	A
Power Dissipation [1]	T_A=25℃	P_D	3.1	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Maximum Thermal Resistance from Junction-Ambient [1]		$R_{\theta JA}$	t≦10s, 40	℃/W
			Steady state, 85	
Maximum Thermal Resistance from Junction-Ambient			125	
Maximum Thermal Resistance from Junction-Case [1]		$R_{\theta JC}$	25	

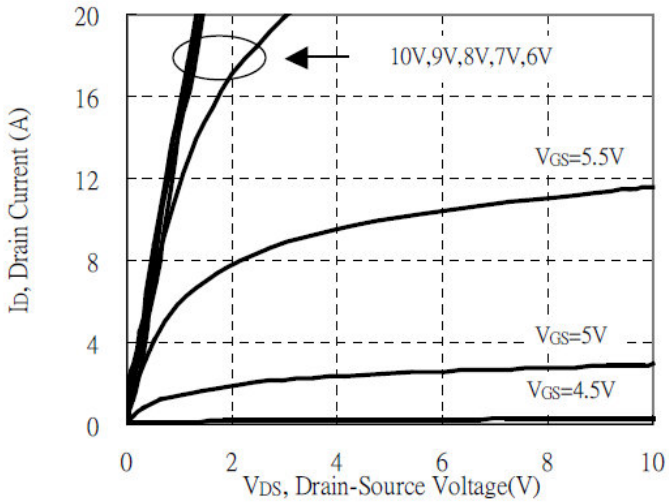
ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	150	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Body Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±25V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=120V, V_{GS}=0
	T_J=125℃		-	-	25		V_{DS}=120V, V_{GS}=0
Drain-Source On-Resistance [3]		$R_{DS(ON)}$	-	55	70	mΩ	V_{GS}=10V, I_D=4.5A
			-	60	85		V_{GS}=6V, I_D=3A
Total Gate Charge		Q_g	-	24	-	nC	V_{DS}=75V V_{GS}=10V I_D=4.5A
Gate-Source Charge		Q_{gs}	-	5.3	-		
Gate-Drain Charge		Q_{gd}	-	7.8	-		
Turn-on Delay Time		$T_{d(on)}$	-	14.4	-	nS	V_{DS}=75V V_{GS}=10V I_D=1A R_G=3Ω
Rise Time		T_r	-	18	-		
Turn-off Delay Time		$T_{d(off)}$	-	35.2	-		
Fall Time		T_f	-	23	-		
Input Capacitance		C_{iss}	-	1284	-	pF	V_{DS}=25V V_{GS}=0 f=1MHz
Output Capacitance		C_{oss}	-	128	-		
Reverse Transfer Capacitance		C_{rss}	-	56	-		
Source-Drain Diode							
Diode Forward Voltage [3]		V_{SD}	-	0.78	1.2	V	I_S=2.3A, V_{GS}=0, T_J=25℃
Continuous Source Current [1]		I_S	-	-	2.3	A	
Pulsed Source Current [2]		I_{SM}	-	-	9.2	A	
Reverse Recovery Time		T_{rr}	-	39	-	nS	I_F=2.3A, dI/dt=100A/μs T_J=25℃
Reverse Recovery Charge		Q_{rr}	-	68	-	nC	

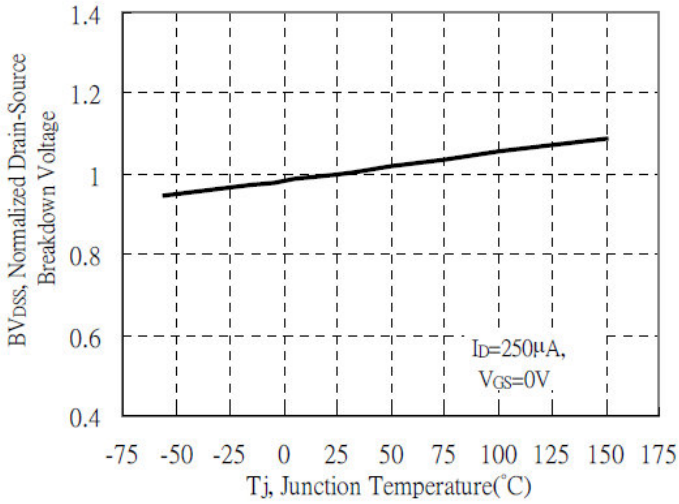
Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper pad.
2. The power dissipation is limited by 150℃ junct ion temperature.
3. The date tested by pulsed, pulse width≦300μs, duty cycle≦2%.

CHARACTERISTICS CURVE

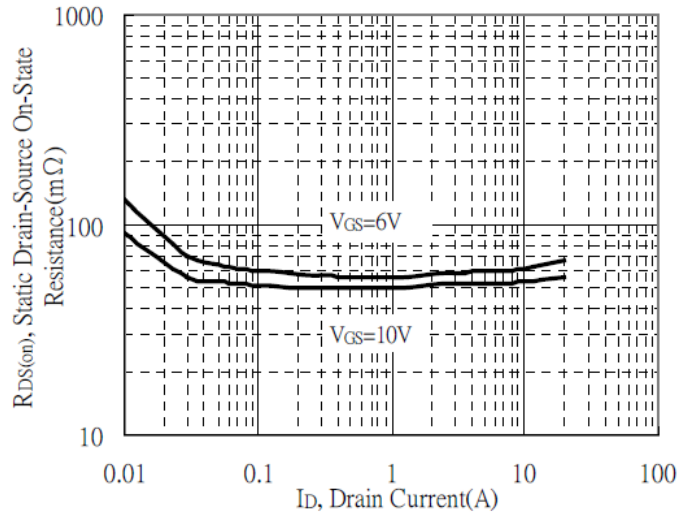
Typical Output Characteristics



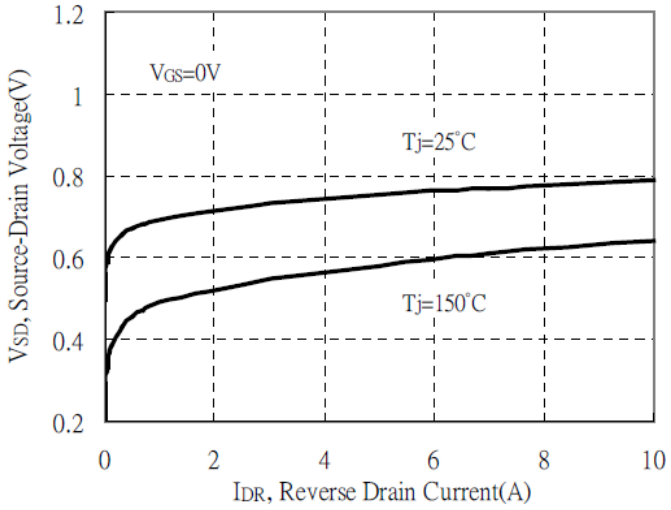
Brekdown Voltage vs Ambient Temperature



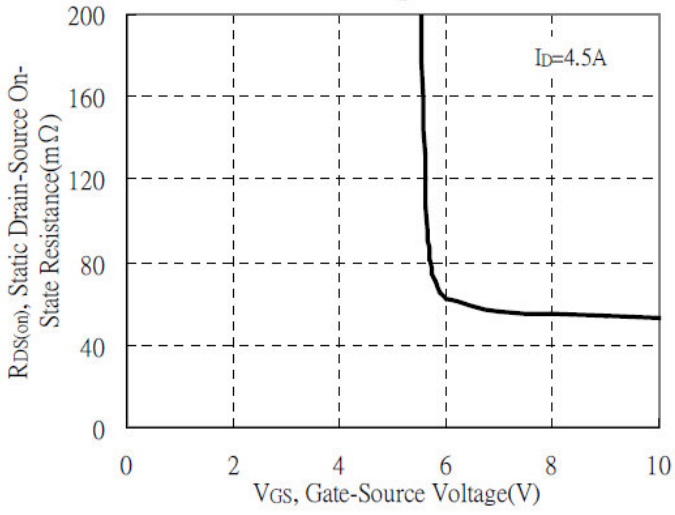
Static Drain-Source On-State resistance vs Drain Current



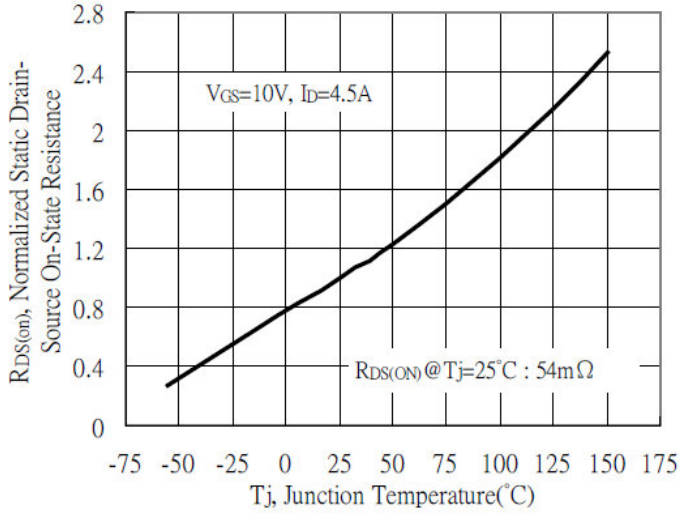
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

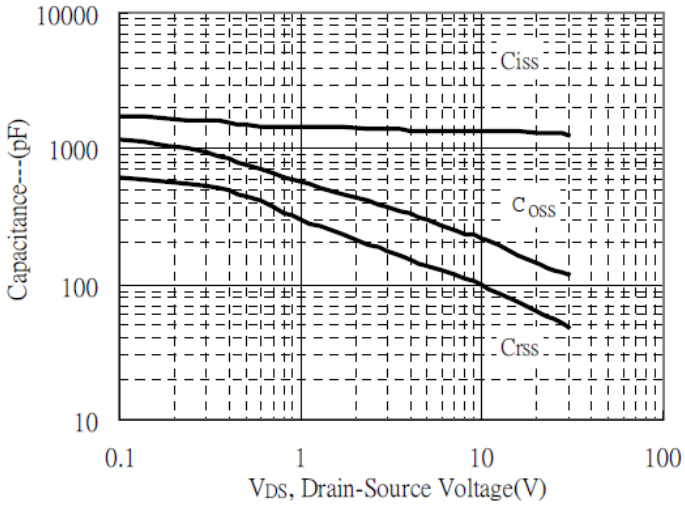


Drain-Source On-State Resistance vs Junction Tempearture

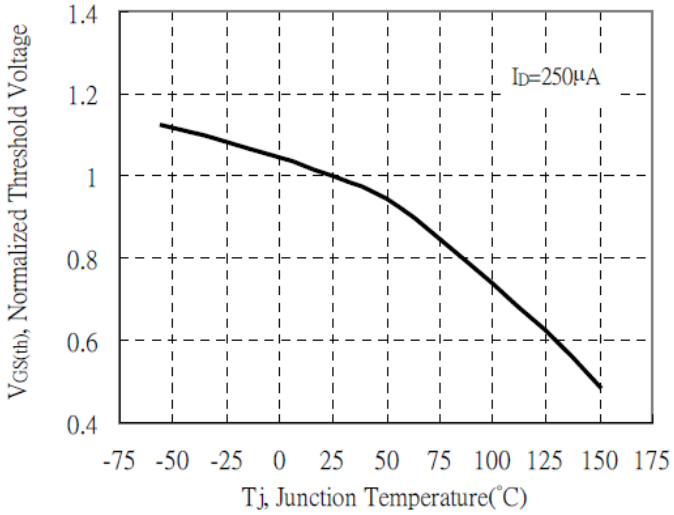


CHARACTERISTICS CURVE

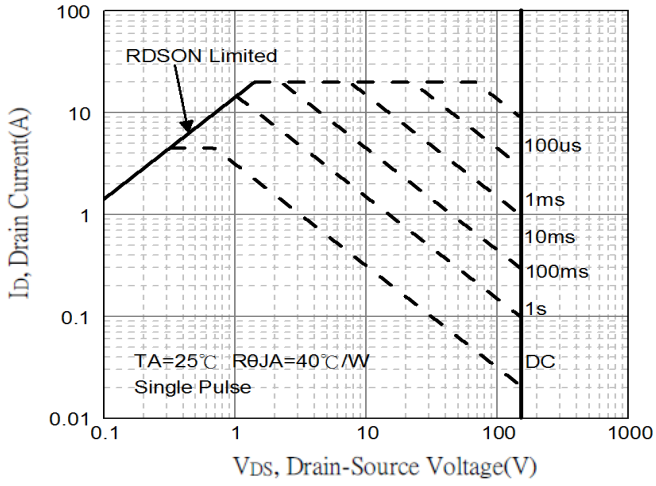
Capacitance vs Drain-to-Source Voltage



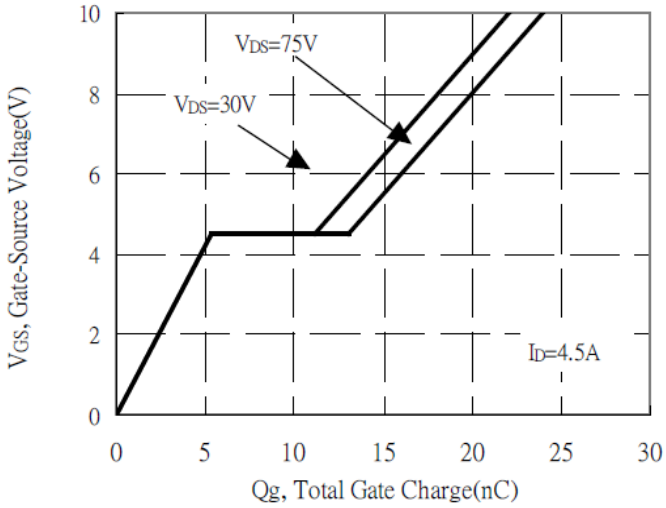
Threshold Voltage vs Junction Tempearture



Maximum Safe Operating Area



Gate Charge Characteristics



Transient Thermal Response Curves