Elektronische Bauelemente

SSG16P03-C

-16.5A, -30V, $R_{DS(ON)}$ 7.5mΩ

P-Channel Enhancement Mode Power MOSFET

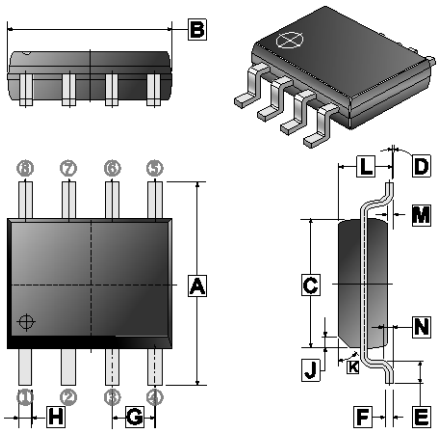
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSG16P03-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 SSG16P03-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

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

MARKING

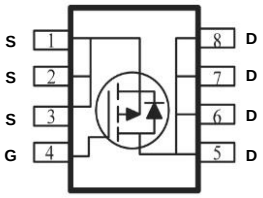
16P03
□□□□ ← □ = Date code

PACKAGE INFORMATION

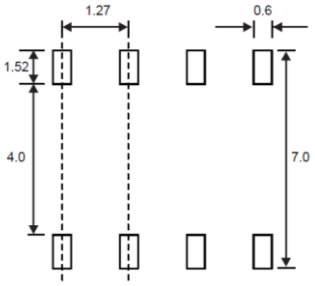
Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSG16P03-C	Lead (Pb)-free and Halogen-free



Mounting Pad Layout



*Dimensions in millimeters

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current [1] @V_{GS}=10V	T_A=25°C	I_D	-16.5	A
	T_A=70°C		-13	
Pulsed Drain Current [2]		I_{DM}	-60	A
Total Power Dissipation [3]	T_A=25°C	P_D	3.1	W
Operating Junction & Storage Temperature		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	t≦10sec, 40	°C/W
			Steady State, 105	
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	24	

ELECTRICAL CHARACTERISTICS (T_J=25°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= -250uA
Gate-Threshold Voltage		$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS}, I_D= -250uA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±25V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	-1	uA	V_{DS}= -24V, V_{GS}=0
	T_J=55°C		-	-	-5		V_{DS}= -24V, V_{GS}=0
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	7.5	mΩ	V_{GS}= -10V, I_D= -10A
			-	-	13		V_{GS}= -4.5V, I_D= -10A
Total Gate Charge		Q_g	-	60	-	nC	I_D= -15A V_{DS}= -15V V_{GS}= -10V
Gate-Source Charge		Q_{gs}	-	9	-		
Gate-Drain Change		Q_{gd}	-	15	-		
Turn-on Delay Time		$T_{d(on)}$	-	17	-	nS	V_{DD}= -15V I_D= -10A V_{GS}= -10V R_G=3.3Ω
Rise Time		T_r	-	40	-		
Turn-off Delay Time		$T_{d(off)}$	-	55	-		
Fall Time		T_f	-	13	-		
Input Capacitance		C_{iss}	-	3450	-	pF	V_{GS}=0 V_{DS}= -25V f=1MHz
Output Capacitance		C_{oss}	-	255	-		
Reverse Transfer Capacitance		C_{rss}	-	140	-		
Source-Drain Diode							
Diode Forward Voltage [2]		V_{SD}	-	-	-1.2	V	I_S= -1A, V_{GS}=0, T_J=25°C
Continuous Source Current [1]		I_S	-	-	-16.5	A	
Reverse Recovery Time		t_{rr}	-	22	-	nS	I_F= -15A, dI/dt=100A/μs, T_J=25°C
Reverse Recovery Charge		Q_{rr}	-	72	-	nC	

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. Pulse width limited by maximum junction temperature.

CHARACTERISTIC CURVES

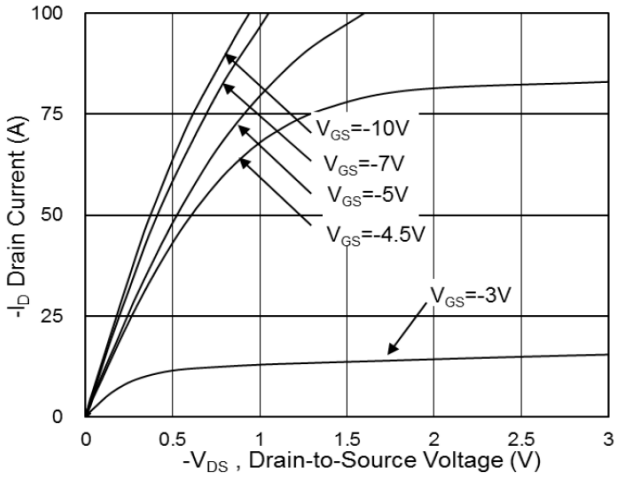


Fig.1 Typical Output Characteristics

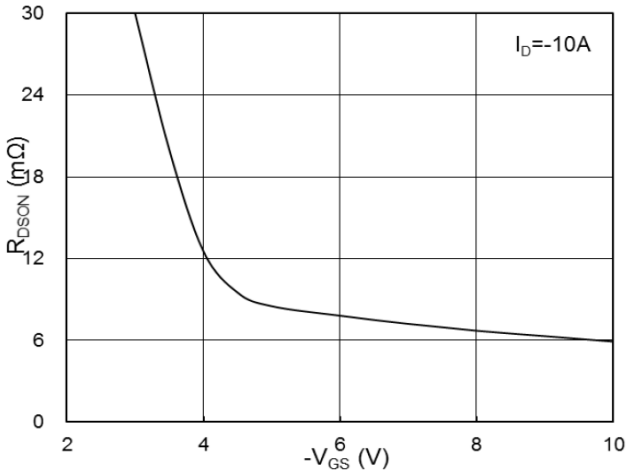


Fig.2 On-Resistance vs. Gate-Source Voltage

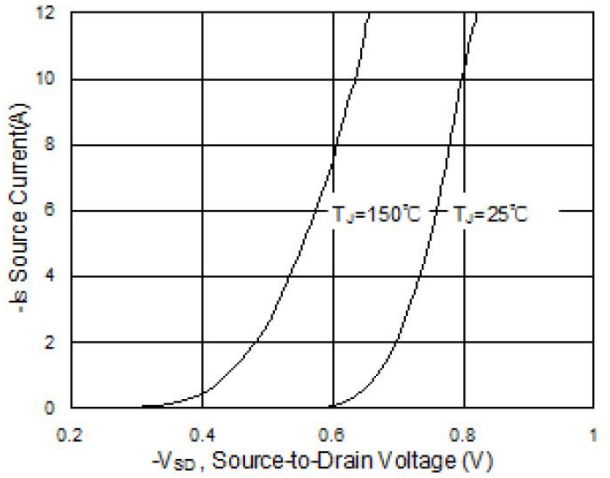


Fig.3 Forward Characteristics of Reverse

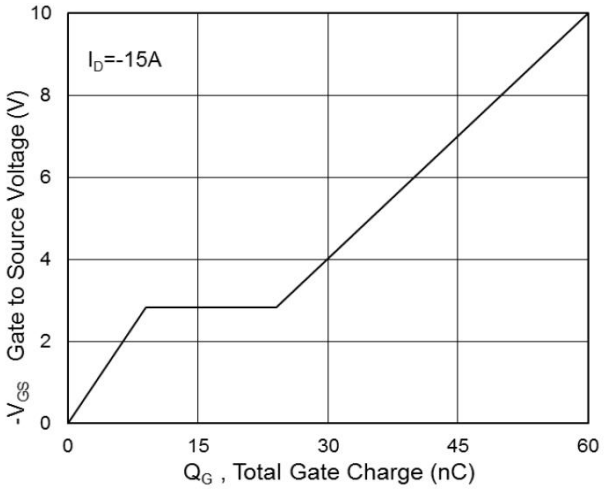


Fig.4 Gate-Charge Characteristics

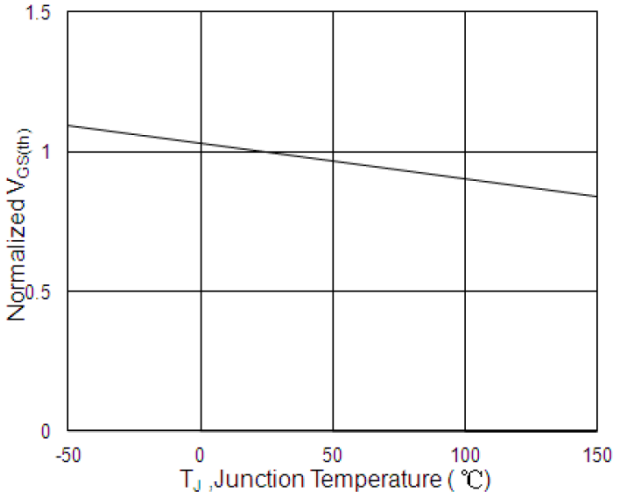


Fig.5 Normalized $-V_{GS(th)}$ vs. T_J

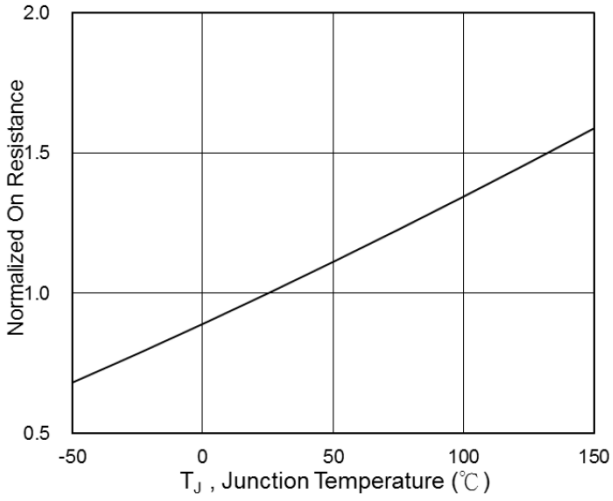


Fig.6 Normalized R_{DSON} vs. T_J

CHARACTERISTIC CURVES

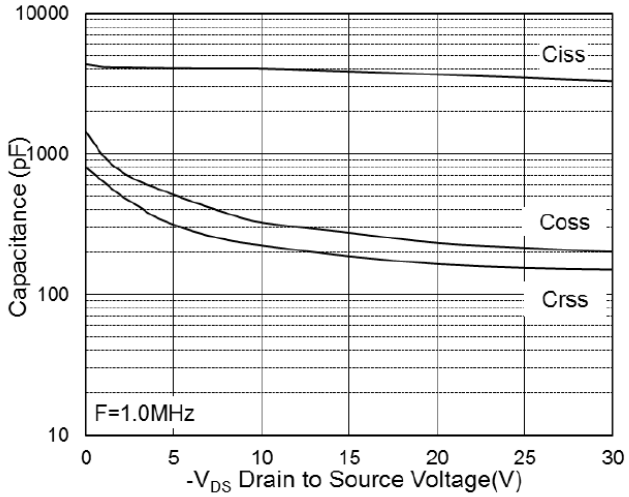


Fig.7 Capacitance

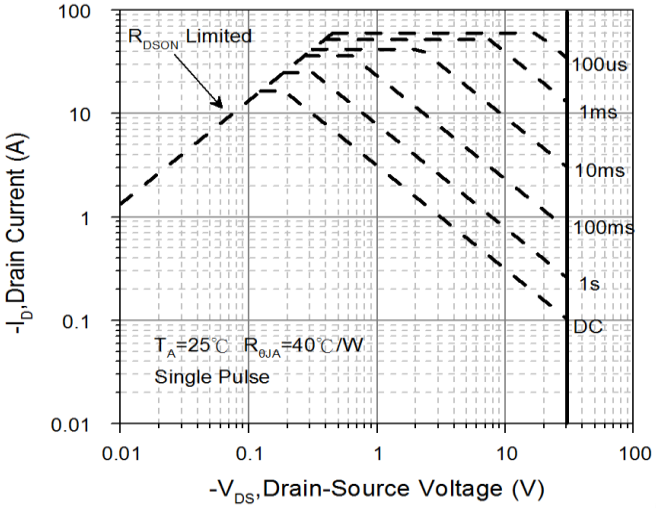


Fig.8 Safe Operating Area

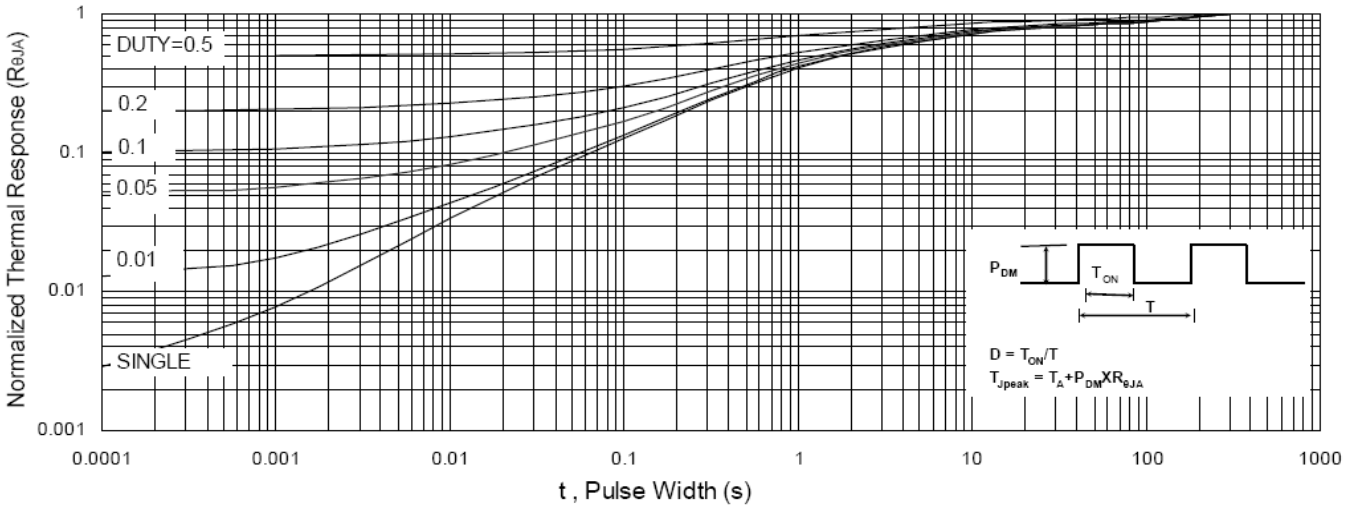


Fig.9 Normalized Maximum Transient Thermal Impedance

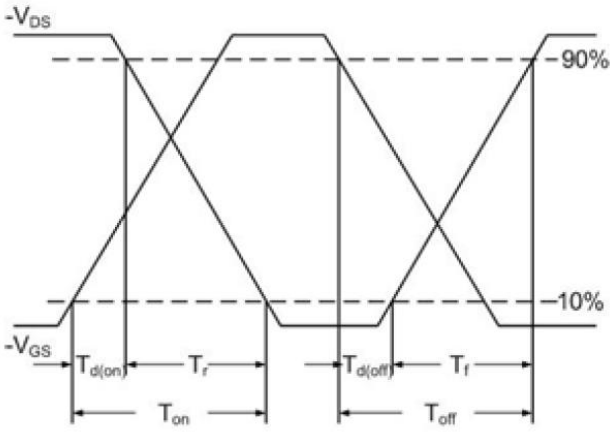


Fig.10 Switching Time Waveform

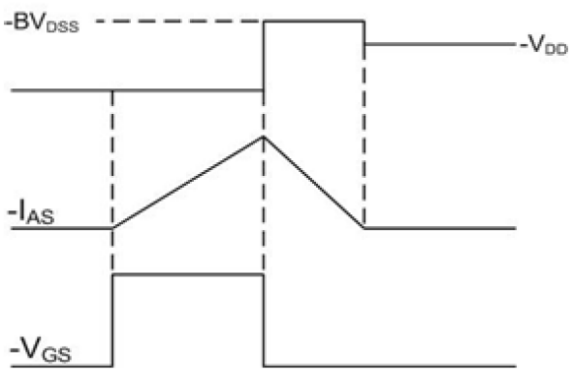


Fig.11 Unclamped Inductive Switching Waveform