Elektronische Bauelemente

SSG284N03-C

28A, 30V, $R_{DS(ON)}$ 4mΩ

N-Ch Enhancement Mode Power MOSFET

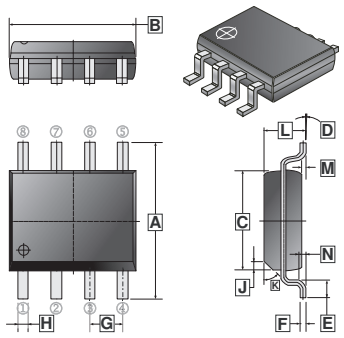
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

The SSG284N03-C is the highest performance trench 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 SSG284N03-C meet the RoHS and Green Product requirement with full function reliability approved.

SOP-8

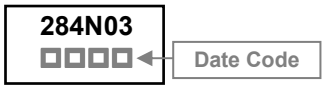


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.79	6.20	H	0.33	0.51
B	4.70	5.11	J	0.375 REF.	
C	3.80	4.00	K	45°REF.	
D	0°	8°	L	1.3	1.752
E	0.40	1.27	M	0	0.25
F	0.10	0.25	N	0.25 REF.	
G	1.27 TYP.				

FEATURES

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

MARKING

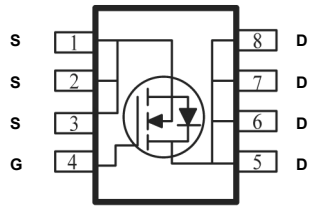


PACKAGE INFORMATION

Package	MPQ	Leader Size
SOP-8	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSG284N03-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1], @V_{GS}=10V	T_C=25°C	I_D	28	A
	T_C=100°C		19	
	T_A=25°C		15	
	T_A=70°C		12	
Pulsed Drain Current [3]		I_{DM}	60	A
Total Power Dissipation	T_A=25°C	P_D	1.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	83	°C/W
Maximum Thermal Resistance Junction-Ambient [2]			125	
Maximum 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=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance		g_{fs}	-	26.5	-	S	V_{DS}=5V, I_D=15A
Gate Resistance		R_g	-	2.6	4	Ω	f=1.0MHz
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]		$R_{DS(ON)}$	-	3.2	4.0	mΩ	V_{GS}=10V, I_D=15A
			-	4.5	6.0		V_{GS}=4.5V, I_D=10A
Total Gate Charge		Q_g	-	31.6	-	nC	I_D=12A V_{DS}=20V V_{GS}=4.5V
Gate-Source Charge		Q_{gs}	-	6.1	-		
Gate-Drain Change		Q_{gd}	-	13.8	-		
Turn-on Delay Time		$T_{d(on)}$	-	11.2	-	nS	V_{DD}=15V I_D=15A V_{GS}=10V R_G=1.5Ω
Rise Time		T_r	-	49	-		
Turn-off Delay Time		$T_{d(off)}$	-	35	-		
Fall Time		T_f	-	7.8	-		
Input Capacitance		C_{iss}	-	3075	-	pF	V_{GS}=0 V_{DS}=15V f=1MHz
Output Capacitance		C_{oss}	-	400	-		
Reverse Transfer Capacitance		C_{rss}	-	315	-		
Source-Drain Diode							
Forward on Voltage [4]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0
Continuous Source Current [1]		I_S	-	-	15	A	
Pulsed Source Current [3]		I_{SM}	-	-	60	A	

Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. When mounted on Min. Copper pad.
3. Pulse width limited by maximum junction temperature, pulse width≦300μs, duty cycle≦2%.
4. The data tested by pulsed, pulse width≦300μs, duty cycle≦2%.

TYPICAL CHARACTERISTICS CURVE

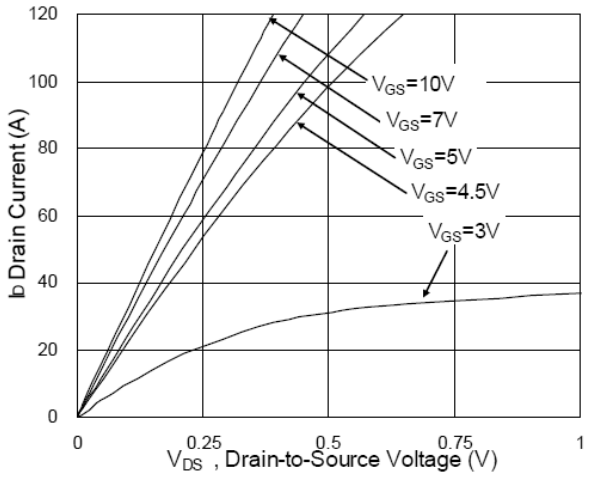


Fig.1 Typical Output Characteristics

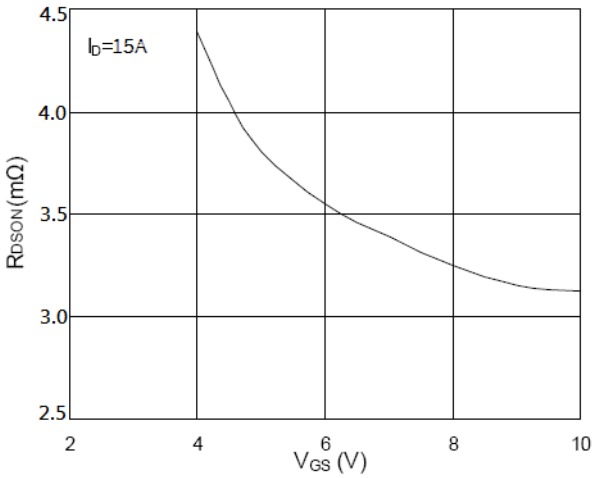


Fig.2 On-Resistance vs. G-S Voltage

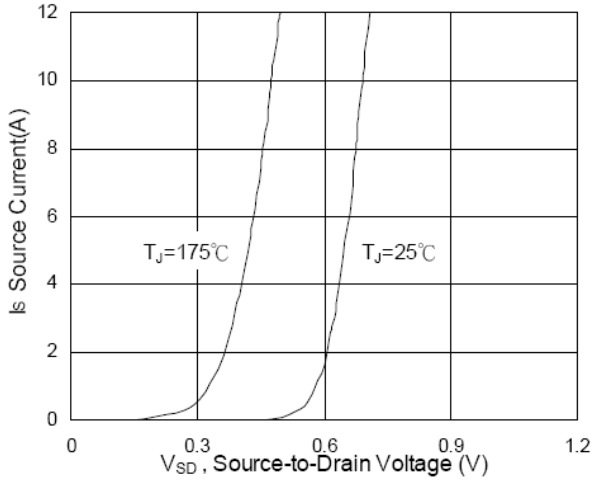


Fig.3 Forward Characteristics of Reverse

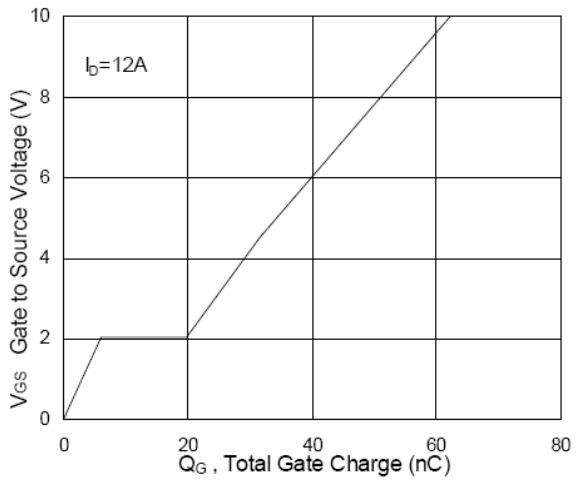


Fig.4 Gate-charge Characteristics

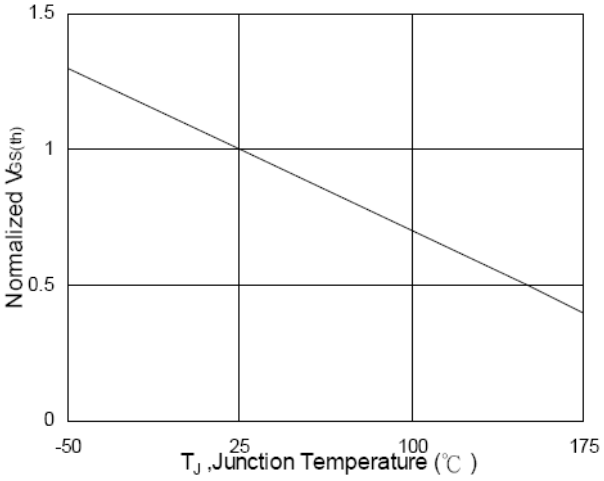


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

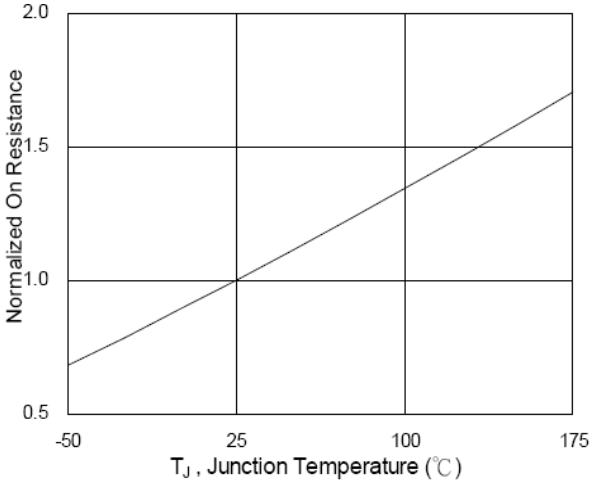


Fig.6 Normalized R_{DSON} vs. T_J

TYPICAL CHARACTERISTICS CURVE

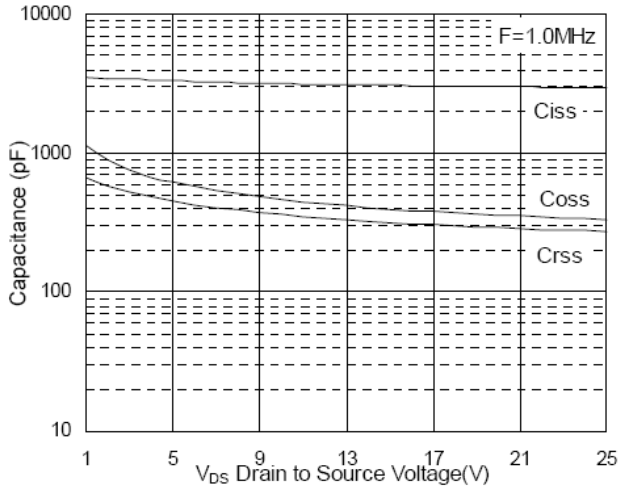


Fig.7 Capacitance

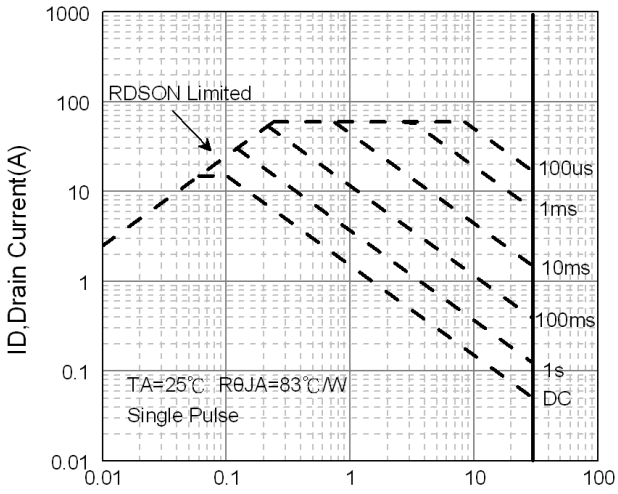


Fig.8 Safe Operating Area

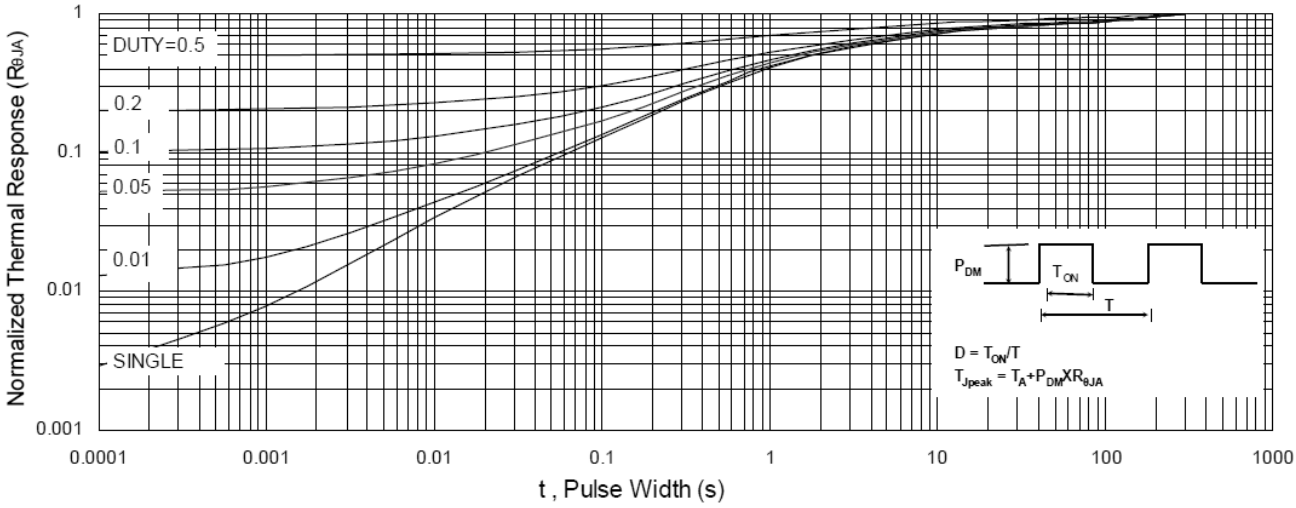


Fig.9 Normalized Maximum Transient Thermal Impedance

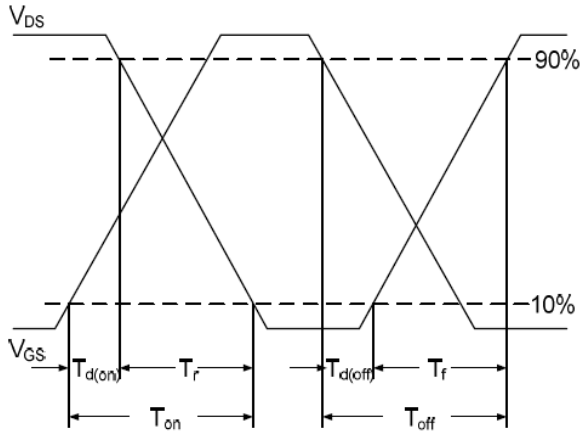


Fig.10 Switching Time Waveform

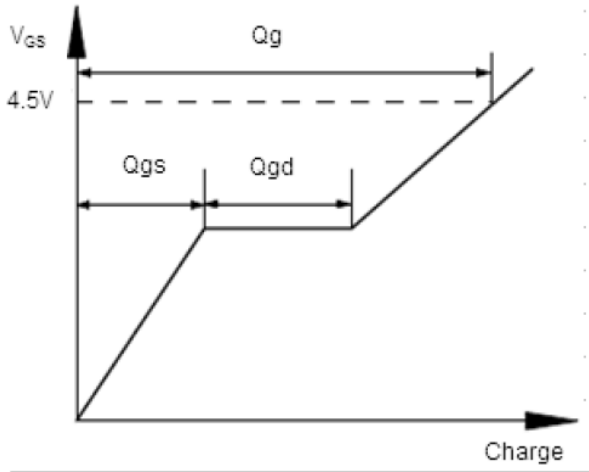


Fig.11 Gate Charge Waveform