Elektronische Bauelemente

SPRD2810S-C

28.5A, 100V, $R_{DS(ON)}$ 20mΩ
Dual N-Ch Enhancement Mode Power MOSFET

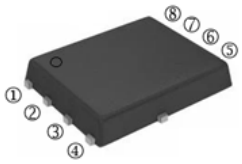
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SPRD2810S-C is the highest performance trench Dual 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 SPRD2810S-C meet the RoHS and Green Product requirement with full function reliability approved.

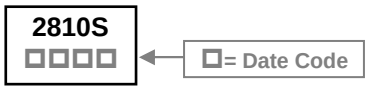
DFN5x6-8D



FEATURES

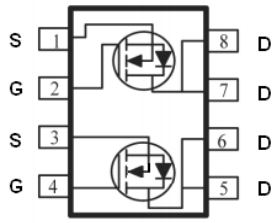
- Shielded Gate Trench Technology
- Super Low Gate Charge
- Green Device Available

MARKING



PACKAGE INFORMATION

Package	MPQ	Leader Size
DFN5x6-8D	3K	13 inch



ORDER INFORMATION

Part Number	Type
SPRD2810S-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1] @V_{GS}=10V	T_C=25℃	I_D	28.5	A
	T_C=100℃		18.1	
Pulsed Drain Current [2]		I_{DM}	80	A
Total Power Dissipation [3]	T_C=25℃	P_D	29.8	W
	T_A=25℃		2	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Data				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	62	℃/W
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	4.2	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	100	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage		$V_{GS(th)}$	1.2	-	2.2	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=80V, V_{GS}=0
	T_J=55℃		-	-	5		
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	16.5	20	mΩ	V_{GS}=10V, I_D=6A
			-	22	30		V_{GS}=4.5V, I_D=6A
Gate Resistance		R_g	-	0.8	-	Ω	V_{DS}=V_{GS}=0, f=1MHz
Total Gate Charge		Q_g	-	17.9	-	nC	I_D=10A V_{DS}=50V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	2.8	-		
Gate-Drain Change		Q_{gd}	-	5.2	-		
Turn-on Delay Time		$T_{d(on)}$	-	13	-	nS	I_D=1A V_{DD}=30V V_{GS}=10V R_G=6Ω
Rise Time		T_r	-	6	-		
Turn-off Delay Time		$T_{d(off)}$	-	30	-		
Fall Time		T_f	-	29	-		
Input Capacitance		C_{iss}	-	849	-	pF	V_{DS}=50V V_{GS}=0 f=1MHz
Output Capacitance		C_{oss}	-	185	-		
Reverse Transfer Capacitance		C_{rss}	-	8	-		
Source-Drain Diode							
Continuous Source Current [1]		I_S	-	-	28.5	A	V_G=V_D=0, Force Current
Forward on Voltage [2]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0, T_J=25℃

Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.
3. The power dissipation is limited by 150℃ juncti on temperature.

CHARACTERISTIC CURVES

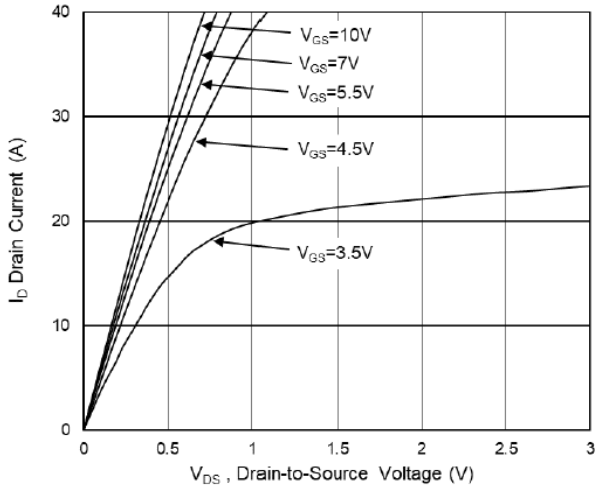


Fig.1 Typical Output Characteristics

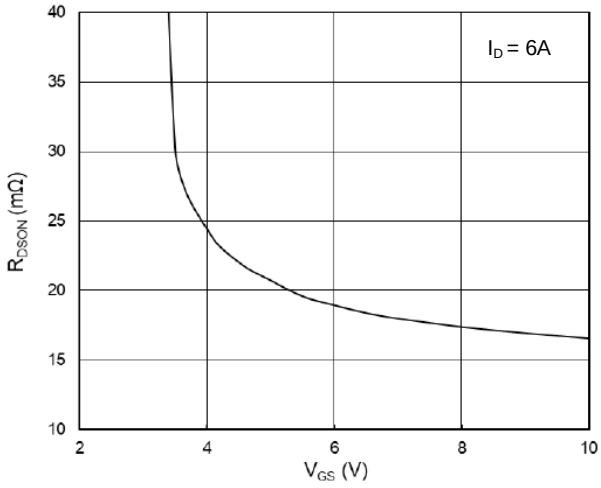


Fig.2 On-Resistance vs G-S Voltage

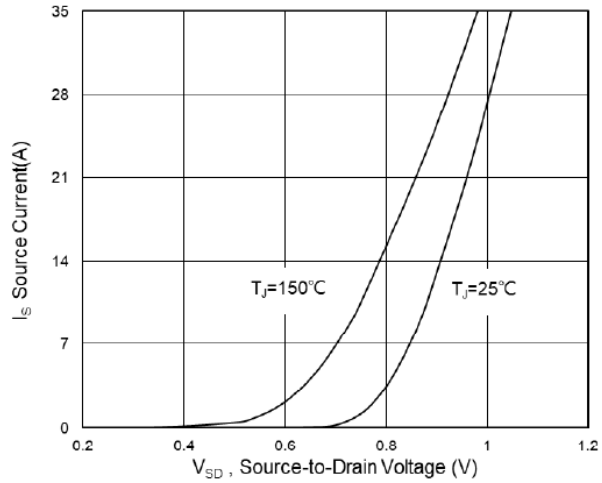


Fig.3 Source Drain Forward Characteristics

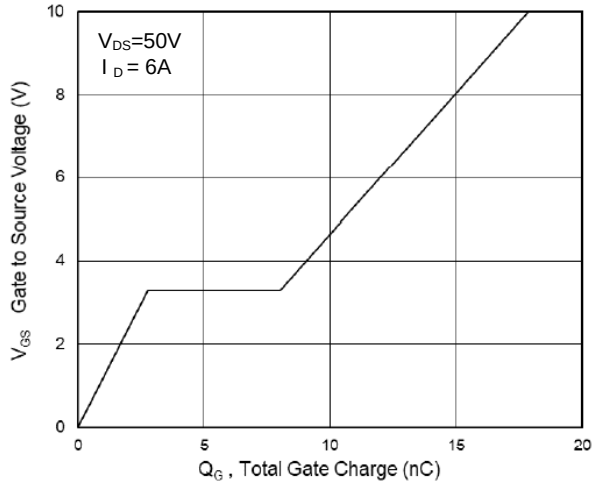


Fig.4 Gate-Charge Characteristics

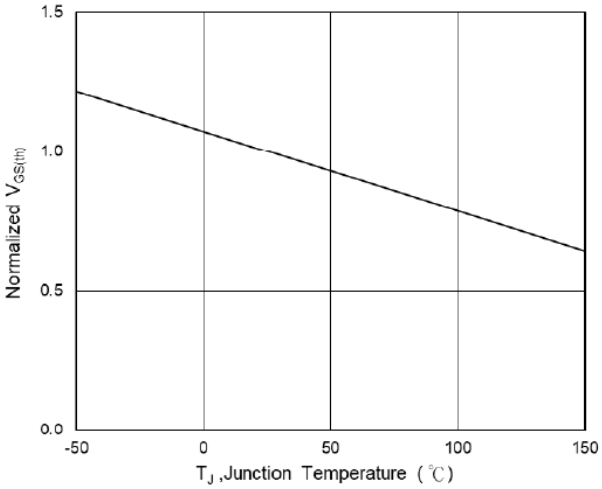


Fig.5 Normalized $V_{GS(th)}$ vs T_J

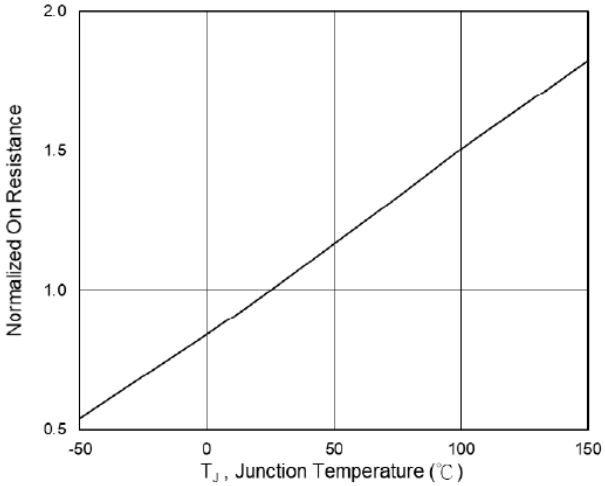


Fig.6 Normalized R_{DSON} vs T_J

CHARACTERISTIC CURVES

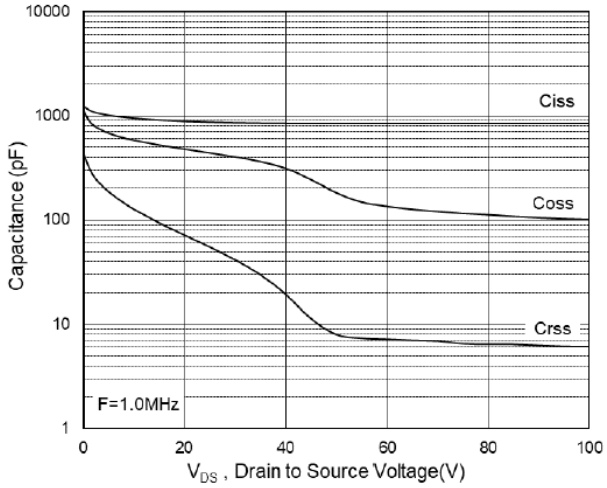


Fig.7 Capacitance

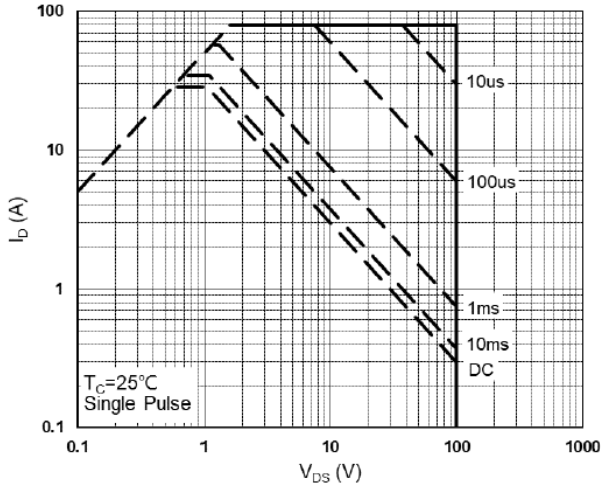


Fig.8 Safe Operating Area

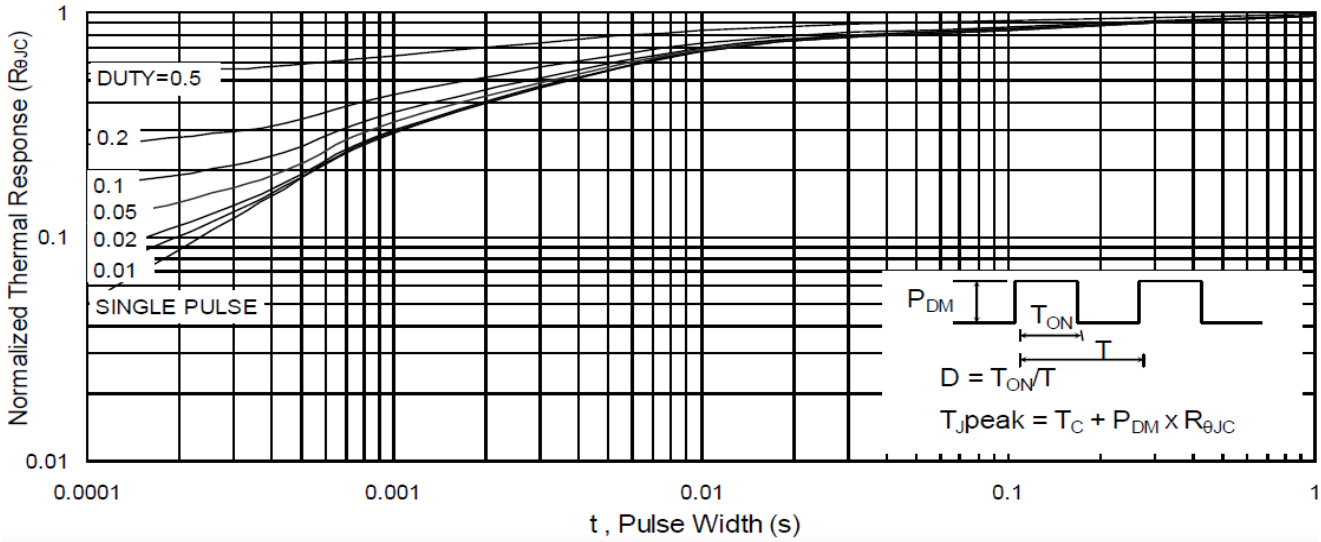


Fig.9 Normalized Maximum Transient Thermal Impedance

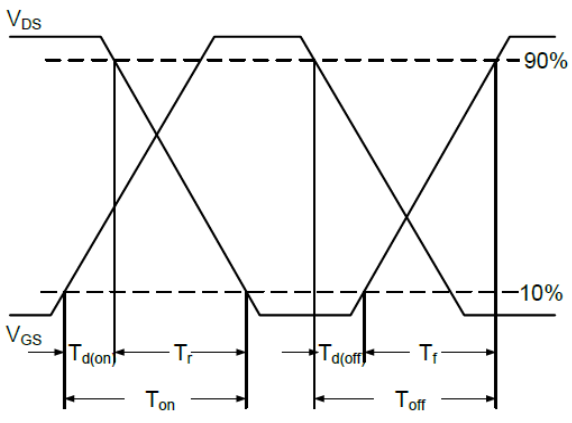


Fig.10 Switching Time Waveform

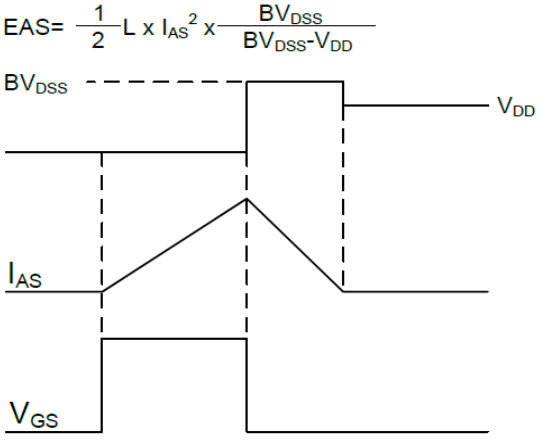
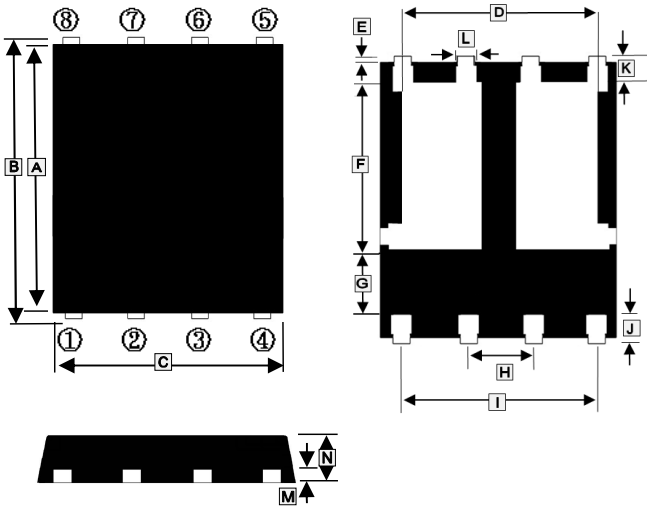


Fig.11 Unclamped Inductive Switching Waveform

PACKAGE OUTLINE DIMENSIONS

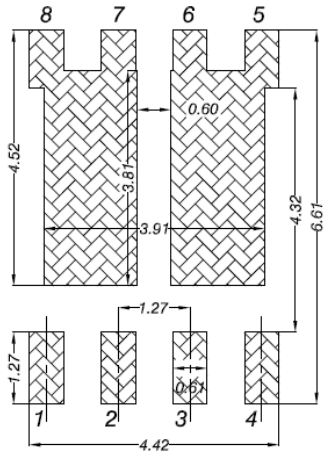
DFN5x6-8D



REF.	Millimeter	
	Min.	Max.
A	5.70	5.80
B	5.90	6.10
C	4.80	5.00
D	3.61	3.96
E	0.06	0.20
F	3.38	3.78
G	1.10	-
H	1.27 BSC.	
I	3.61	3.96
J	0.51	0.71
K	0.41	0.61
L	0.33	0.51
M	0.20	0.30
N	0.90	1.10

MOUNTING PAD LAYOUT

DFN5x6-8D



*Dimensions in millimeters