Elektronische Bauelemente

SPRD4611-C

11A, 100V, $R_{DS(ON)}$ 150mΩ

Dual N-Ch Enhancement Mode Power MOSFET

RoHS Compliant Product

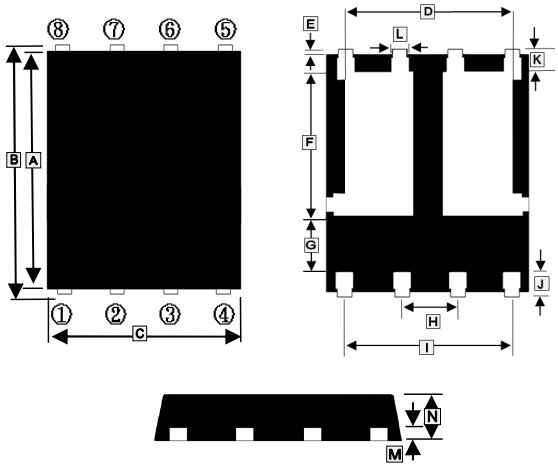
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SPRD4611-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 SPRD4611-C meet the RoHS and Green Product requirement with full function reliability approved.

DFN5x6-8D

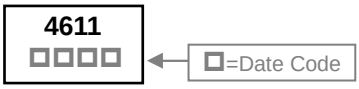


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.70	5.80	H	1.27 BSC.	
B	5.90	6.10	I	3.61	3.96
C	4.80	5.00	J	0.51	0.71
D	3.61	3.96	K	0.41	0.61
E	0.06	0.20	L	0.33	0.51
F	3.38	3.78	M	0.20	0.30
G	1.10	-	N	0.90	1.10

FEATURES

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

MARKING

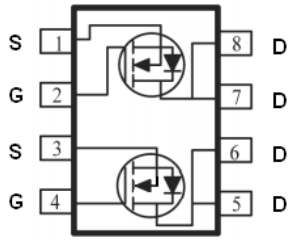


PACKAGE INFORMATION

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

ORDER INFORMATION

Part Number	Type
SPRD4611-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	11	A
	T_C=100℃		6.6	
Pulsed Drain Current [3]		I_{DM}	20	A
Total Power Dissipation	T_C=25℃	P_D	35.7	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Data				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	62.5	℃/W
Thermal Resistance Junction-Ambient [2]			110	
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	3.5	

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	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer Conductance		g_{fs}	-	19	-	S	V_{DS}=5V, I_D=8A
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±20V
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 [4]		$R_{DS(ON)}$	-	-	150	mΩ	V_{GS}=10V, I_D=6A
			-	-	155		V_{GS}=4.5V, I_D=4A
Total Gate Charge		Q_g	-	25.5	-	nC	I_D=8A V_{DS}=60V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	4.2	-		
Gate-Drain Change		Q_{gd}	-	4.3	-		
Turn-on Delay Time		$T_{d(on)}$	-	17.3	-	nS	V_{DS}=50V I_D=1A V_{GS}=10V R_G=3.3Ω
Rise Time		T_r	-	2.8	-		
Turn-off Delay Time		$T_{d(off)}$	-	50	-		
Fall Time		T_f	-	2.8	-		
Input Capacitance		C_{iss}	-	1077	-	pF	V_{GS}=0 V_{DS}=15V f=1MHz
Output Capacitance		C_{oss}	-	46	-		
Reverse Transfer Capacitance		C_{rss}	-	32	-		
Source-Drain Diode							
Continuous Source Current [1]		I_S	-	-	11	A	
Pulsed Source Current [3]		I_{SM}	-	-	20		
Forward on Voltage [4]		V_{SD}	-	-	1.2	V	I_S=1A, V_{GS}=0

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. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

CHARACTERISTIC CURVES

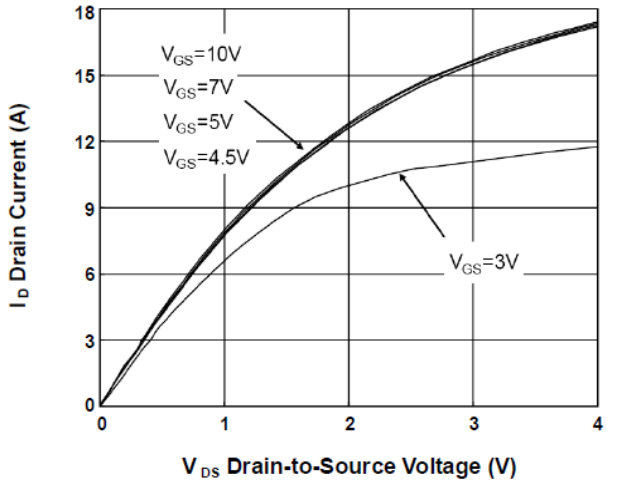


Fig.1 Typical Output Characteristics

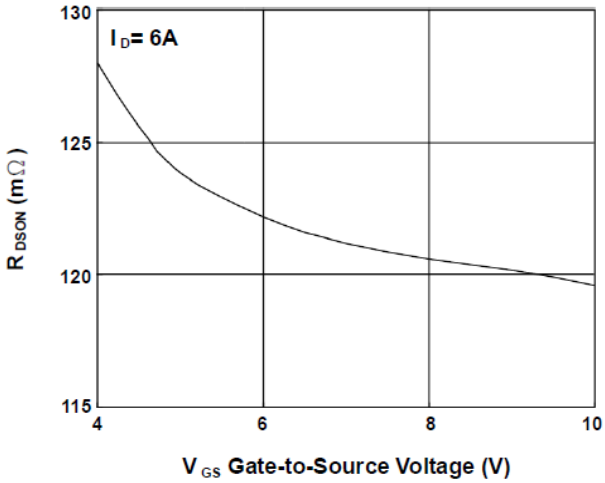


Fig.2 On-Resistance vs. G-S Voltage

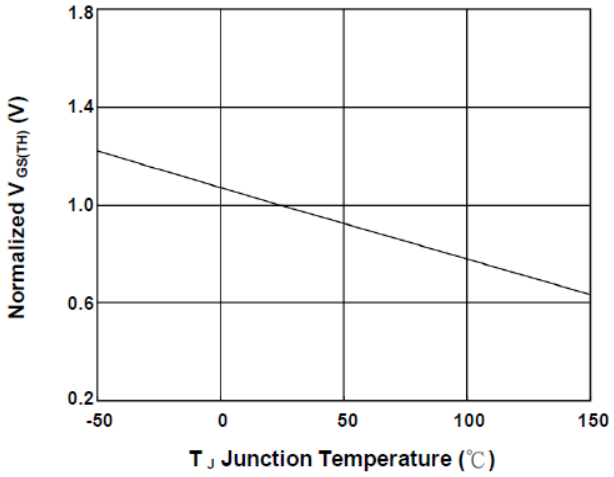


Fig.3 Normalized $V_{GS(th)}$ vs. T_J

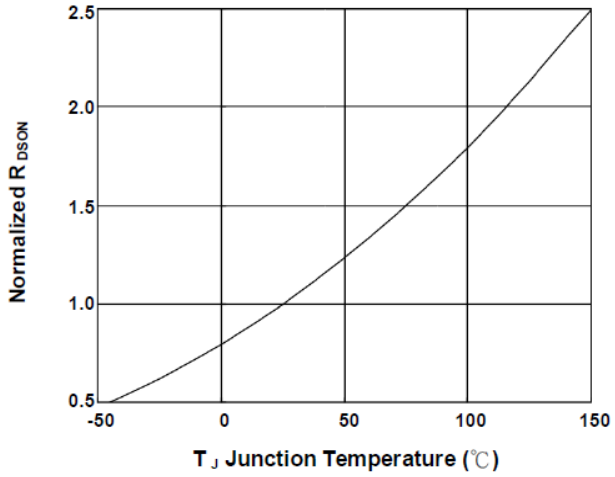


Fig.4 Normalized R_{DSON} vs. T_J

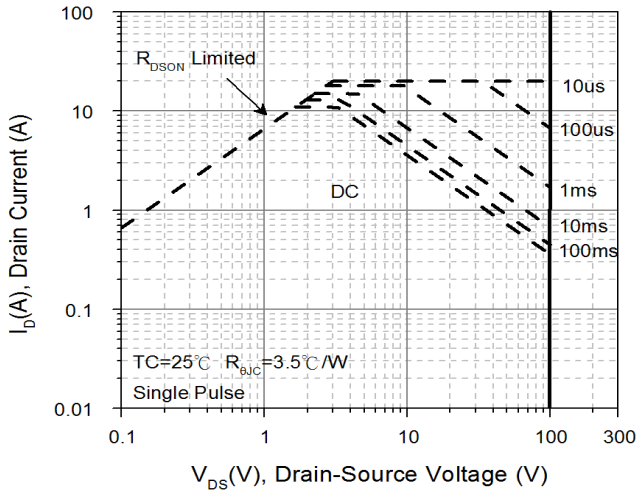


Fig.5 Safe Operating Area

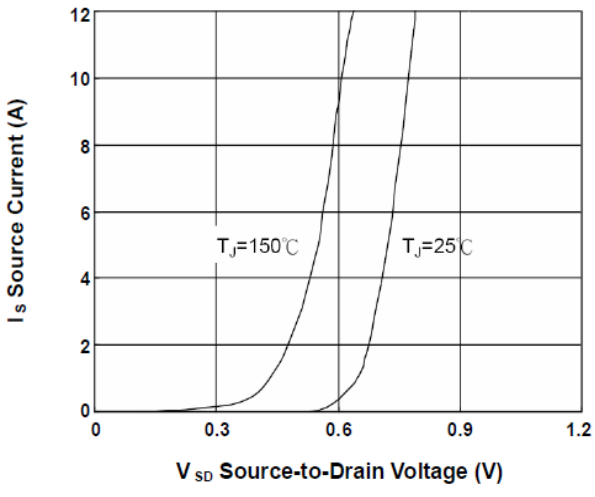


Fig.6 Forward Characteristics of Reverse

CHARACTERISTIC CURVES

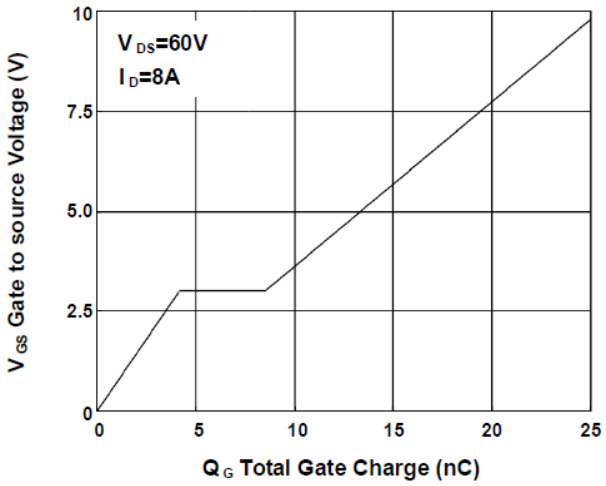


Fig.7 Gate Charge Characteristics

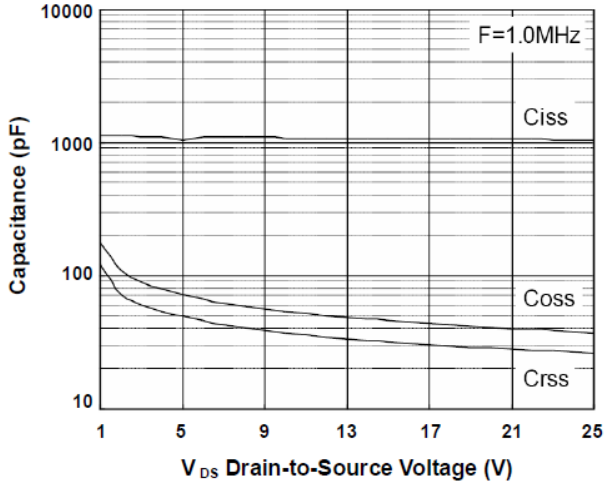


Fig.8 Capacitance Characteristics

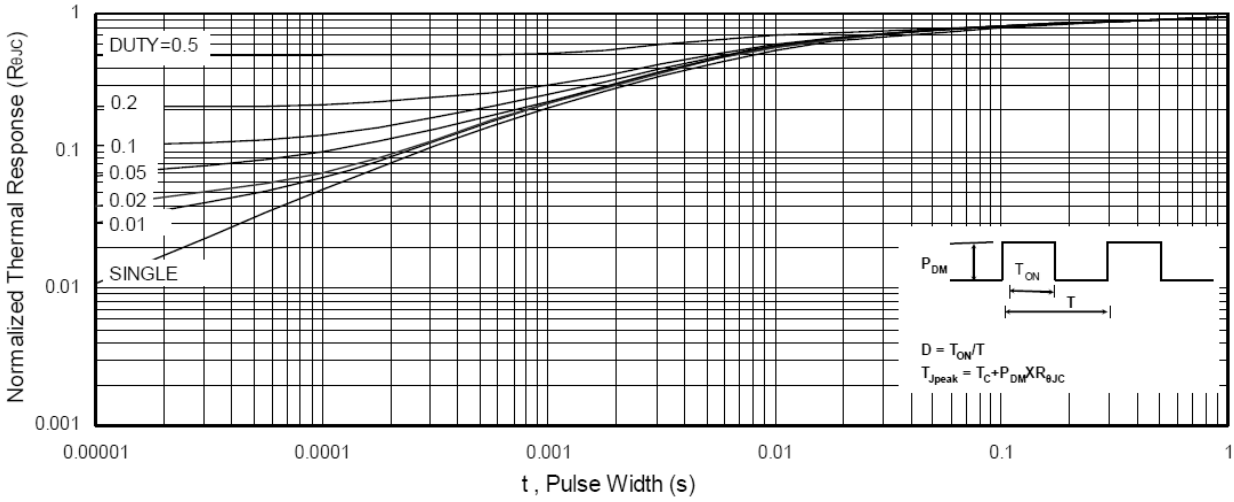


Fig.9 Normalized Maximum Transient Thermal Impedance

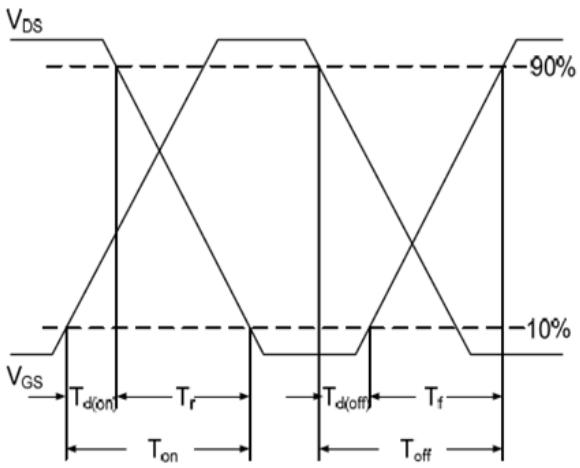


Fig.10 Switching Time Waveform

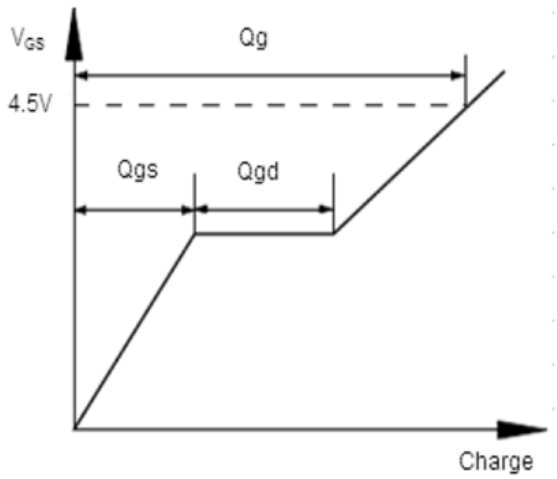


Fig.11 Gate Charge Waveform