Elektronische Bauelemente

SSM0311-C

-2.2A, -100V, $R_{DS(ON)}$ 230mΩ
P-Channel Enhancement Mode Power MOSFET

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

DESCRIPTION

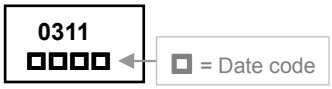
The SSM0311-C is the highest performance trench P-Ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SSM0311-C meet the RoHS and Green Product requirement with full function reliability approved.

FEATURES

- Super High Dense Cell Design For Extremely Low $R_{DS(ON)}$
- High Power And Current Handing Capability
- Green Device Available

MARKING



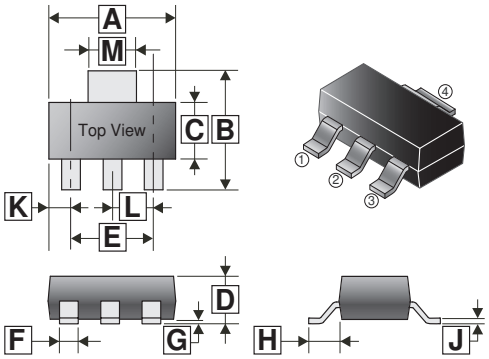
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13 inch

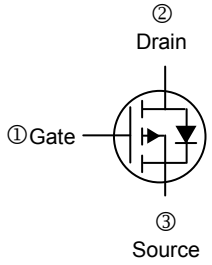
ORDER INFORMATION

Part Number	Type
SSM0311-C	Lead (Pb)-free and Halogen-free

SOT-223



REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	5.90	6.70	G	-	0.18
B	6.70	7.30	H	2.00 REF.	
C	3.30	3.80	J	0.20	0.40
D	1.40	1.90	K	1.10 REF.	
E	4.45	4.75	L	2.30 REF.	
F	0.60	0.85	M	2.80	3.20



ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

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_A=25°C	I_D	-2.2	A
	T_A=70°C		-1.76	A
Pulsed Drain Current [3]		I_{DM}	-10	A
Total Power Dissipation	T_A=25°C	P_D	1.5	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	85	°C/W
Thermal Resistance Junction-Ambient [2]			125	
Thermal Resistance Junction-Case [1]		$R_{\theta JC}$	40	

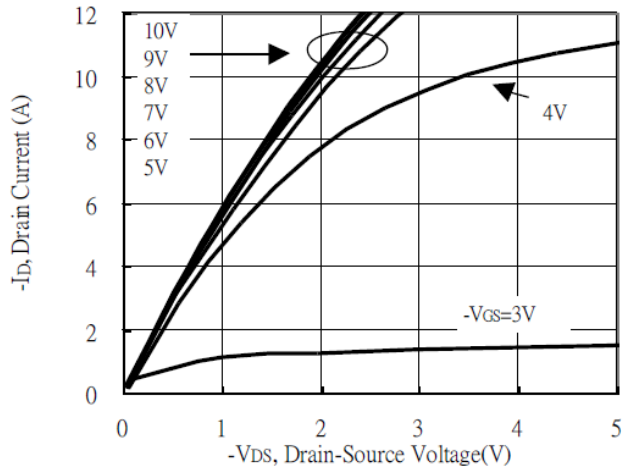
ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

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
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	T_J=25°C	I_{DSS}	-	-	-1	uA	V_{DS}= -80V, V_{GS}=0
	T_J=125°C		-	-	-25		V_{DS}= -80V, V_{GS}=0
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	210	230	mΩ	V_{GS}= -10V, I_D= -1.5A
			-	220	250		V_{GS}= -4.5V, I_D= -1A
Total Gate Charge		Q_g	-	25.8	-	nC	I_D= -2A V_{DS}= -50V V_{GS}= -10V
Gate-Source Charge		Q_{gs}	-	3.4	-		
Gate-Drain Change		Q_{gd}	-	3.8	-		
Turn-on Delay Time		$T_{d(on)}$	-	6.6	-	nS	V_{DS}= -50V I_D= -2A V_{GS}= -10V R_{GEN}=1Ω
Rise Time		T_r	-	18.8	-		
Turn-off Delay Time		$T_{d(off)}$	-	128.2	-		
Fall Time		T_f	-	46.6	-		
Input Capacitance		C_{iss}	-	1413	-	pF	V_{GS}=0 V_{DS}= -25V f=1MHz
Output Capacitance		C_{oss}	-	50	-		
Reverse Transfer Capacitance		C_{rss}	-	41	-		
Source-Drain Diode							
Continuous Source Current [1]		I_S	-	-	-2.2	A	
Pulsed Source Current [3]		I_{SM}	-	-	-10		
Diode Forward Voltage [4]		V_{SD}	-	-	-1.2	V	I_S= -2A, V_{GS}=0
Reverse Recovery Time		T_{rr}	-	18.4	-	nS	I_S= -2A, V_{GS}=0V dI/dt=100A/μs
Reverse Recovery Change		Q_{rr}	-	15.8	-	nC	

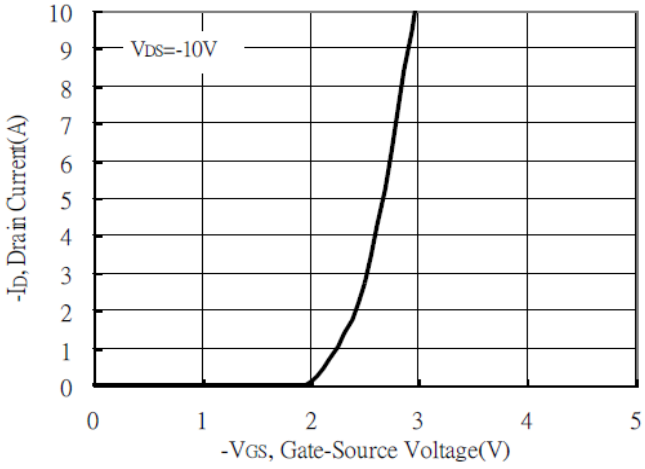
Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. When mounted on Min. copper pad.
3. Pluse width limited by maximum junction temperature.
4. The data tested by pulsed, pulse width ≦300us, duty cycle ≦2%.

CHARACTERISTIC CURVES

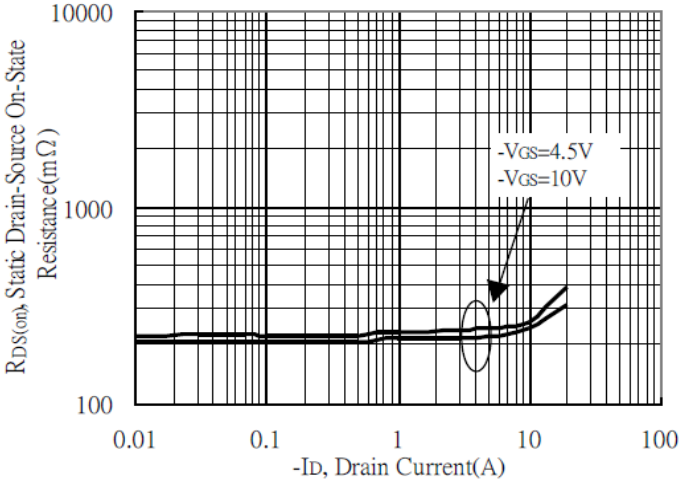
Typical Output Characteristics



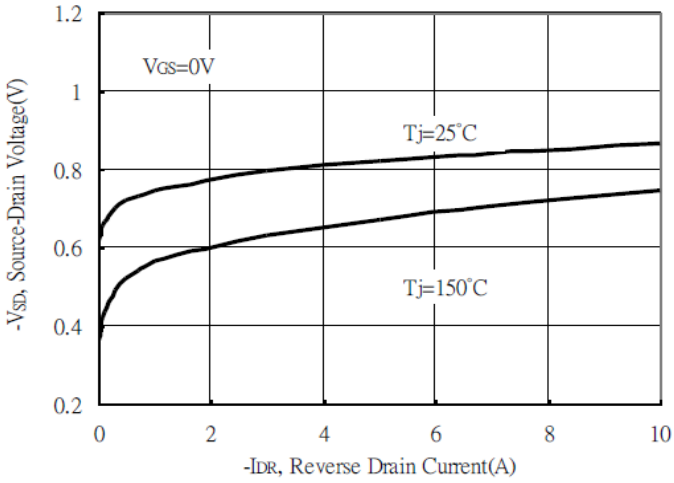
Typical Transfer Characteristics



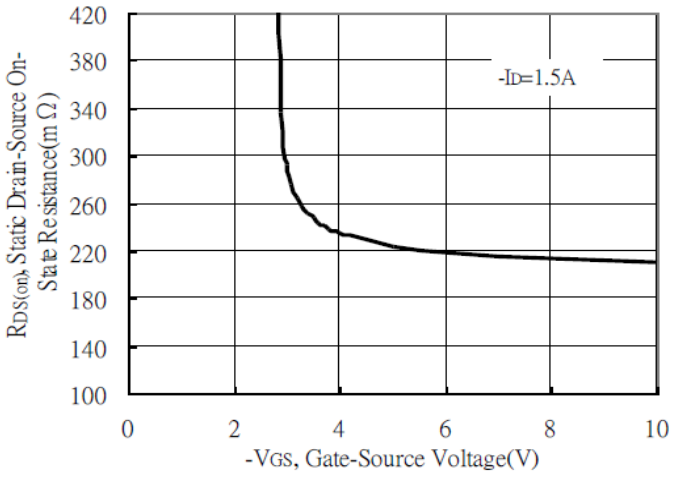
Static Drain-Source On-State resistance vs Drain Current



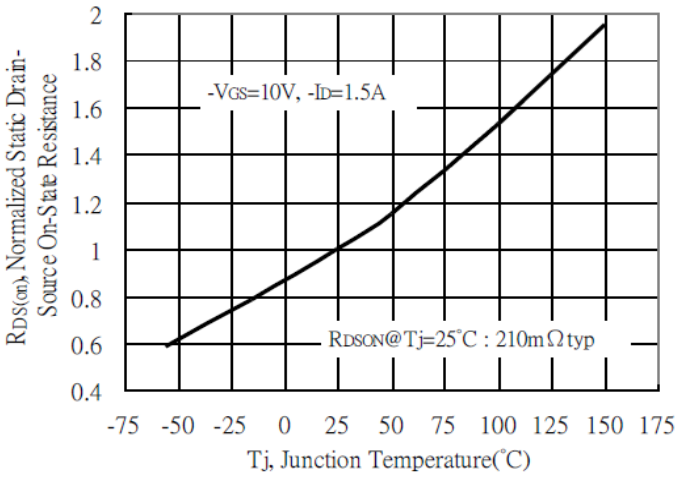
Reverse Drain Current vs Source-Drain Voltage



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

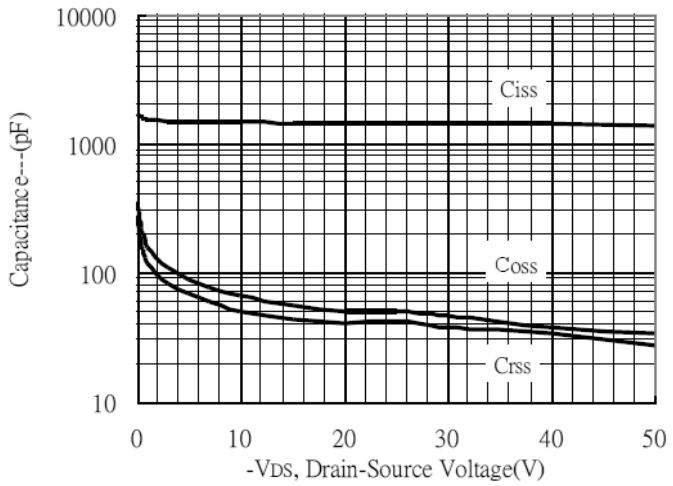


Drain-Source On-State Resistance vs Junction Tempearture

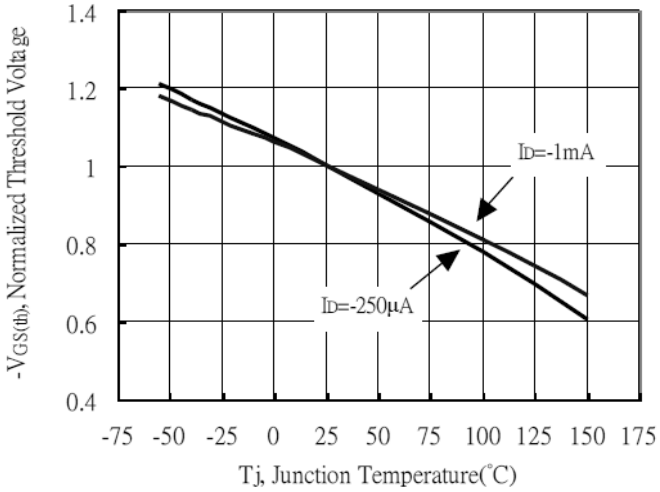


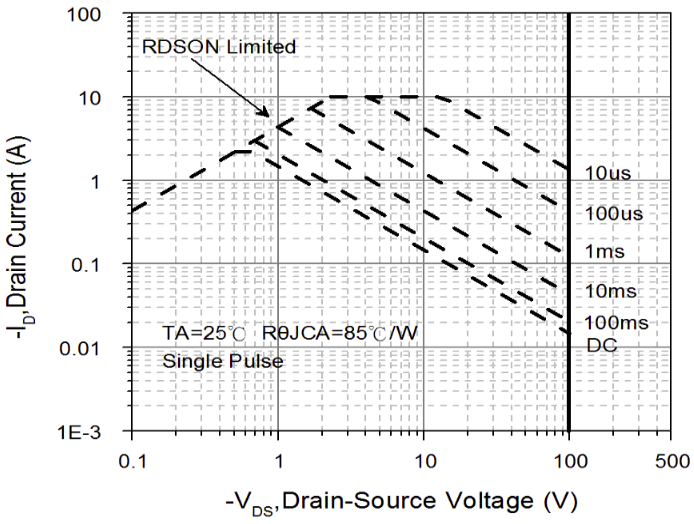
CHARACTERISTIC CURVES

Capacitance vs Drain-to-Source Voltage

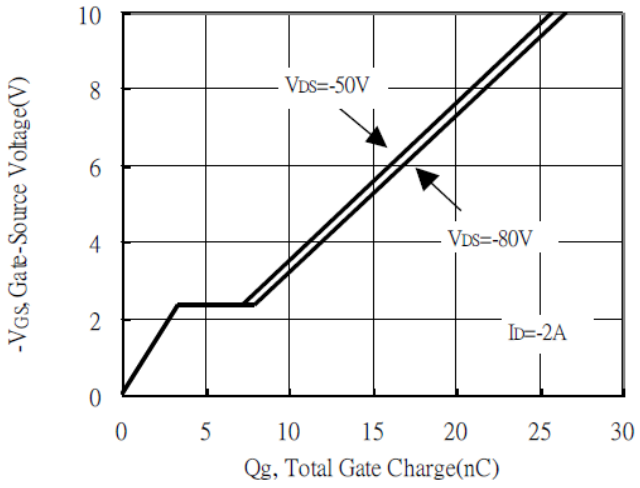


Threshold Voltage vs Junction Tempearture





Gate Charge Characteristics



Transient Thermal Response Curves