Elektronische Bauelemente

SSM0420S-C

2.05A, 200V, $R_{DS(ON)}$ 360mΩ
N-Channel Enhancement Mode Power MOSFET

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

DESCRIPTION

SSM0420S-C is the highest performance trench N-Ch MOSFETs with extreme high cell density, which provides excellent $R_{DS(ON)}$ and gate charge for most synchronous buck converter applications.

FEATURES

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

MARKING

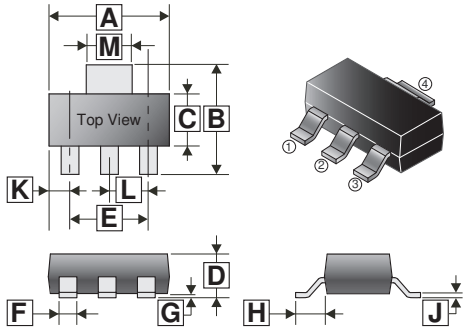
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13 inch

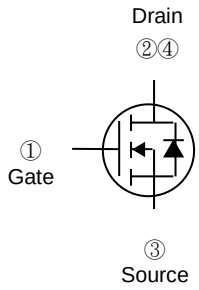
ORDER INFORMATION

Part Number	Type
SSM0420S-C	Lead (Pb)-free and Halogen-free

SOT-223



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	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	1.42	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℃ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current @V_{GS}=10V [1]	T_A=25℃	I_D	2.05	A
	T_A=70℃		1.34	A
Pulsed Drain Current [2]		I_{DM}	5.5	A
Total Power Dissipation @T_A=25℃ [1]		P_D	1.5	W
Maximum Thermal Resistance from Junction-Ambient [1]		$R_{\theta JA}$	85	℃/W
Maximum Thermal Resistance from Junction-Ambient			120	
Maximum Thermal Resistance from Junction-Case [1]		$R_{\theta JC}$	36	℃/W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃

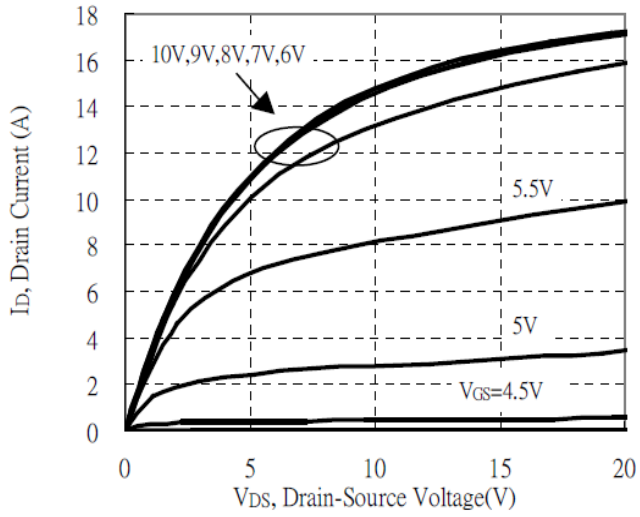
ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test conditions
Drain-Source Breakdown Voltage	BV_{DSS}	200	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage	$V_{GS(th)}$	2	-	4.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transfer conductance	g_{fs}	-	3.2	-	S	V_{DS}=15V, I_D=2A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=160V, V_{GS}=0, T_J=25℃
		-	-	25		V_{DS}=160V, V_{GS}=0, T_J=125℃
Static Drain-Source On-Resistance [3]	$R_{DS(ON)}$	-	280	360	mΩ	V_{GS}=10V, I_D=2A
		-	300	380		V_{GS}=7V, I_D=1A
Total Gate Charge	Q_g	-	10.2	-	nC	V_{DS}=160V V_{GS}=10V I_D=2A
Gate-Source Charge	Q_{gs}	-	2.2	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	3.8	-		
Turn-on Delay Time	$T_{d(on)}$	-	8.8	-	nS	V_{DD}=100V V_{GS}=10V I_D=2A R_G=25Ω
Rise Time	T_r	-	17	-		
Turn-off Delay Time	$T_{d(off)}$	-	21.2	-		
Fall Time	T_f	-	20.4	-		
Input Capacitance	C_{iss}	-	373	-	pF	V_{DS}=25V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	46	-		
Reverse Transfer Capacitance	C_{rss}	-	20	-		
Source-Drain Diode						
Forward On Voltage [3]	V_{SD}	-	-	1.2	V	I_S=2A, V_{GS}=0, T_J=25℃
Continuous Source Current [1]	I_S	-	-	2.05	A	V_G=V_D=0, Force Current
Pulsed Source Current [2]	I_{SM}	-	-	5.5		
Reverse Recovery Time	T_{rr}	-	54	-	nS	I_F=2A, dI/dt=100A/us, T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	105	-	nC	

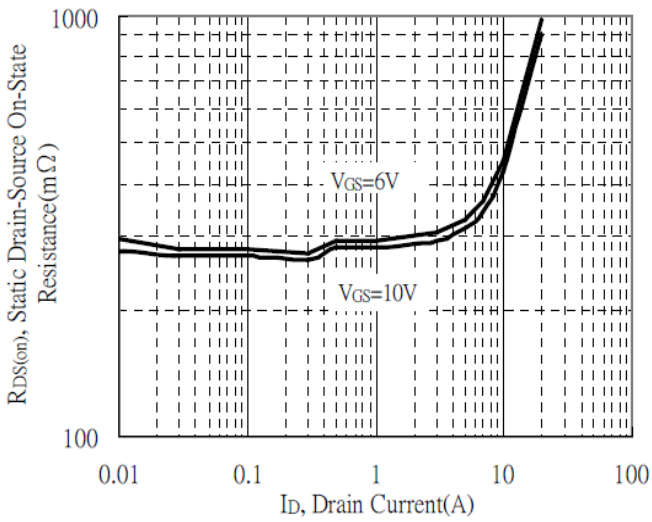
Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper pad.
2. The power dissipation is limited by 150℃ junc tion temperature.
3. The data is tested by pulse: Pulse width≦300μs, duty cycle≦2%.

CHARACTERISTIC CURVES

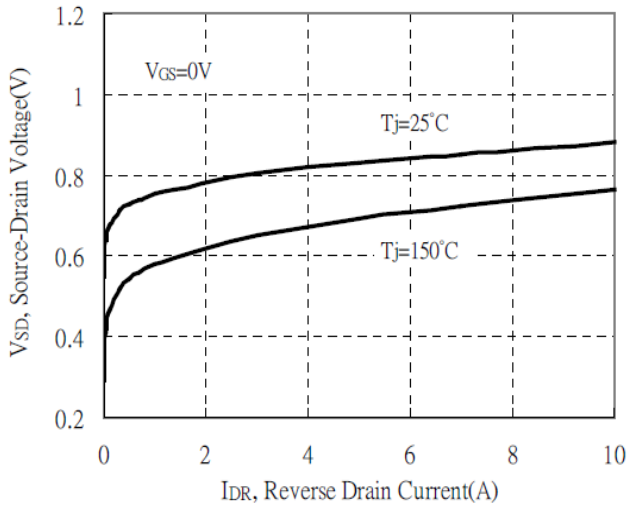
Typical Output Characteristics



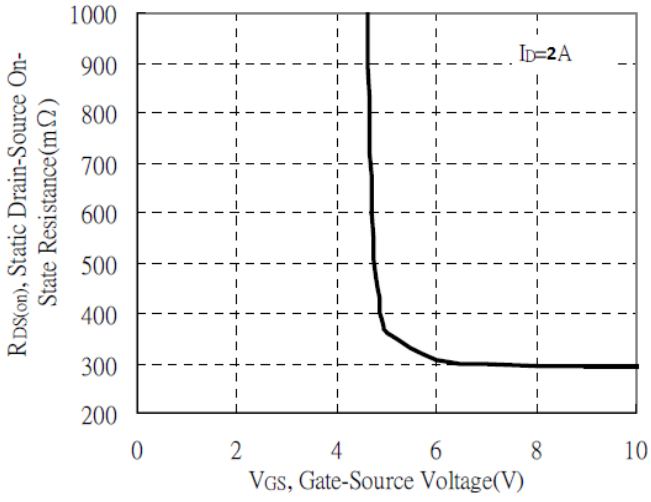
Static Drain-Source On-State resistance vs Drain Current



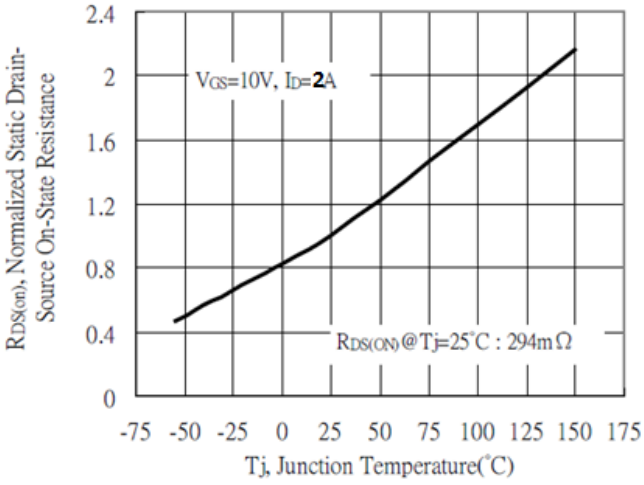
Reverse Drain Current vs Source-Drain Voltage



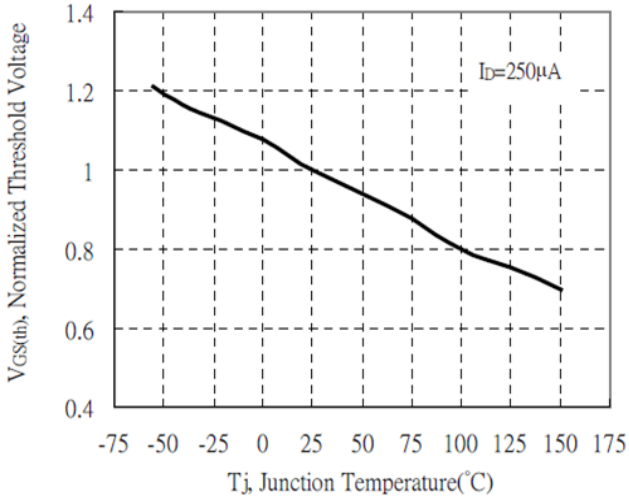
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Tempearture

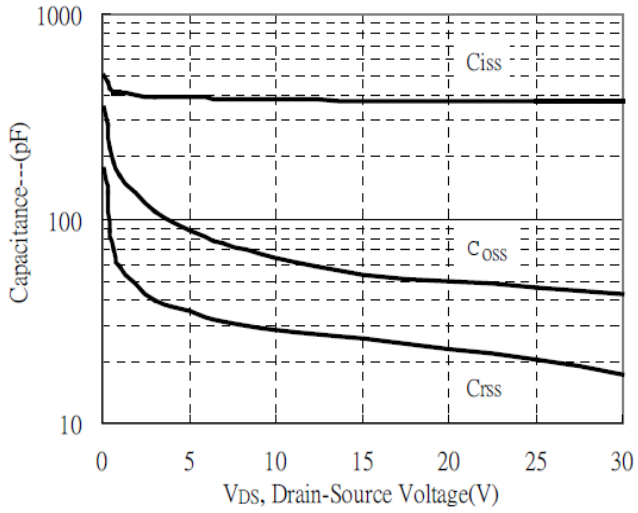


Threshold Voltage vs Junction Tempearture

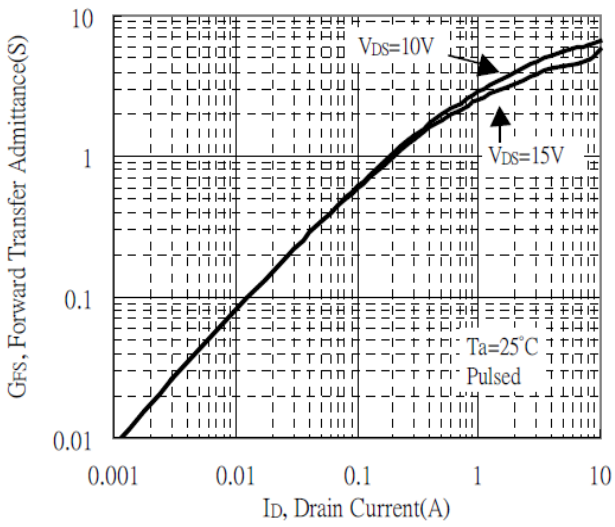


CHARACTERISTIC CURVES

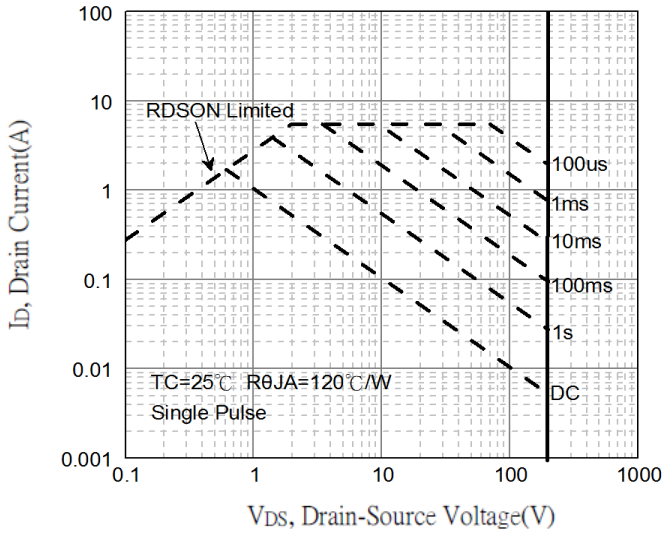
Capacitance vs Drain-to-Source Voltage



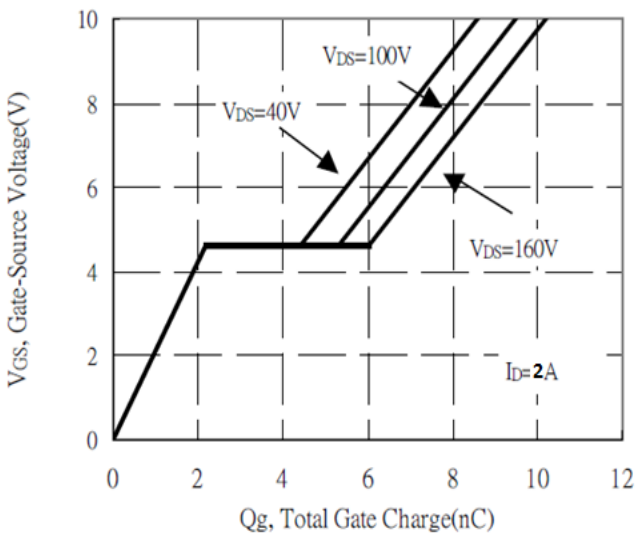
Forward Transfer Admittance vs Drain Current



Maximum Safe Operating Area



Gate Charge Characteristics



Transient Thermal Response Curves