Elektronische Bauelemente

SSM5951

-2.6A, -30V, $R_{DS(ON)}$ 150mΩ

P-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

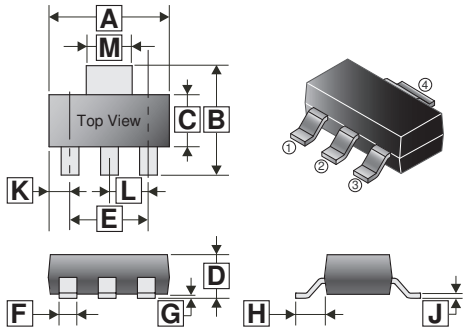
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSM5951 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 SSM5951 meet the RoHS and Green Product requirement with full function reliability approved.

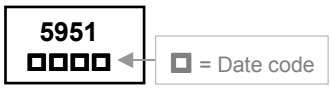
SOT-223

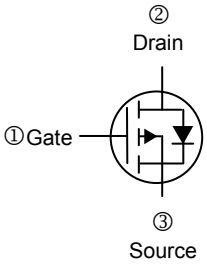


FEATURES

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

MARKING





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	1.40	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

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13 inch

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current @V_{GS}=10V [1]	T_A=25°C	I_D	-2.6	A
	T_A=70°C		-2.1	A
Pulsed Drain Current [3]		I_{DM}	-10.4	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 Rating				
Maximum Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	85	°C / W
Maximum Thermal Resistance from Junction to Ambient [2]			125	
Maximum Thermal Resistance from Junction to Case [1]		$R_{\theta JC}$	60	

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage		BV_{DSS}	-30	-	-	V	V_{GS}=0, I_D= -250uA
Gate Threshold Voltage		$V_{GS(th)}$	-0.5	-	-1.2	V	V_{DS}=V_{GS}, I_D= -250uA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}=±12V
Drain-Source Leakage Current		I_{DSS}	-	-	-1	uA	V_{DS}= -30V, V_{GS}=0, T_J=25°C
			-	-	-5		V_{DS}= -30V, V_{GS}=0, T_J=55°C
Static Drain-Source On-Resistance [4]		$R_{DS(ON)}$	-	-	150	mΩ	V_{GS}= -10V, I_D= -2.6A
			-	-	166		V_{GS}= -4.5V, I_D= -2A
			-	-	220		V_{GS}= -2.5V, I_D= -1A
Total Gate Charge	V_{GS}= -10V	Q_g	-	11.6	-	nC	I_D= -1.4A V_{DS}= -15V V_{GS}= -10V
Total Gate Charge	V_{GS}= -4.5V	Q_g	-	5.6	-		
Gate-Source Charge		Q_{gs}	-	1	-		
Gate-Drain Charge		Q_{gd}	-	1.4	-		
Turn-On Delay Time		$T_{d(on)}$	-	4.4	-	nS	V_{DS}= -15V I_D= -1.4A V_{GS}= -10V R_G=3Ω
Rise Time		T_r	-	17	-		
Turn-Off Delay Time		$T_{d(off)}$	-	34.6	-		
Fall Time		T_f	-	4.6	-		
Input Capacitance		C_{iss}	-	480	-	pF	V_{GS}=0 V_{DS}= -15V f=1MHz
Output Capacitance		C_{oss}	-	63	-		
Reverse Transfer Capacitance		C_{rss}	-	33	-		
Source-Drain Diode							
Forward On Voltage [4]		V_{SD}	-	-	-1	V	I_S= -1A, V_{GS}=0V
Continuous Source Current [1]		I_S	-	-	-2.6	A	
Pulsed Source Current [3]		I_{SM}	-	-	-10.4		
Reverse Recovery Time		t_{rr}	-	7	-	nS	I_F= -1A , dI/dt=100A/μs , T_J=25°C
Reverse Recovery Charge		Q_{rr}	-	2.9	-	nC	

Notes:
1. Surface mounted on a 1 inch^2 FR4 board with 2OZ copper
2. When mounted on Min. copper pad.
3. Pulse width limited by maximum junction temperature., Pw ≤ 300μs, Duty cycle ≤ 1%
4. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

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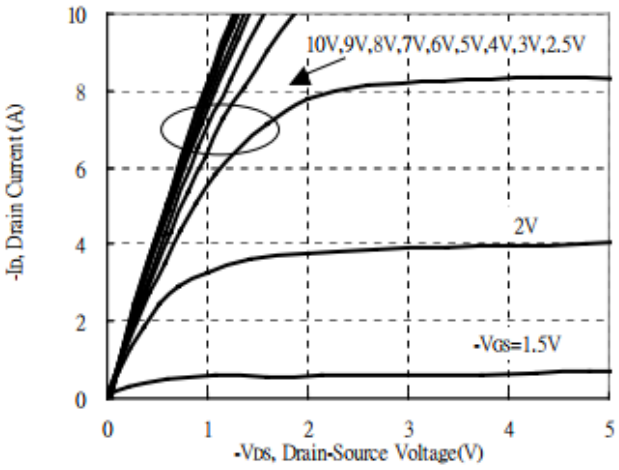
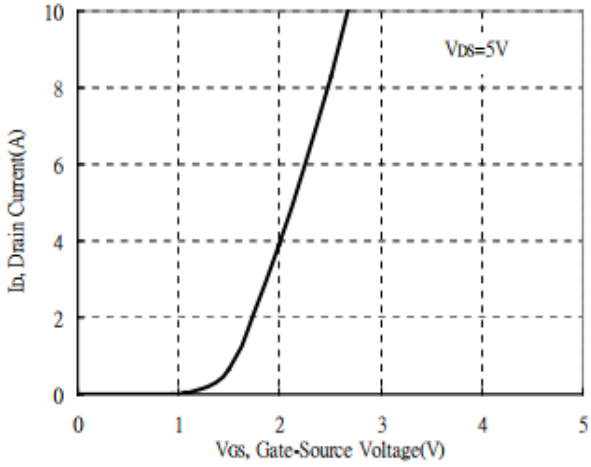
TYPICAL CHARACTERISTIC CURVES

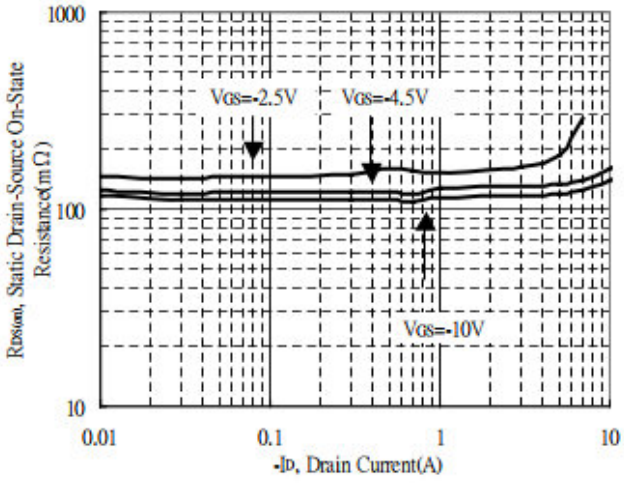
Typical Output Characteristics



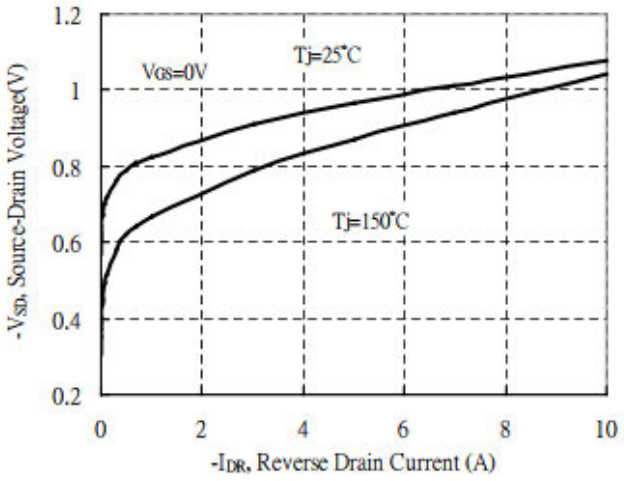
Typical Transfer Characteristics



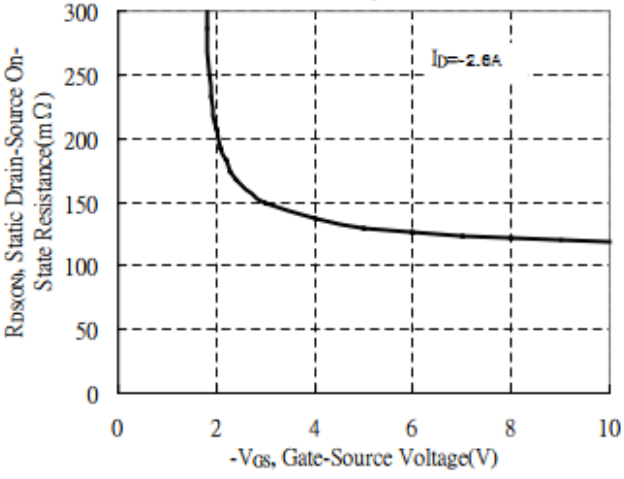
Static Drain-Source On-State resistance vs Drain Current



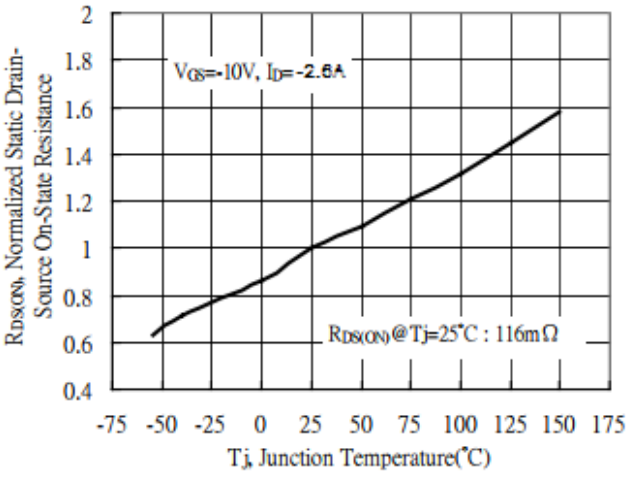
Reverse Drain Current vs Source-Drain Voltage



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

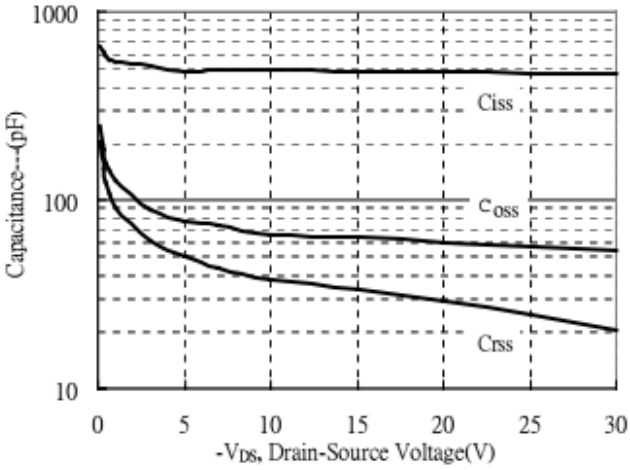


Drain-Source On-State Resistance vs Junction Tempearture

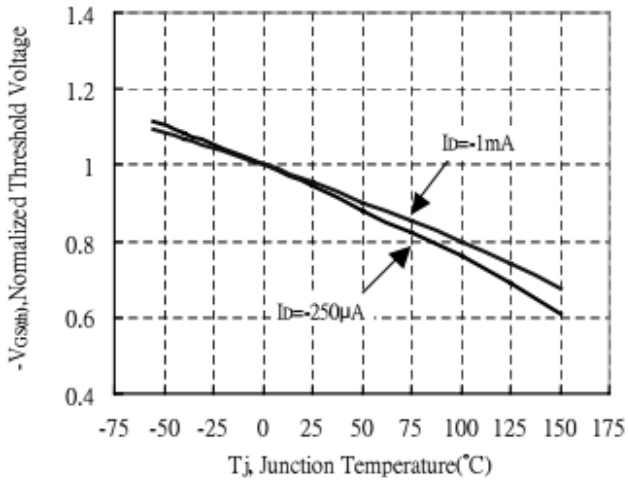


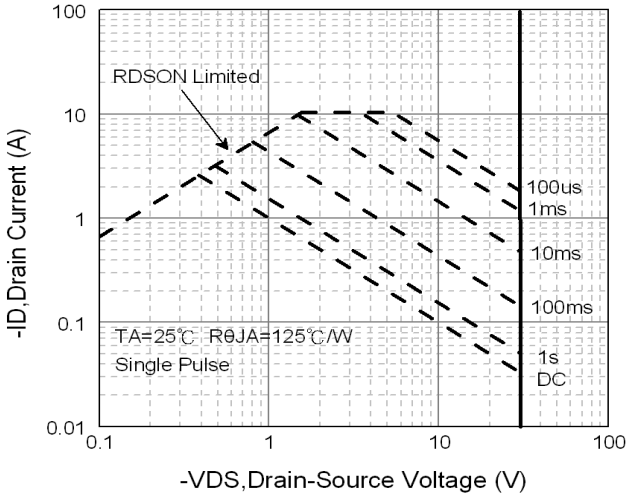
TYPICAL CHARACTERISTIC CURVES

Capacitance vs Drain-to-Source Voltage

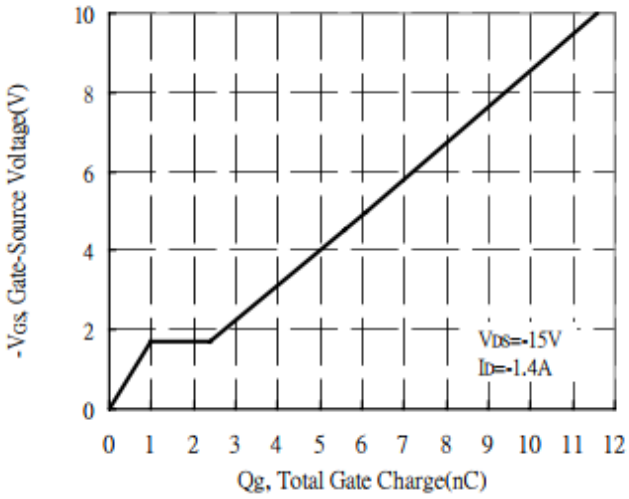


Threshold Voltage vs Junction Tempearture





Gate Charge Characteristics



Transient Thermal Response Curves