Elektronische Bauelemente

SSM2A5N15-C

2.5A, 150V, $R_{DS(ON)}$ 320mΩ

N-Channel Enhancement Mode Power MOSFET

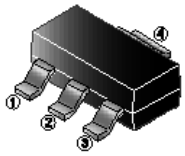
RoHS Compliant Product

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

DESCRIPTION

The SSM2A5N15-C use advanced trench technology to provide excellent $R_{DS(ON)}$ with low gate charge and operation with gate voltages as low as 4.5V.
This device is suitable for use as a Battery protection or in other Switching application.

SOT-223

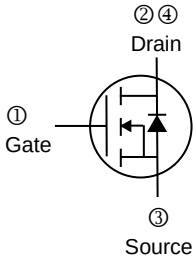


APPLICATION

- Automotive lighting
- Load switch
- Uninterruptible power supply

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	3K	13 inch



ORDER INFORMATION

Part Number	Type
SSM2A5N15-C	Lead (Pb)-free and Halogen-free

MAXIMUM RATINGS (T_C=25℃ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current @V_{GS}=10V	T_C=25℃	I_D	2.5	A
	T_C=100℃		1.6	
Pulsed Drain Current [1]		I_{DM}	15	
Power Dissipation	T_C=25℃	P_D	2	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Maximum Thermal Resistance Junction-Ambient		$R_{\theta JA}$	70	℃/W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	36	

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	150	-	-	V	V_{GS}=0, I_D=250uA
Gate Threshold Voltage	$V_{GS(TH)}$	1	1.6	3	V	V_{DS}=V_{GS}, I_D=250uA
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=150V, V_{GS}=0
Drain-Source On Resistance	$R_{DS(ON)}$	-	260	320	mΩ	V_{GS}=10V, I_D=4A
		-	300	380		V_{GS}=4.5V, I_D=6A
Total Gate Charge	Q_g	-	17.5	-	nC	V_{DS}=75V V_{GS}=10V I_D=10A
Gate-Source Charge	Q_{gs}	-	4.5	-		
Gate-Drain Charge	Q_{gd}	-	4.7	-		
Turn-on Delay Time	$T_{d(on)}$	-	11.6	-	nS	V_{DS}=75V V_{GEN}=10V R_G=6Ω R_L=10.68Ω
Rise Time	T_r	-	9.3	-		
Turn-off Delay Time	$T_{d(off)}$	-	29.3	-		
Fall Time	T_f	-	3.7	-		
Input Capacitance	C_{iss}	-	538	-	pF	V_{DS}=25V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	55	-		
Reverse Transfer Capacitance	C_{rss}	-	21	-		
Source-Drain Diode						
Drain-Source Diode Forward Voltage	V_{SD}	-	-	1.2	V	V_{GS}=0, I_S=1.8A

Notes:
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2oz copper.
2. The data tested by pulsed , pulse width≦300μs , duty cycle≦2%
3. The power dissipation is limited by 150℃ juncti on temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

TYPICAL CHARACTERISTICS

Fig.1 On Resistance Vs Junction Temperature

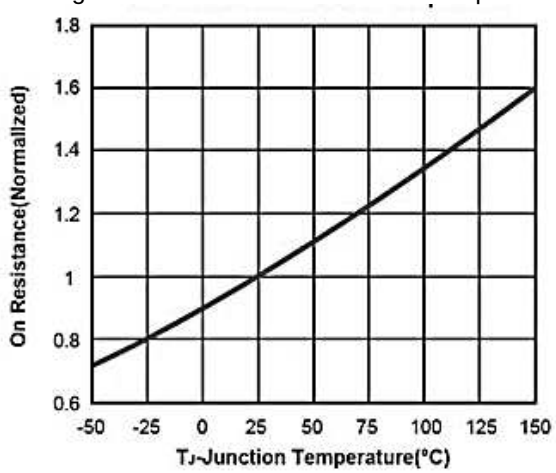


Fig.2 On-Resistance Vs. Drain Current

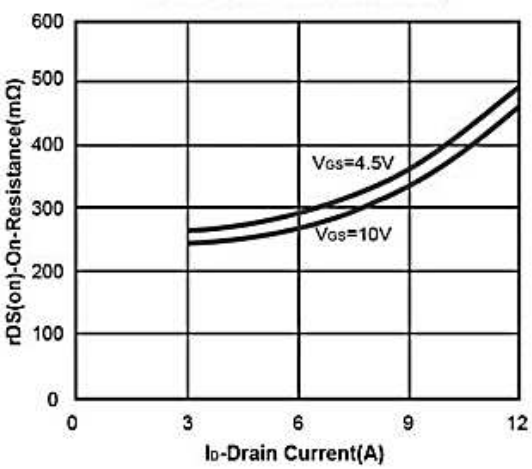


Fig.3 Capacitance

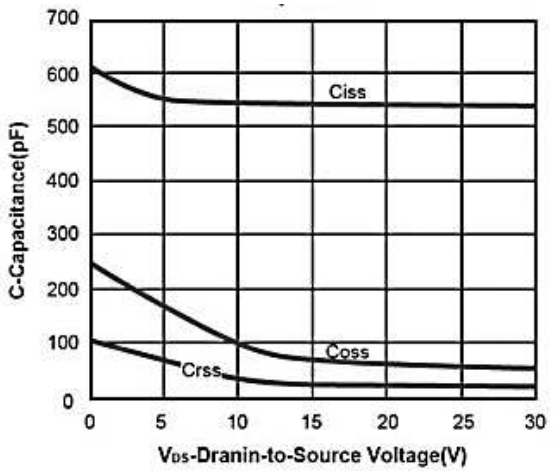


Fig.4 On-Resistance Vs. Gate-to-Sourece Voltage

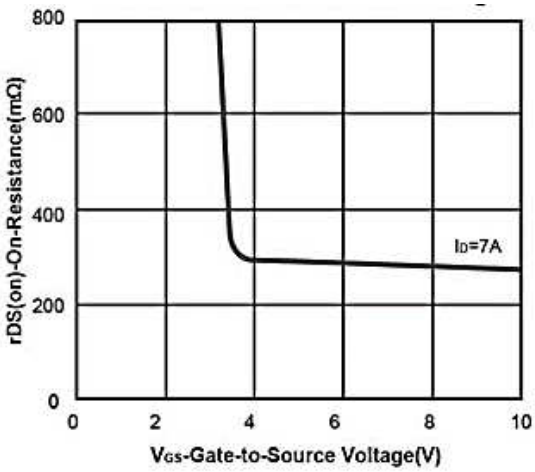


Fig.5 Threshold Voltage

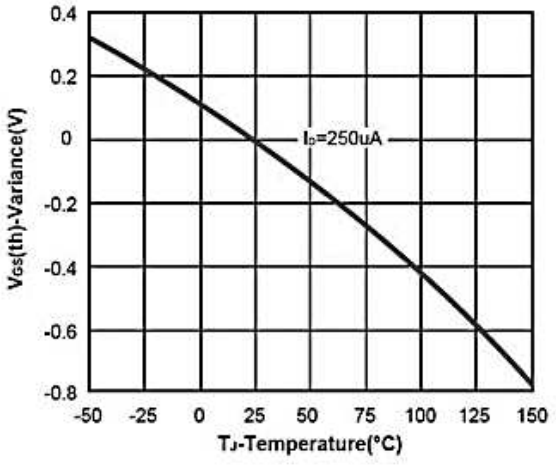
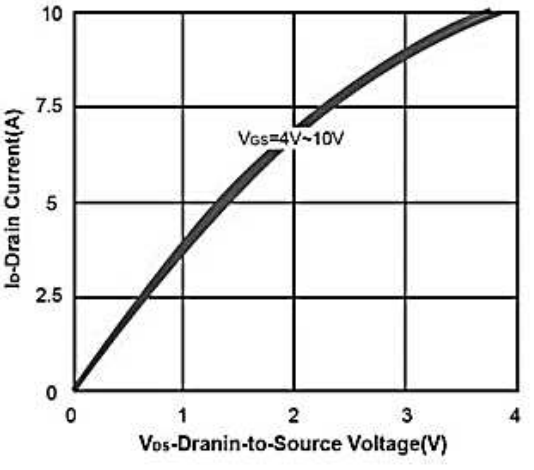


Fig.6 On-Region Characteristics



TYPICAL CHARACTERISTICS

Fig.7 Gate Charge

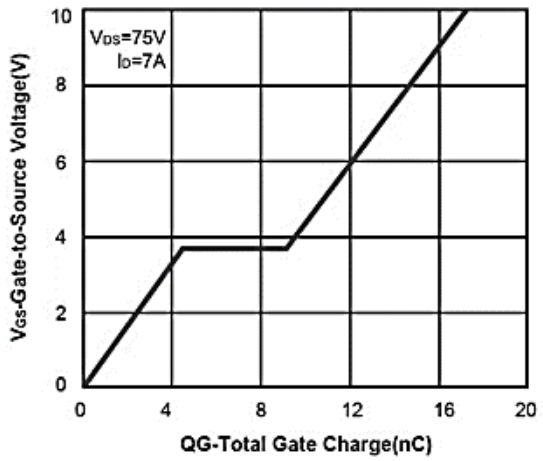


Fig.8 Body-diode Characteristice

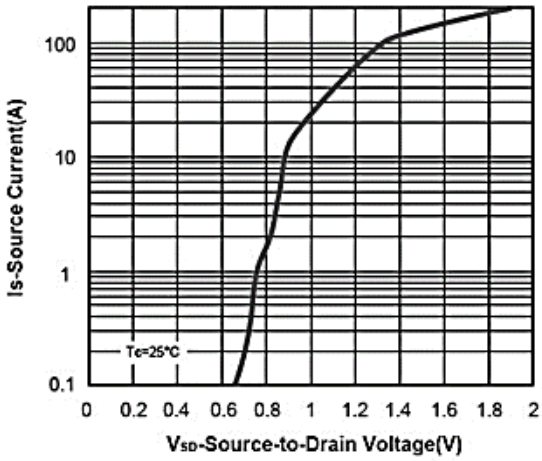


Fig.9 Safe Operating Area

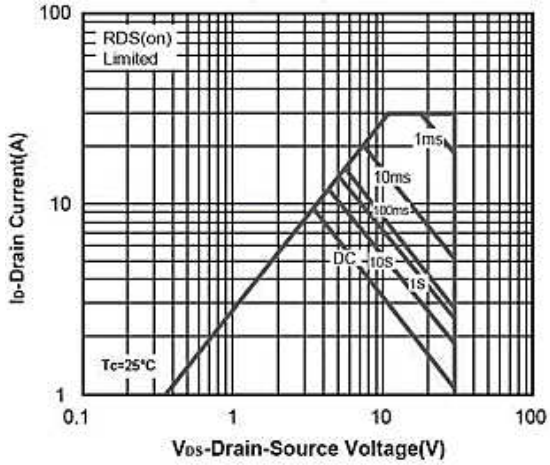
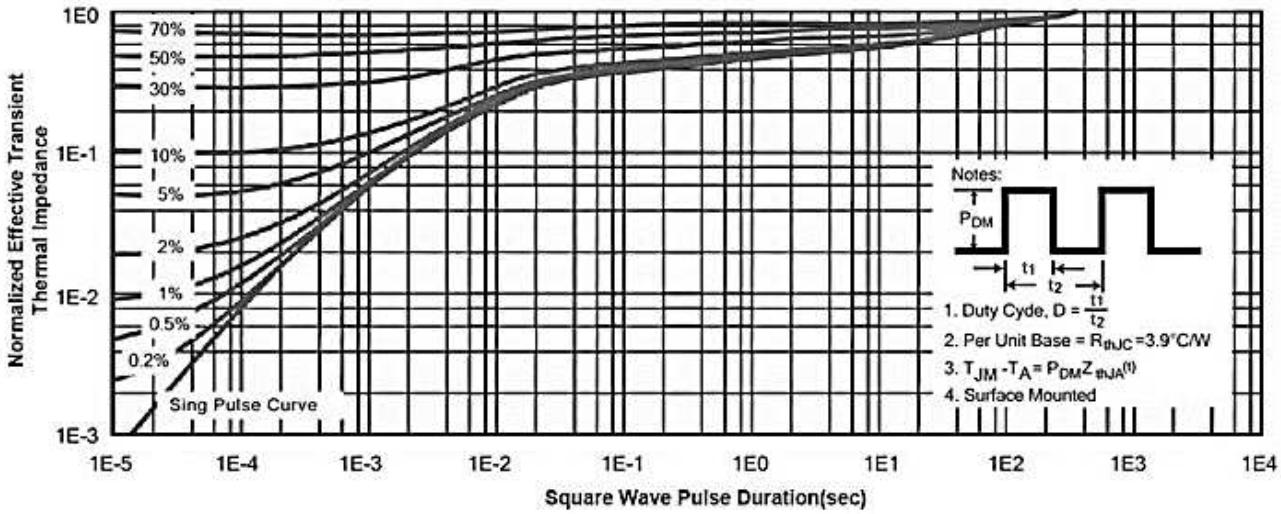
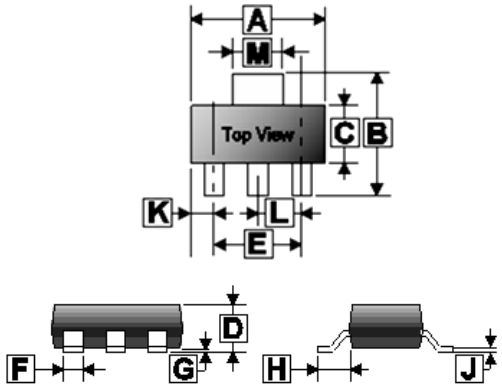


Fig.10 Normalized Maximum Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS

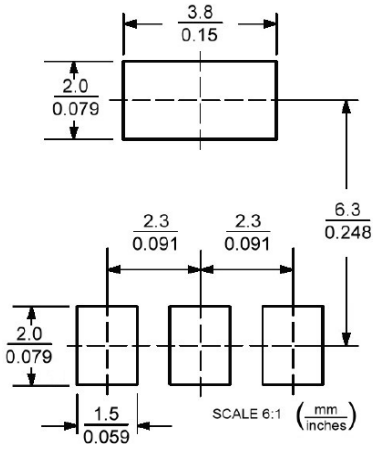
SOT-223



REF.	Millimeter	
	Min.	Max.
A	5.90	6.70
B	6.70	7.30
C	3.30	3.80
D	1.40	1.90
E	4.60 REF.	
F	0.60	0.85
G	-	0.18
H	2.00 REF.	
J	0.20	0.40
K	1.10 REF.	
L	2.30 REF.	
M	2.80	3.20

MOUNTING PAD LAYOUT

SOT-223



*Dimensions in millimeters