

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

DESCRIPTION

The SSM3110-C provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness. The SOT-223 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

FEATURES

- Lower Gate Charge
- Simple Drive Requirement
- Fast Switching Characteristic
- Green Device Available

MARKING



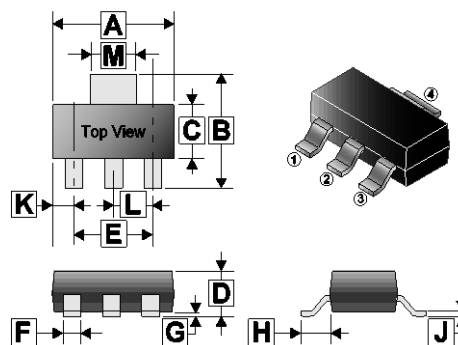
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13 inch

ORDER INFORMATION

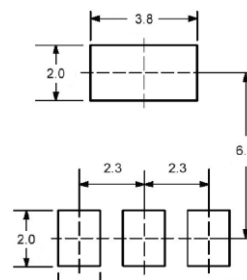
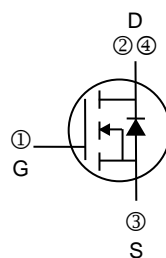
Part Number	Type
SSM3110-C	Lead (Pb)-free and Halogen-free

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	1.40	1.90	K	1.10	REF.
E	4.60	REF.	L	2.30	REF.
F	0.60	0.85	M	2.80	3.20

Mounting Pad Layout



*Dimensions in millimeters

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	100	V	
Gate-Source Voltage	V_{GS}	± 20	V	
Continuous Drain Current ¹ @ $V_{GS}=10\text{V}$	$T_A=25^\circ\text{C}$	2.2	A	
	$T_A=70^\circ\text{C}$	1.7		
Pulsed Drain Current ²	I_{DM}	5.5	A	
Power Dissipation ³	$T_A=25^\circ\text{C}$	P_D	1.47	W
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$	
Thermal Resistance Rating				
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	85	$^\circ\text{C/W}$	
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	36		

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	
Forward Transconductance	g _{fs}	-	2.4	-	S	V _{DS} =5V, I _D =2A	
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V	
Drain-Source Leakage Current	I _{DSS}	T _J =25°C	-	-	1	μA	V _{DS} =80V, V _{GS} =0
		T _J =55°C	-	-	5		
Static Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	310	mΩ	V _{GS} =10V, I _D =3A	
		-	-	320		V _{GS} =4.5V, I _D =1.7A	
Total Gate Charge	Q _g	-	9.3	-	nC	I _D =2A V _{DS} =50V V _{GS} =10V	
Gate-Source Charge	Q _{gs}	-	2	-			
Gate-Drain Change	Q _{gd}	-	1.5	-			
Turn-on Delay Time ²	T _{d(on)}	-	2	-	nS	V _{DD} =50V I _D =2A V _{GS} =10V R _G =3.3Ω	
Rise Time	T _r	-	21.6	-			
Turn-off Delay Time	T _{d(off)}	-	11.2	-			
Fall Time	T _f	-	18.8	-			
Input Capacitance	C _{iss}	-	510	-	pF	V _{GS} =0 V _{DS} =15V f=1MHz	
Output Capacitance	C _{oss}	-	30	-			
Reverse Transfer Capacitance	C _{rss}	-	16	-			
Source-Drain Diode							
Diode Forward Voltage ²	V _{SD}	-	-	1.2	V	I _S =1A, V _{GS} =0, T _J =25°C	
Continuous Source Current ¹	I _S	-	-	2.2	A	V _D =V _G =0, Force Current	

Notes:

- The data tested by surface mounted on a 1 inch² FR-4 board with 2oz copper.
- The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%.
- The power dissipation is limited by 150°C, junction temperature.

CHARACTERISTIC CURVES

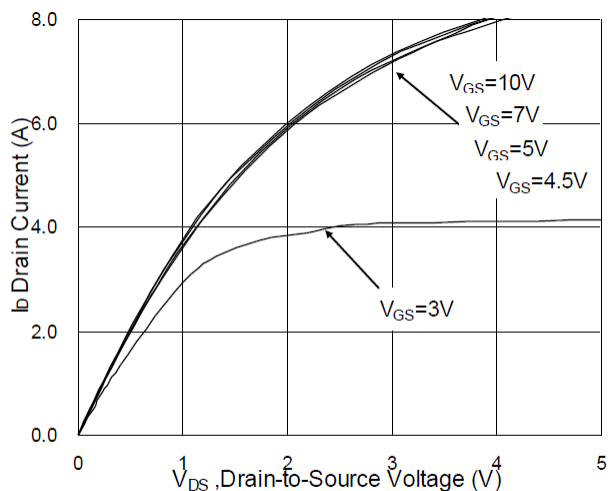


Fig.1 Typical Output Characteristics

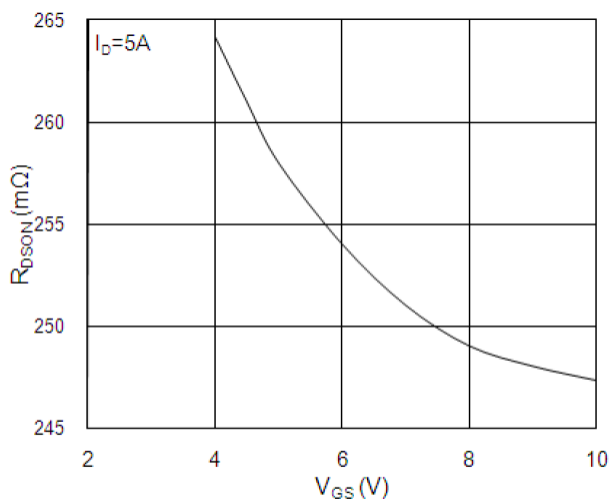


Fig.2 On-Resistance vs. Gate-Source

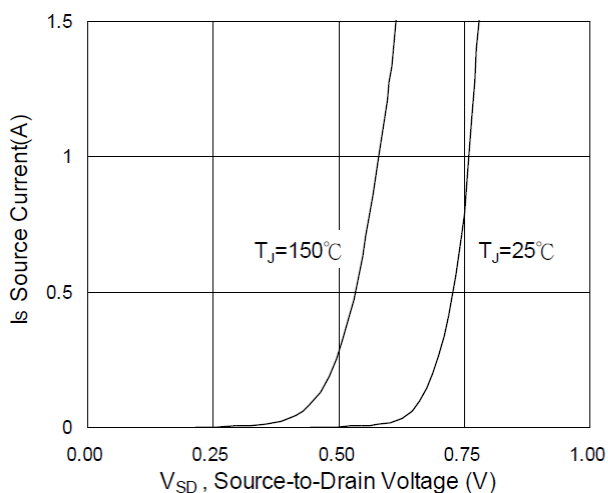


Fig.3 Forward Characteristics Of Reverse

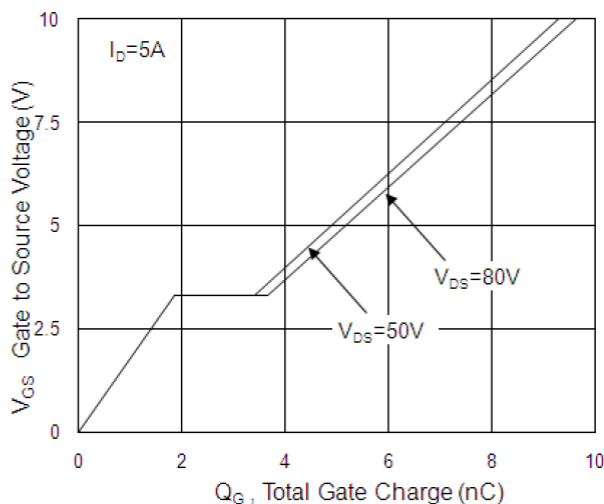


Fig.4 Gate-Charge Characteristics

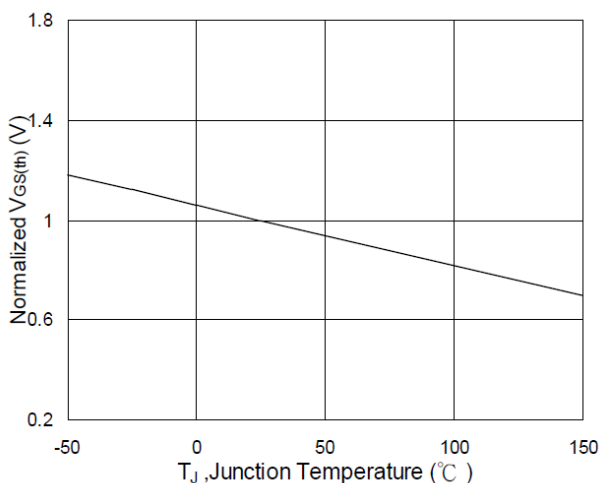


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

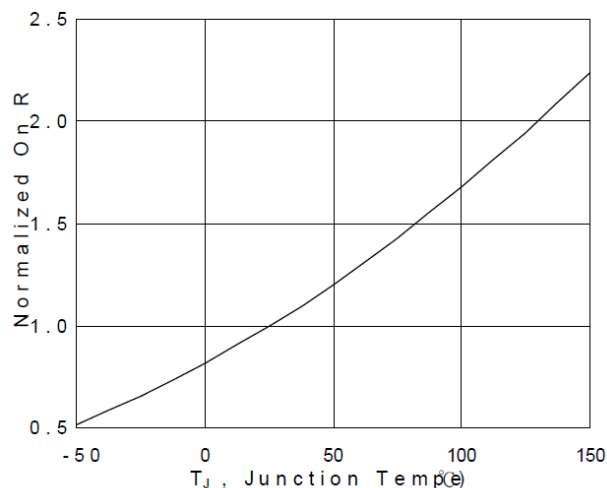


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

CHARACTERISTIC CURVES

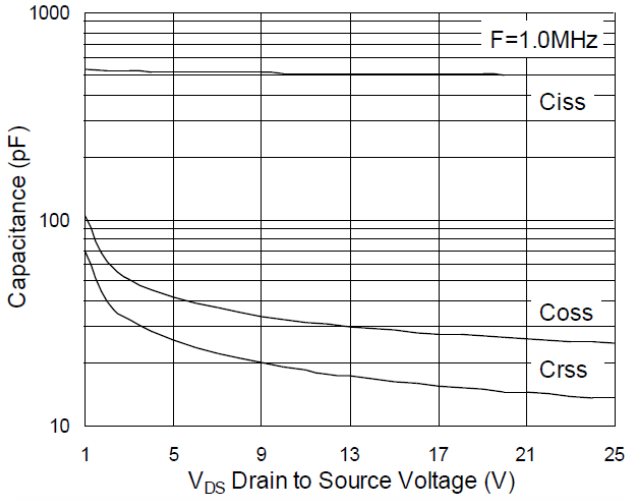


Fig.7 Capacitance

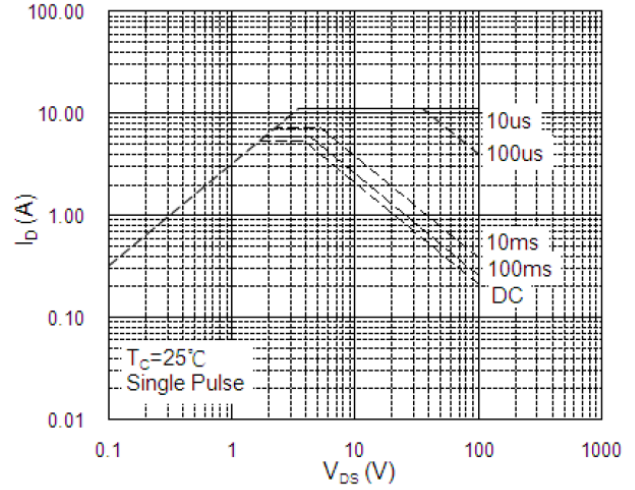


Fig.8 Safe Operating Area

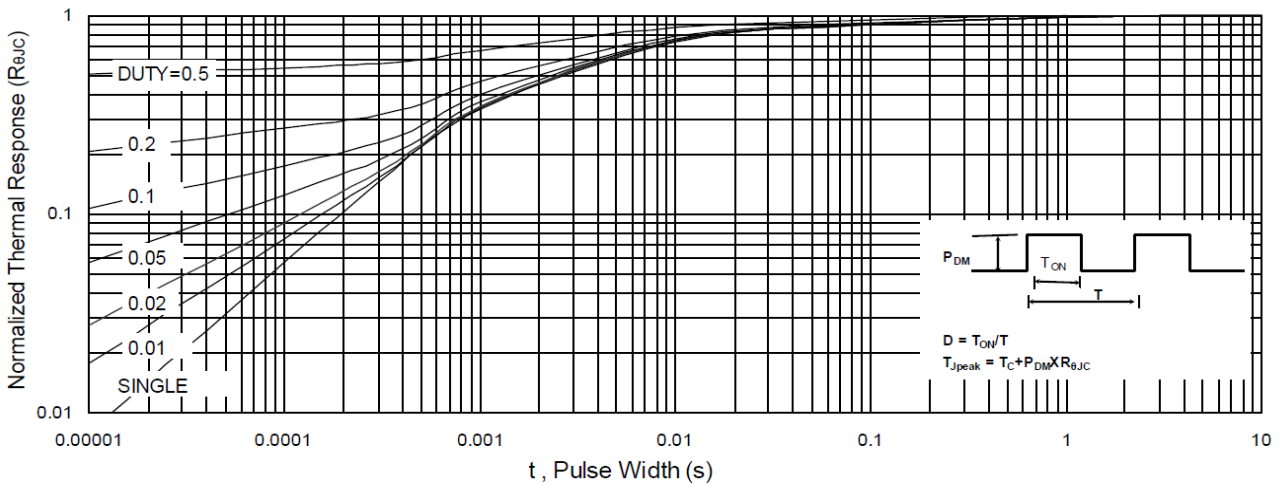


Fig.9 Normalized Maximum Transient Thermal Impedance

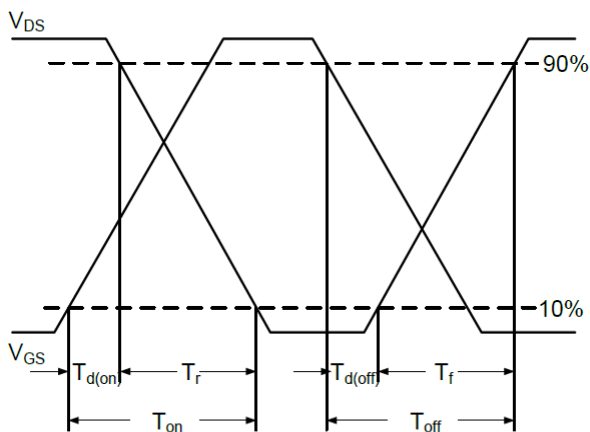


Fig.10 Switching Time Waveform

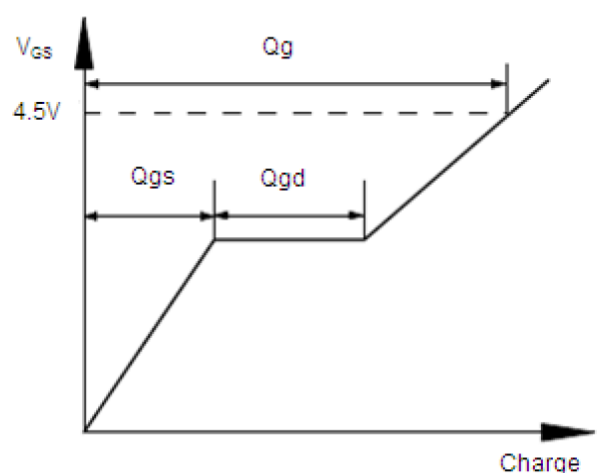


Fig.11 Gate Charge Waveform