Elektronische Bauelemente

SSM9573-C

-2.7A, -60V, $R_{DS(ON)}$ 175mΩ

P-Channel Enhancement Mode Power MOSFET

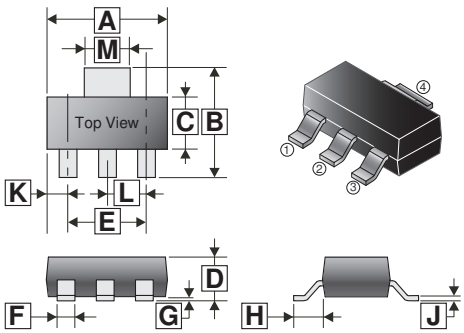
RoHS Compliant Product

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

DESCRIPTION

The SSM9573-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.

SOT-223

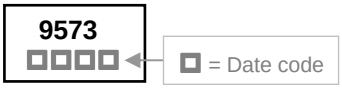


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.90	6.70	G	-	0.18
B	6.70	7.30	H	2.00 REF.	
C	3.30	3.80	J	0.20	0.40
D	1.42	1.90	K	1.10 REF.	
E	4.45	4.75	L	2.30 REF.	
F	0.60	0.85	M	2.80	3.20

FEATURES

- Lower Gate Charge
- Simple Drive Requirement
- Fast Switching Characteristic

MARKING

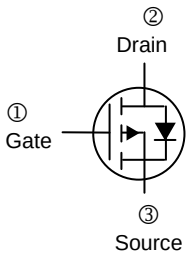


PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSM9573-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]@V_{GS}=10V	T_A=25℃	I_D	-2.7	A
	T_A=70℃		-2	A
Pulsed Drain Current [2]		I_{DM}	-5	A
Power Dissipation [3]	T_A=25℃	P_D	1.5	W
Operating Junction & Storage Temperature		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient [1] (Max).		$R_{\theta JA}$	85	℃/W
Thermal Resistance Junction-Case [1] (Max).		$R_{\theta JC}$	60	℃/W

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage		BV_{DSS}	-60	-	-	V	V_{GS}=0, I_D= -250μA
Gate-Threshold Voltage		$V_{GS(th)}$	-1	-	-3	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℃	I_{DSS}	-	-	-1	μA	V_{DS}= -48V, V_{GS}=0
	T_J=55℃		-	-	-5		V_{DS}= -48V, V_{GS}=0
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	-	175	mΩ	V_{GS}= -10V, I_D= -2.5A
			-	-	230		V_{GS}= -4.5V, I_D= -1.5A
Total Gate Charge		Q_g	-	4.59	-	nC	I_D= -2A V_{DS}= -20V V_{GS}= -4.5V
Gate-Source Charge		Q_{gs}	-	1.39	-		
Gate-Drain (“Miller”) Change		Q_{gd}	-	1.62	-		
Turn-on Delay Time [2]		$T_{d(on)}$	-	17.4	-	nS	V_{DS}= -15V V_{GS}= -10V R_G=3.3Ω I_D= -1A
Rise Time		T_r	-	5.4	-		
Turn-off Delay Time		$T_{d(off)}$	-	37.2	-		
Fall Time		T_f	-	2.4	-		
Input Capacitance		C_{iss}	-	531	-	pF	V_{GS}=0 V_{DS}=15V f=1.0MHz
Output Capacitance		C_{oss}	-	59	-		
Reverse Transfer Capacitance		C_{rss}	-	38	-		
Source-Drain Diode							
Diode Forward Voltage [2]		V_{SD}	-	-	-1.2	V	I_S= -1A, V_{GS}=0
Continuous Source Current [1.4]		I_S	-	-	-2.7	A	V_{DS}=V_{GS}=0, Force Current
Pulsed Source Current [2.4]		I_{SM}	-	-	-5	A	

Notes:

1. Surface mounted on a 1 inch^2 FR4 board with 2OZ copper, t≦10sec., 125℃/W when mounted on Min. copper pad.
2. The data tested by pulsed, pulse width≦300us, duty cycle≦2%.
3. The power dissipation is limited by 150℃ junction temperature.
4. The data is theoretically the same as I_D and I_{DM}, in real applications, should be limited by total power dissipation.

CHARACTERISTIC CURVES

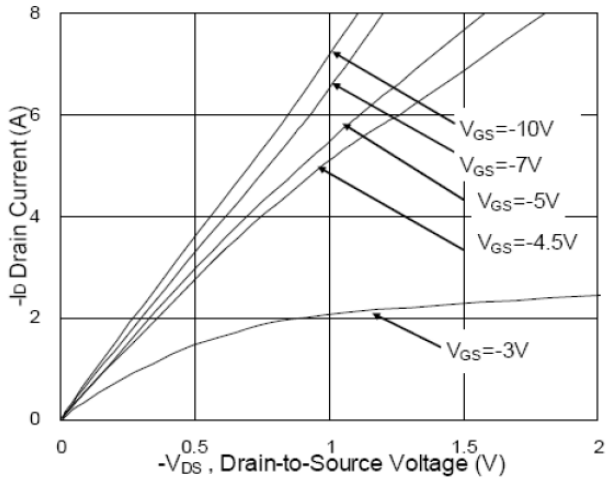


Fig.1 Typical Output Characteristics

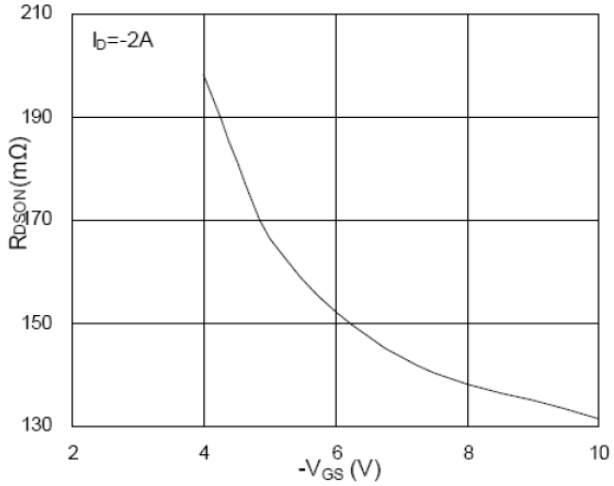


Fig.2 On-Resistance v.s Gate-Source

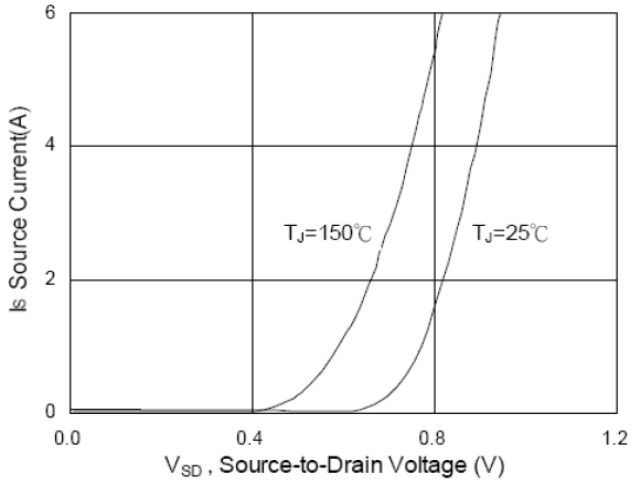


Fig.3 Forward Characteristics Of Reverse

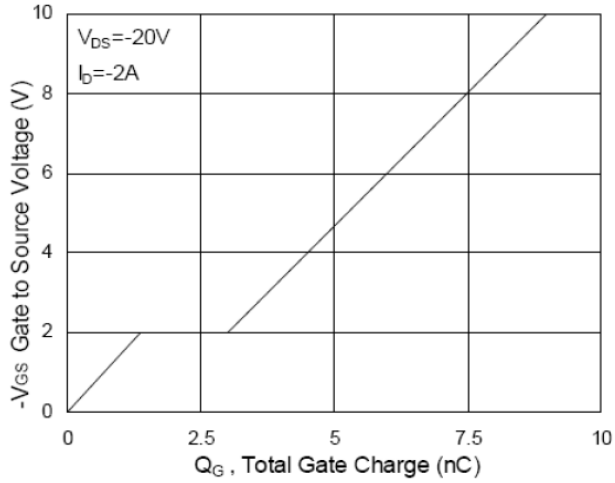


Fig.4 Gate-Charge Characteristics

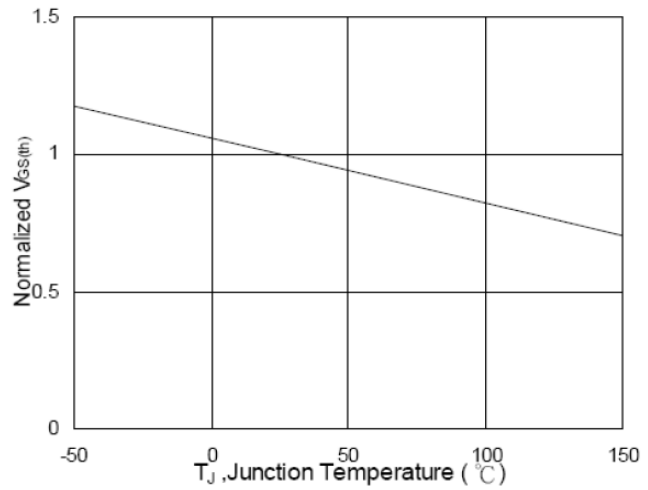


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

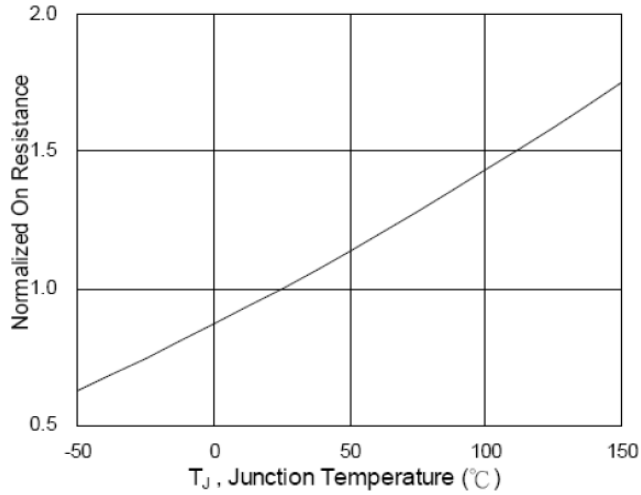


Fig.6 Normalized R_{DSON} v.s T_J

CHARACTERISTIC CURVES

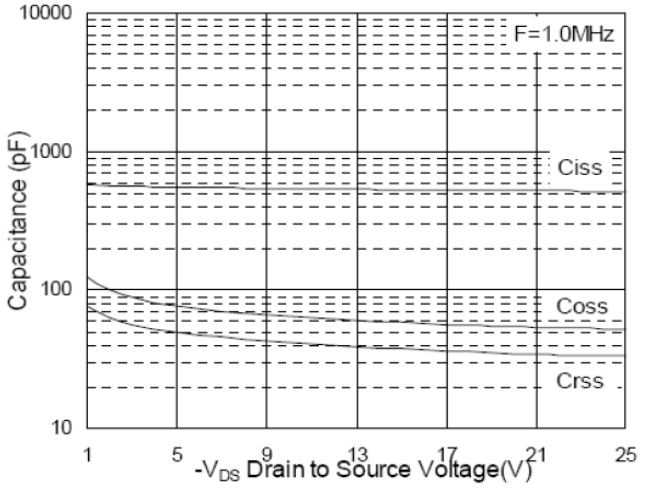


Fig.7 Capacitance

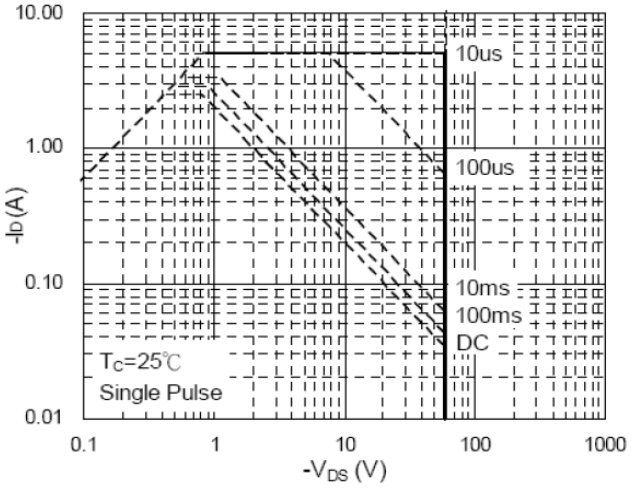


Fig.8 Safe Operating Area

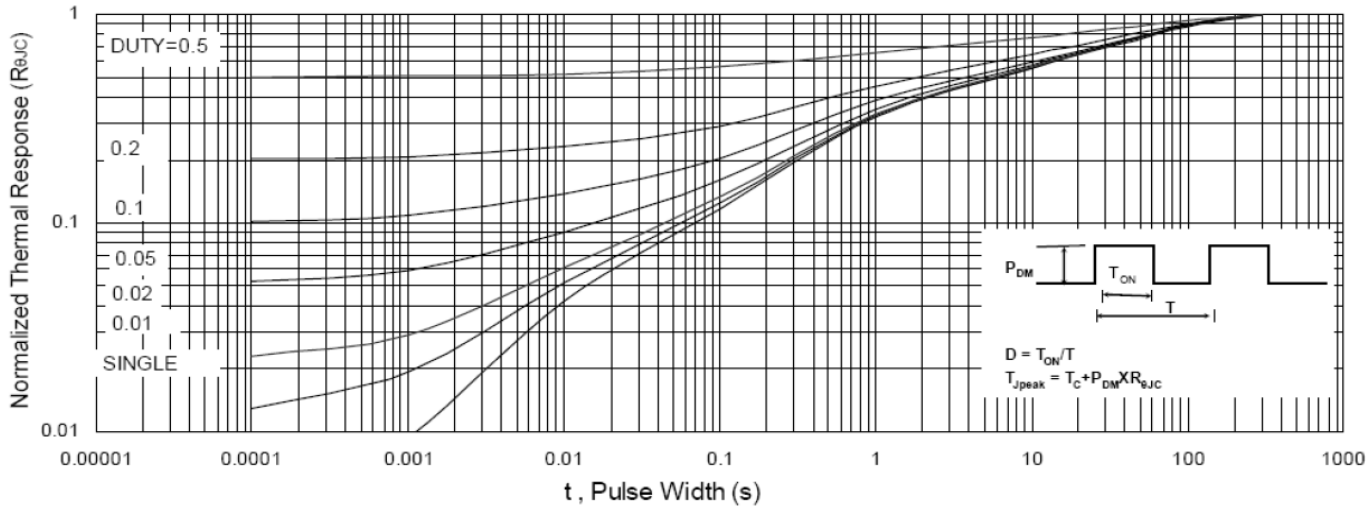


Fig.9 Normalized Maximum Transient Thermal Impedance

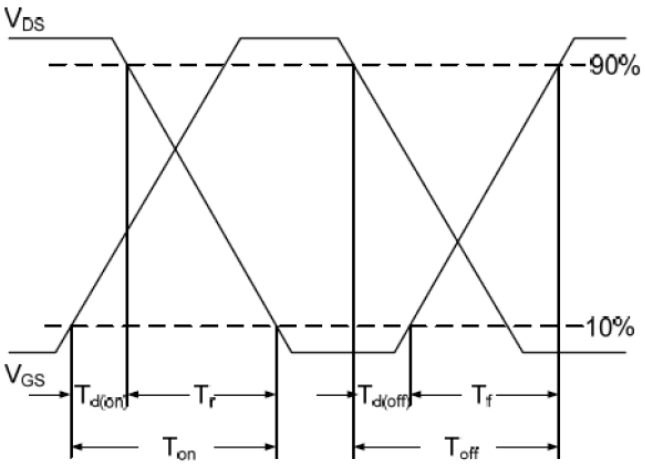


Fig.10 Switching Time Waveform

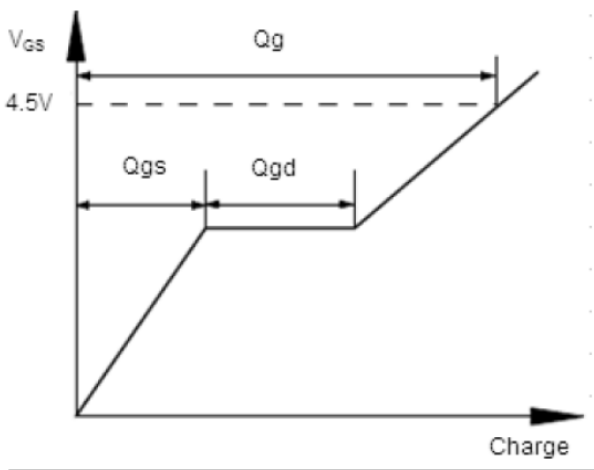


Fig.11 Gate Charge Waveform