Elektronische Bauelemente

SSM1K7N70H-C

1A, 700V, $R_{DS(ON)}$ 1.7Ω
N-Channel Super Junction Power MOSFET

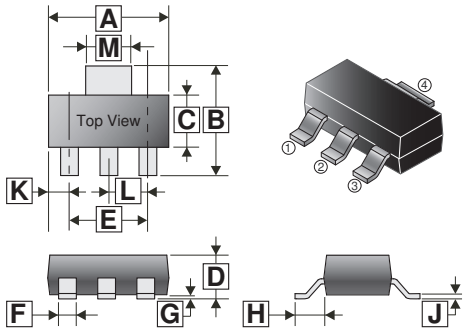
RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SSM1K7N70H-C is power MOSFET using Super Junction technology that can realize very low on-resistance and gate charge. It will provide much high efficiency by using optimized charge coupling technology. These user friendly devices give an advantage of low EMI to designers as well as low switching loss, which provide excellent $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The SSM1K7N70H-C meet the RoHS and Green Product requirement with full function reliability approved.

SOT-223

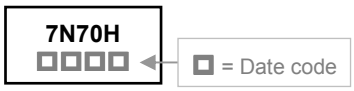


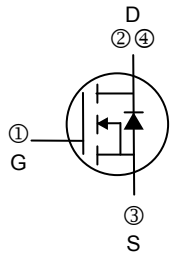
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.90	6.70	G	-	0.18
B	6.70	7.30	H	2.00 REF.	
C	3.30	3.80	J	0.20	0.40
D	1.40	1.90	K	1.10 REF.	
E	4.45	4.75	L	2.30 REF.	
F	0.60	0.85	M	2.80	3.20

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
SSM1K7N70H-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	700	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current [1] @V_{GS}=10V	T_A=25°C	I_D	1	A
	T_A=70°C		0.8	
Pulsed Drain Current [3]		I_{DM}	4	A
Total Power Dissipation [1]	T_A=25°C	P_D	2.5	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Thermal Resistance from Junction-Ambient [1]		$R_{\theta JA}$	t≦10sec, 50	°C / W
			Steady State, 100	
Thermal Resistance from Junction-Ambient [2]			125	
Thermal Resistance from Junction-Case		$R_{\theta JC}$	30	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV_{DSS}	700	-	-	V	V_{GS}=0, I_D=250uA
Gate Threshold Voltage	$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250uA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±30V
Drain-Source Leakage Current	I_{DSS}	-	-	1	uA	V_{DS}=560V, V_{GS}=0
Static Drain-Source On-Resistance [4]	$R_{DS(ON)}$	-	1.5	1.7	Ω	V_{GS}=10V, I_D=1A
Total Gate Charge	Q_g	-	6.1	-	nC	I_D=1A V_{DS}=560V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	1.3	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	3.3	-		
Turn-On Delay Time	$T_{d(on)}$	-	11	-	nS	V_{DS}=350V I_D=1A V_{GS}=10V R_G=25Ω
Rise Time	T_r	-	25	-		
Turn-Off Delay Time	$T_{d(off)}$	-	30	-		
Fall Time	T_f	-	24	-		
Input Capacitance	C_{iss}	-	225	-	pF	V_{GS}=0V V_{DS}=25V f=1MHz
Output Capacitance	C_{oss}	-	300	-		
Reverse Transfer Capacitance	C_{rss}	-	12	-		
Source-Drain Diode						
Continuous Source Current [1]	I_S	-	-	1	A	
Pulsed Source Current [3]	I_{SM}	-	-	4	A	
Forward On Voltage [4]	V_{SD}	-	-	1.4	V	I_S=1A, V_{GS}=0V
Reverse Recovery Time	T_{rr}	-	358	-	nS	I_F=1A, dI/dt=100A/μs, V_{DD}=100V, T_J=25°C
Reverse Recovery Charge	Q_{rr}	-	1.5	-	nC	

Notes:
1. Surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. When mounted on Min. copper pad.
3. Pulse width limited by maximum junction temperature. Pulse width≦10us , Duty cycle≦2%.
4. Pulse test: Pulse width≦300us, Duty cycle≦2%.

TYPICAL CHARACTERISTIC CURVES

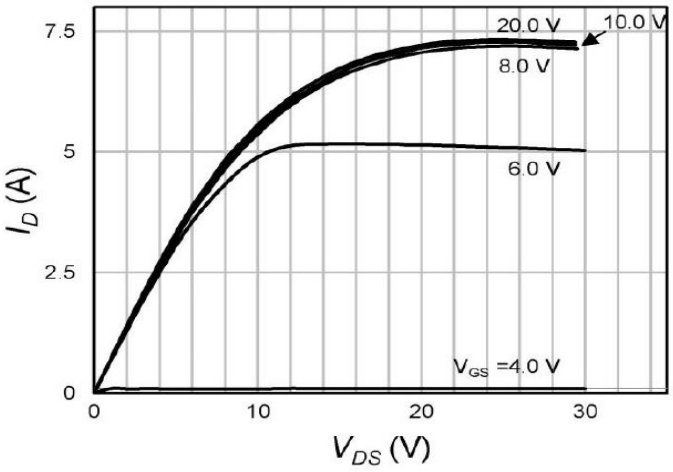


Fig.1 Typical Output Characteristics

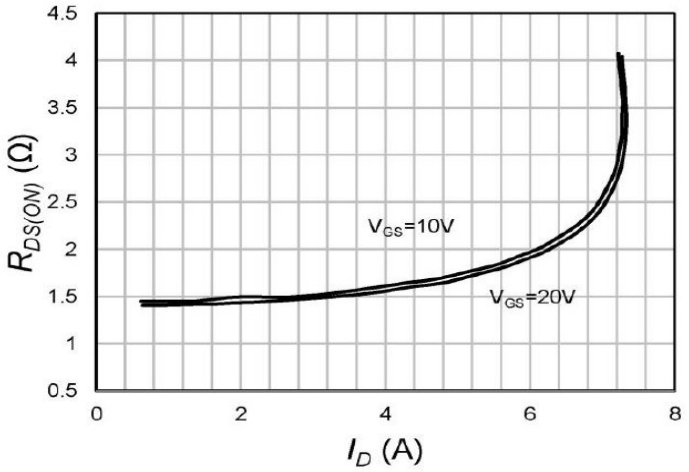


Fig.2 On-Resistance vs. Drain Current

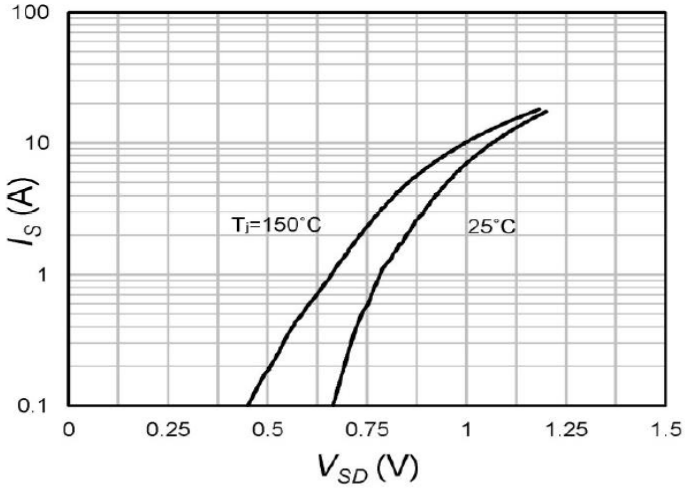


Fig.3 Forward Characteristics of Reverse

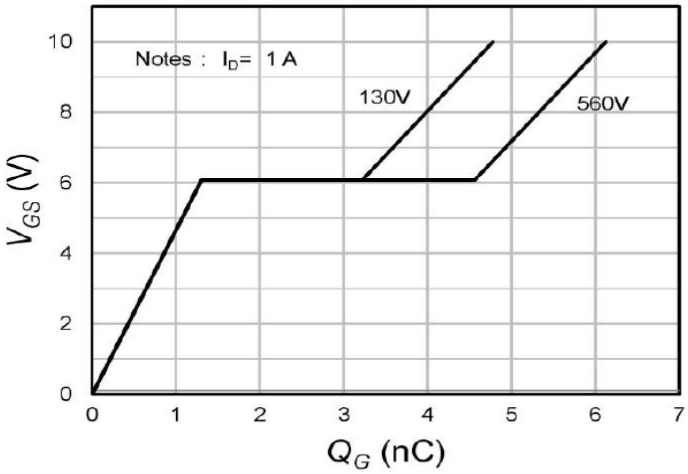


Fig.4 Gate-Charge Characteristics

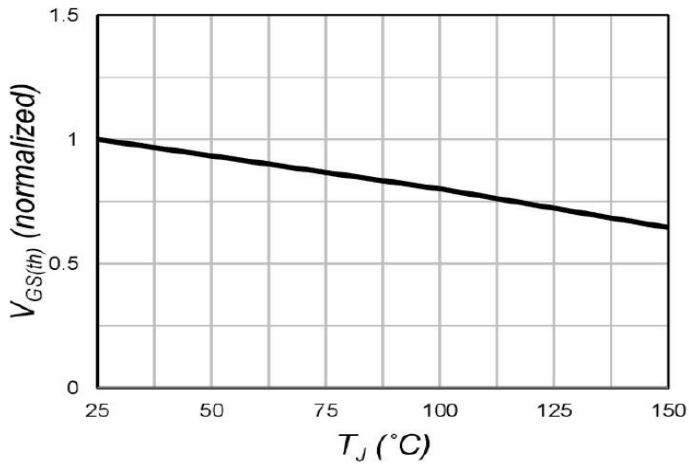


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

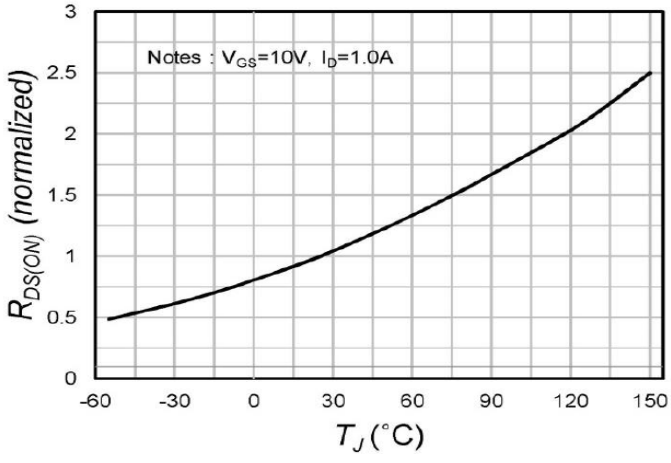


Fig.6 Normalized R_{DSON} vs. T_J

TYPICAL CHARACTERISTIC CURVES

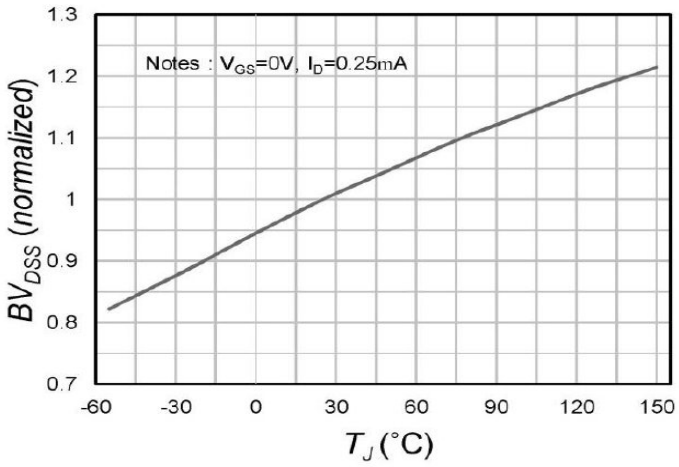


Fig.7 Drain-Source Breakdown Voltage(Normaized)

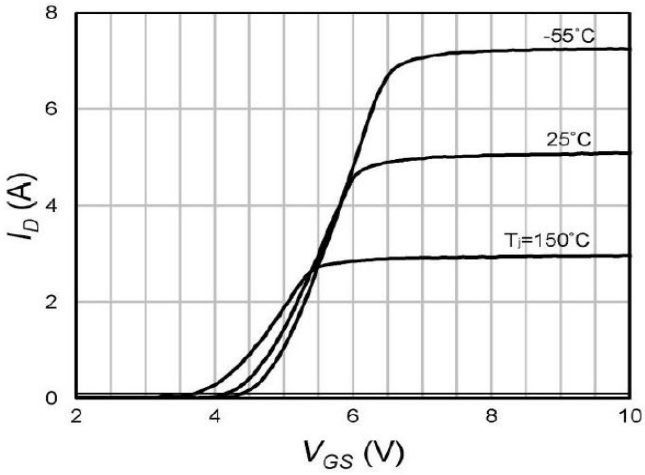


Fig.8 Transfer Characteristics

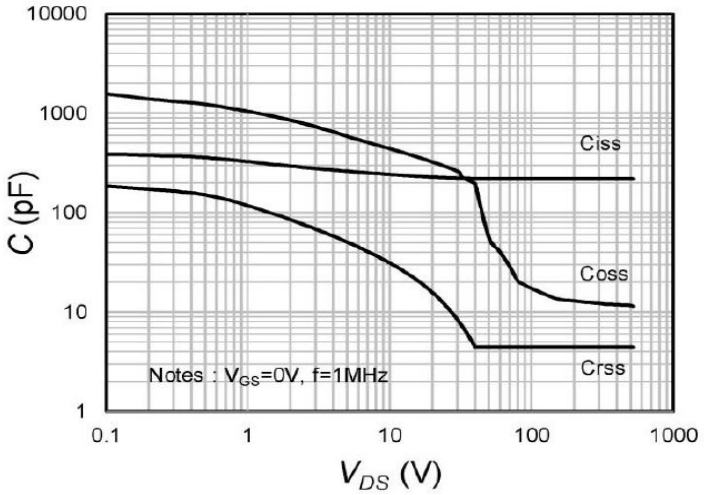


Fig.9 Capacitances

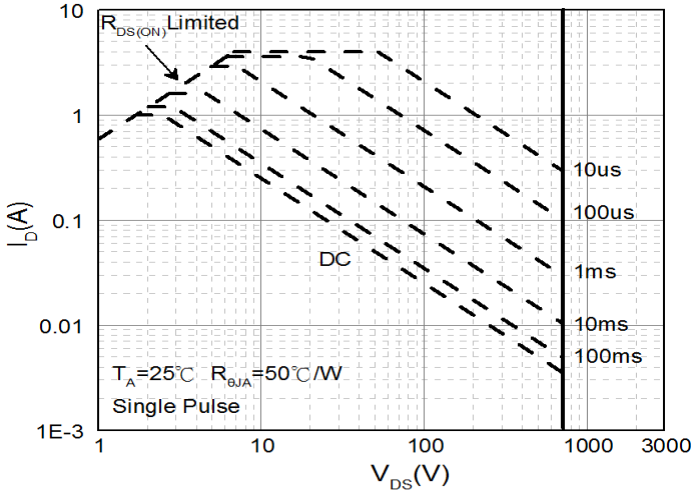


Fig.10 Safe Operating Area

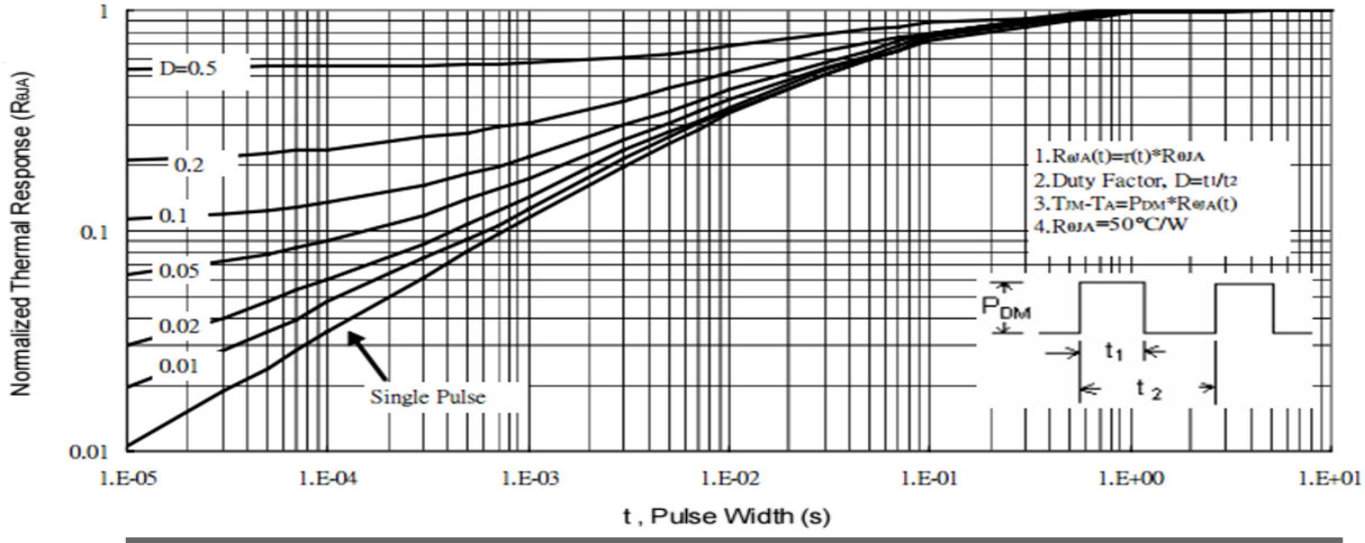


Fig.11 Normalized Maximum Transient Thermal Impedance