Elektronische Bauelemente

SMS4A1P03-C

-4.1A, -30V, $R_{DS(ON)}$ 55mΩ

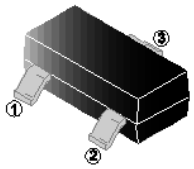
P-Channel Enhancement Mode Power MOSFET

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

FEATURES

- Exceptional On-Resistance and Maximum DC Current Capability
- Super High Density Cell Design for Extremely Low $R_{DS(ON)}$

SOT-23



APPLICATION

- Portable equipment
- Load Switch
- Battery Powered System
- Power Management in Note

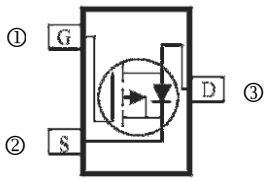
MARKING

HYWXZ

Y：Year
W：Week
XZ：Serial number

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMS4A1P03-C	Lead (Pb)-free and Halogen-free

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25℃	I_D	-4.1	A
Pulsed Drain Current		I_{DM}	-16.4	A
Power Dissipation	T_A=25℃	P_D	1.56	W
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings				
Thermal Resistance Junction-Ambient		$R_{\theta JA}$	80	℃/W

ELECTRICAL CHARACTERISTICS (T_J=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-30	-	-	V	V_{GS}=0V, I_D= -250μA
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS}, I_D= -250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	V_{DS}= -30V, V_{GS}=0V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	55	mΩ	V_{GS}= -10V, I_D= -3A
		-	-	85		V_{GS}= -4.5V, I_D= -2A
Total Gate Charge [2]	Q_g	-	5.1	-	nC	V_{GS}= -4.5V V_{DS}= -15V I_D= -3A
Gate-Source Charge [2]	Q_{gs}	-	2.0	-		
Gate-Drain Charge [2]	Q_{gd}	-	2.2	-		
Turn-on Delay Time [2]	$T_{d(on)}$	-	8.7	-	nS	V_{Ds}= -15V V_{GS}= -10V I_D= -1A R_G=6Ω
Rise Time [2]	T_r	-	35.9	-		
Turn-off Delay Time [2]	$T_{d(off)}$	-	23	-		
Fall Time [2]	T_f	-	8.5	-		
Input Capacitance	C_{iss}	-	545	-	pF	V_{GS}=0V V_{DS}= -15V f=1MHz
Output Capacitance	C_{oss}	-	62.5	-		
Reverse Transfer Capacitance	C_{rss}	-	48	-		
Source-Drain Diode						
Diode Forward Voltage [1]	V_{SD}	-	-	-1.2	V	I_S= -1A, V_{GS}=0V
Continuous Current	I_S	-	-	-4.1	A	V_D=V_G=0V, Force Current

Notes:
1. The data tested by pulsed , pulse width≦300us , duty cycle≦2%.
2. Independent of operating temperature.
3. Pulsed width limited by maximum junction temperature

CHARACTERISTIC CURVES

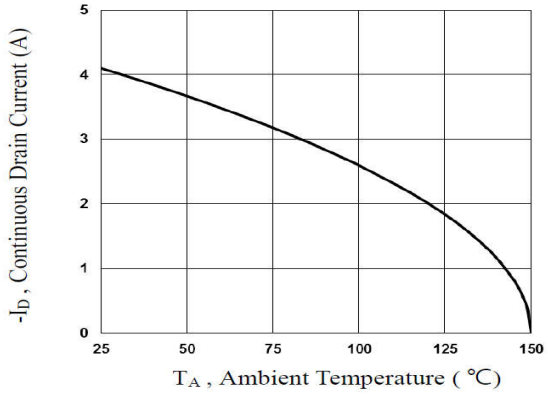


Fig.1 Continuous Drain Current vs. T_C

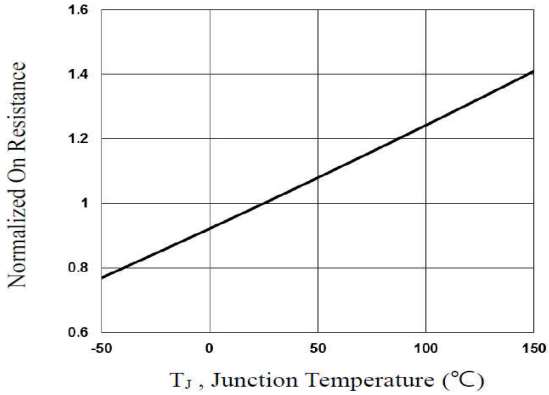


Fig.2 Normalized RDSON vs. T_J

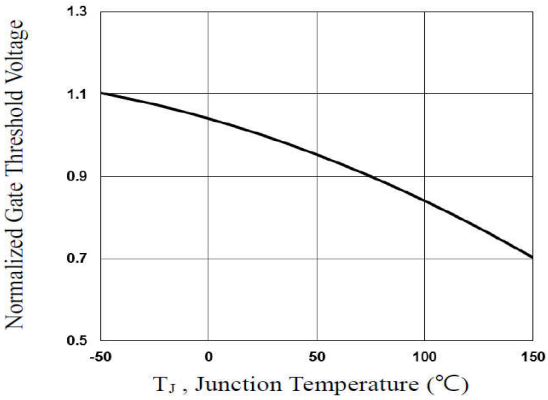


Fig.3 Normalized V_{th} vs. T_J

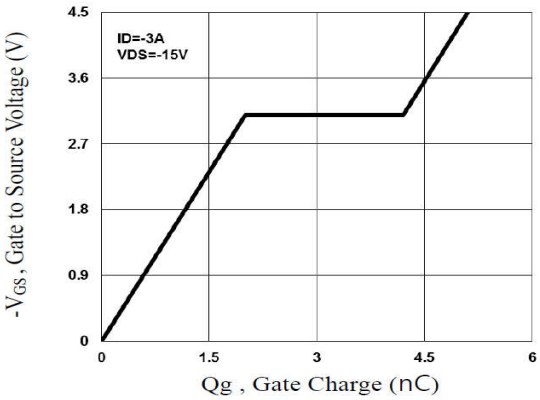


Fig.4 Gate Charge Waveform

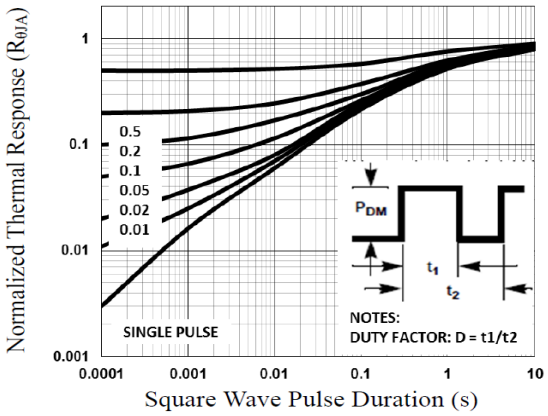


Fig.5 Normalized Transient Impedance

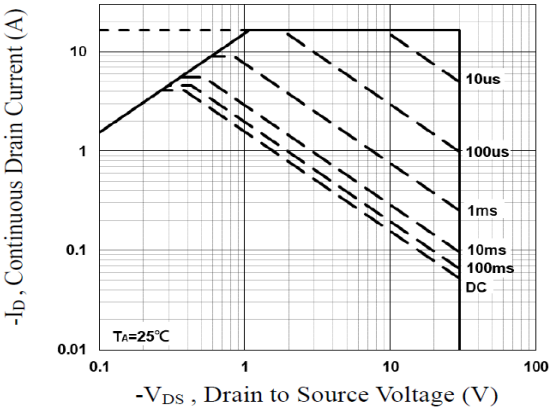


Fig.6 Maximum Safe Operation Area

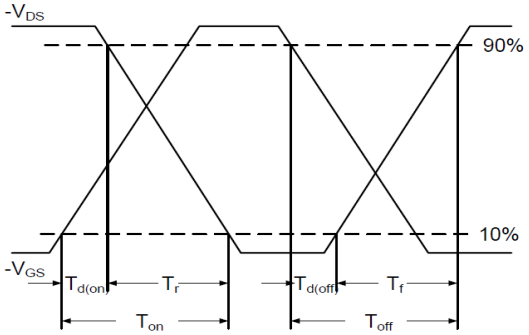


Fig.7 Switching Time Waveform

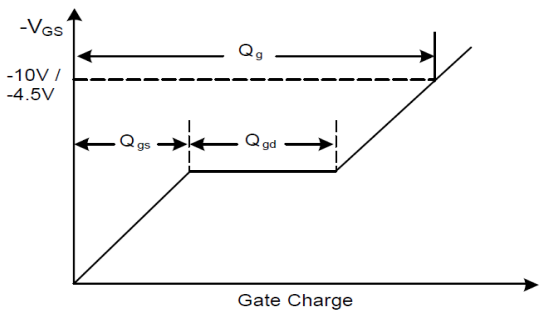
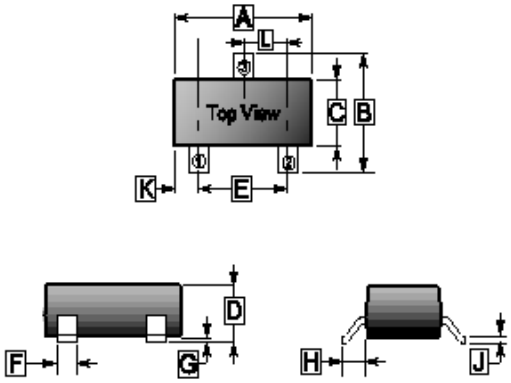


Fig.8 Gate Charge Waveform

PACKAGE OUTLINE DIMENSIONS

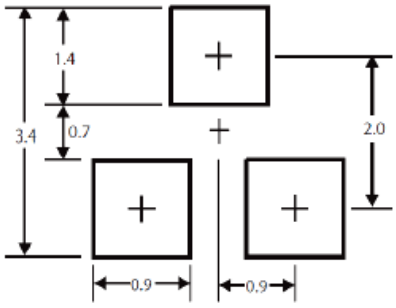
SOT-23



REF.	Millimeter	
	Min.	Max.
A	2.65	3.10
B	2.10	3.00
C	1.10	1.80
D	0.89	1.45
E	1.70	2.30
F	0.28	0.55
G	-	0.18
H	0.55 REF.	
J	0.05	0.26
K	0.60 REF.	
L	0.95 TYP.	

MOUNTING PAD LAYOUT

SOT-23



*Dimensions in millimeters