Elektronische Bauelemente

SMS4A2P03-C

-4.2A, -30V, $R_{DS(ON)}$ 55mΩ

P-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

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

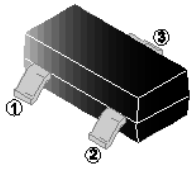
FEATURES

- High Power and Current Handing Capability
- Fast Switching

SOT-23

APPLICATION

- PWM Applications
- Load Switch
- Power Management

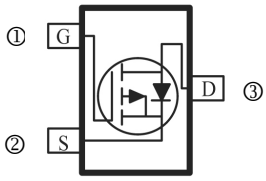


MARKING

3401

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMS4A2P03-C	Lead (Pb)-free and Halogen-free

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-4.2	A
Pulsed Drain Current [1]	I_{DM}	-30	A
Power Dissipation	P_D	1.2	W
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	℃
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	104	℃/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 [2]	$V_{GS(th)}$	-0.7	-1	-1.3	V	V_{DS}=V_{GS}, I_D= -250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±10V, V_{DS}=0V
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}=0V
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	48	55	mΩ	V_{GS}= -10V, I_D= -4.2A
		-	56	75		V_{GS}= -4.5V, I_D= -4A
		-	72	130		V_{GS}= -2.5V, I_D= -1A
Forward Transconductance [2]	g_{fs}	-	10	-	S	V_{DS}= -5V, I_D= -4.2A
Total Gate Charge	Q_g	-	8.5	-	nC	V_{GS}= -4.5V V_{DS}= -15V I_D= -4.2A
Gate-Source Charge	Q_{gs}	-	1.8	-		
Gate-Drain Charge	Q_{gd}	-	2.7	-		
Turn-on Delay Time	$T_{d(on)}$	-	7	-	nS	V_{DD}= -15V V_{GS}= -10V I_D= -4.2A R_G=6Ω
Rise Time	T_r	-	3	-		
Turn-off Delay Time	$T_{d(off)}$	-	30	-		
Fall Time	T_f	-	12	-		
Input Capacitance	C_{iss}	-	880	-	pF	V_{GS}=0V V_{DS}= -15V f=1MHz
Output Capacitance	C_{oss}	-	105	-		
Reverse Transfer Capacitance	C_{rss}	-	65	-		
Source-Drain Diode						
Diode Forward Voltage [2]	V_{SD}	-	-	-1.2	V	I_S= -4.2A, V_{GS}=0V

Notes:
1. Repetitive Rating：Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width≦300μs, duty cycle≦2%.

CHARACTERISTIC CURVES

Fig 1: Power Dissipation

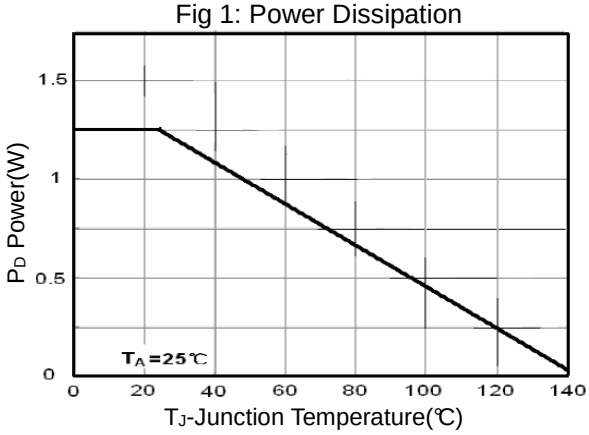


Fig 2: Drain Current

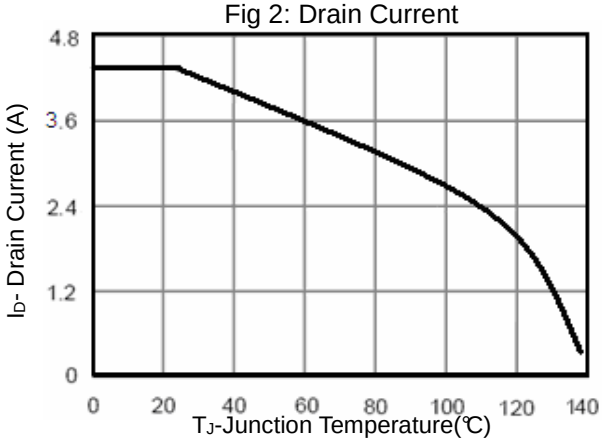


Fig 3: Output Characteristics

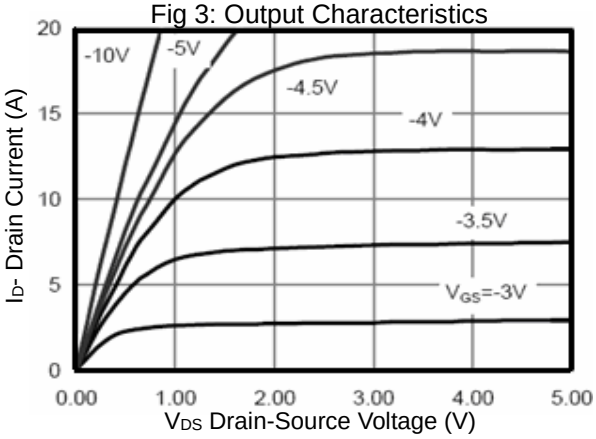


Fig 4: Drain-Source On-Resistance

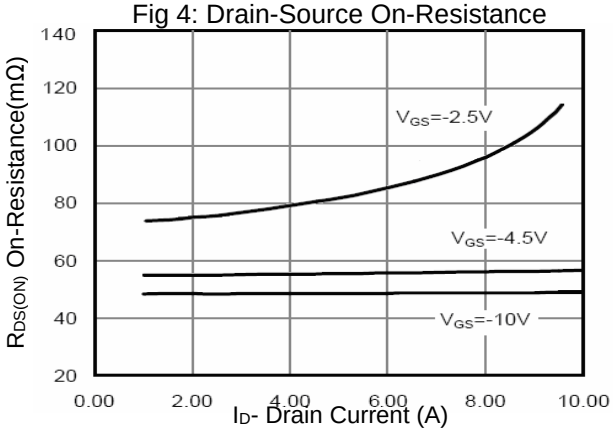


Fig 5: Transfer Characteristics

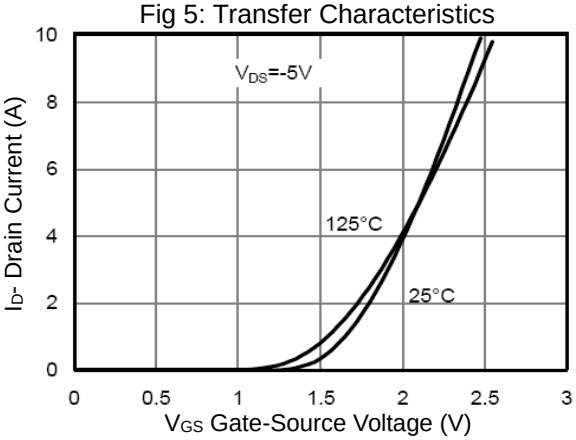


Fig 6: Drain-Source On-Resistance

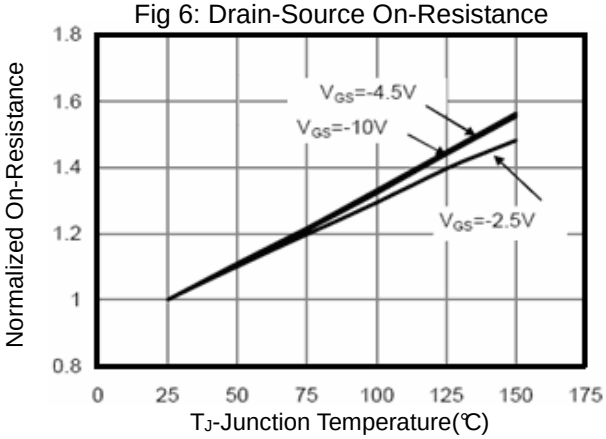


Fig 7: $R_{DS(ON)}$ vs V_{gs}

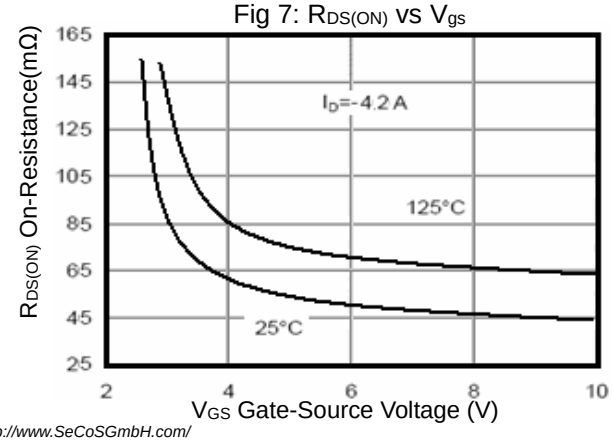
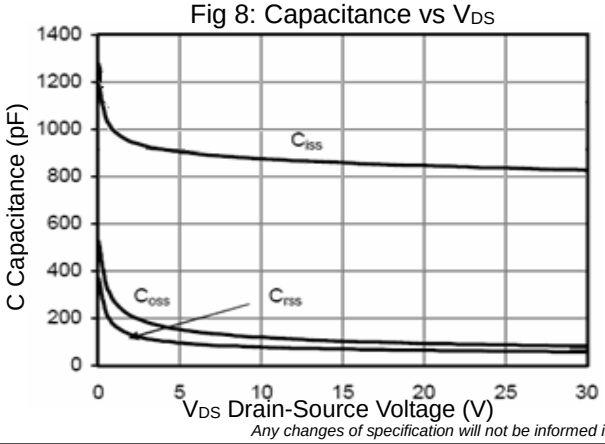


Fig 8: Capacitance vs V_{DS}



CHARACTERISTIC CURVES

Fig 9: Gate Charge

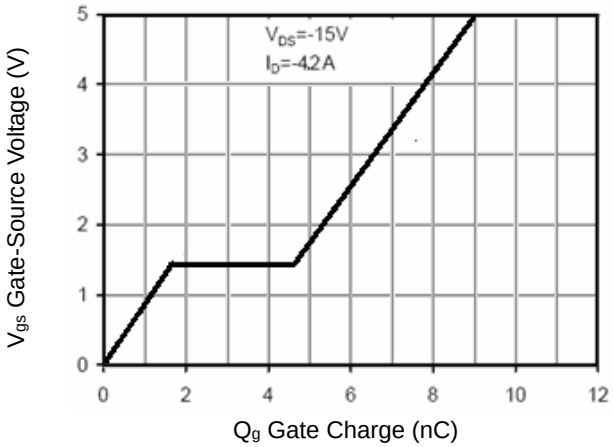


Fig 10: Source- Drain Diode Forward

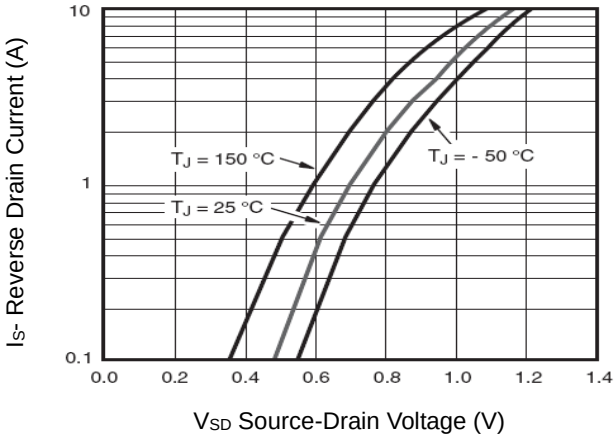


Fig 11: Safe Operation Area

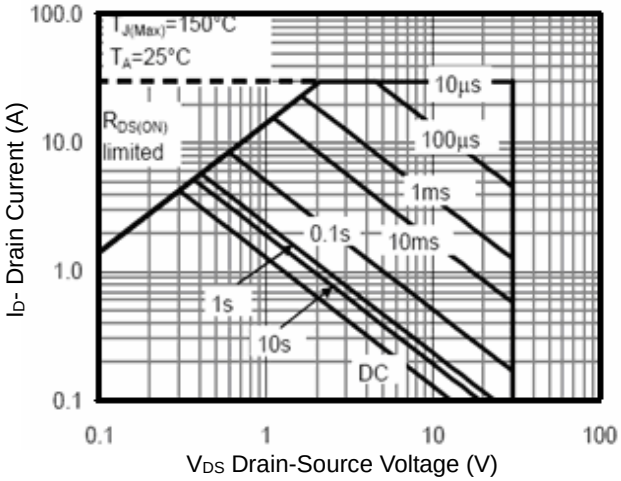


Fig 12: Switching Waveforms

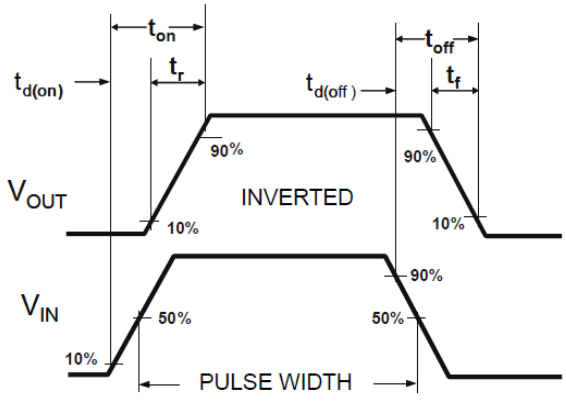
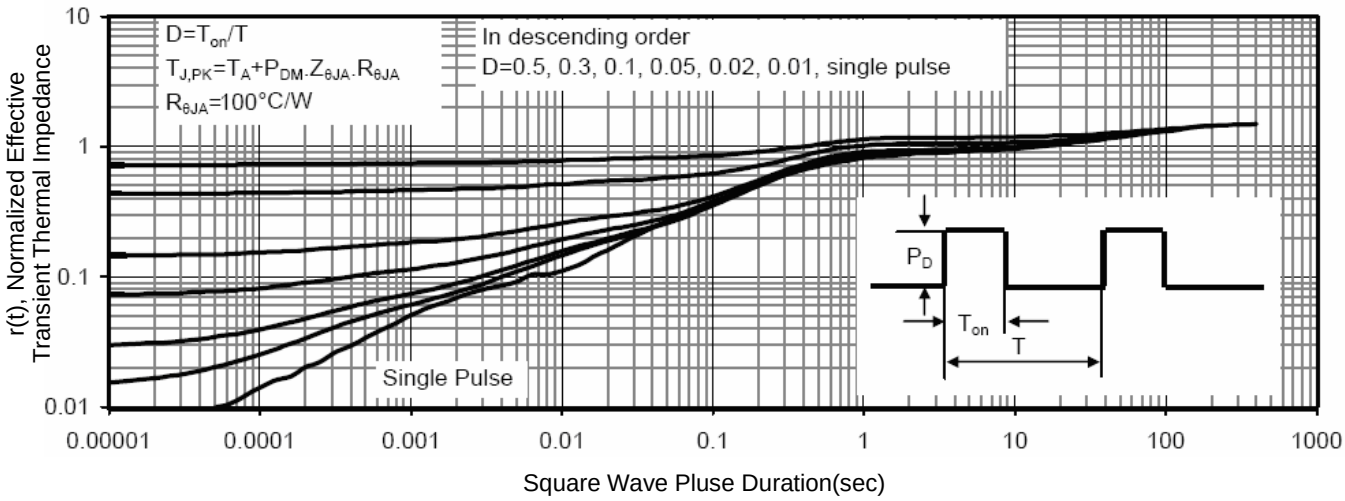


Fig 13: Normalized Maximum Transient Thermal Impedance



PACKAGE OUTLINE DIMENSIONS

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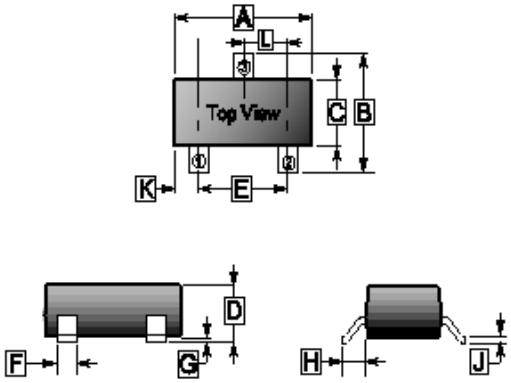
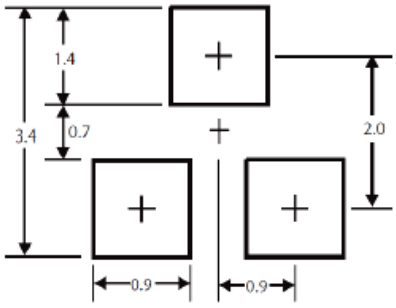


REF.	Millimeter	
	Min.	Max.
A	2.65	3.10
B	2.10	3.00
C	1.10	1.80
D	0.89	1.45
E	1.70	2.30
F	0.28	0.55
G	-	0.18
H	0.55 REF.	
J	0.05	0.26
K	0.60 REF.	
L	0.95 TYP.	

MOUNTING PAD LAYOUT

SOT-23



*Dimensions in millimeters