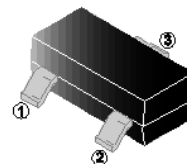


RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURES

- High Power and Current Handling Capability
- Surface Mount Package

SOT-23

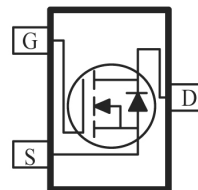


MARKING

R0C

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMS4N03-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ 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	A
Pulsed Drain Current ¹	I_{DM}	30	A
Power Dissipation	P_D	400	mW
Thermal Resistance from Junction-Ambient	$R_{\theta JA}$	313	$^{\circ}\text{C}/\text{W}$
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	0.7	0.9	1.4	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{GS}=0V, V_{DS}=30V$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 12V, V_{DS}=0V$
Drain-Source On Resistance	$R_{DS(ON)}$	-	28	35	m Ω	$V_{GS}=10V, I_D=2.9A$
		-	31	40		$V_{GS}=4.5V, I_D=2.9A$
		-	45	50		$V_{GS}=2.5V, I_D=4A$
Forward Transconductance	g_{fs}	-	8	-	S	$V_{DS}=5V, I_D=4.5A$
Total Gate Charge	Q_g	-	9.5	-	nC	$V_{DS}=15V$ $V_{GS}=4.5V$ $I_D=4A$
Gate-Source Charge	Q_{gs}	-	1.5	-		
Gate-Drain Charge	Q_{gd}	-	3	-		
Turn-On Delay Time	$T_{d(on)}$	-	3.3	-	nS	$V_{DD}=15V$ $V_{GS}=10V$ $I_D=2.9A$ $R_G=3\Omega$
Rise Time	T_r	-	4.8	-		
Turn-Off Delay Time	$T_{d(off)}$	-	26	-		
Fall Time	T_f	-	4	-		
Input Capacitance	C_{iss}	-	825	-	pF	$V_{DS}=15V$ $V_{GS}=0V$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	108	-		
Reverse Transfer Capacitance	C_{rss}	-	84	-		
Source Drain Diode						
Continuous Source Current	I_S	-	-	4	A	
Pulsed Source Current	I_{SM}	-	-	30		
Diode Forward Voltage	V_{SD}	-	-	1.2	V	$I_S=1A, V_{GS}=0$

Notes:

1. Repetitive rating: pulse width limited by max. junction temperature
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycles $\leq 2\%$.

TYPICAL CHARACTERISTIC CURVE

Figure1. Output Characteristics

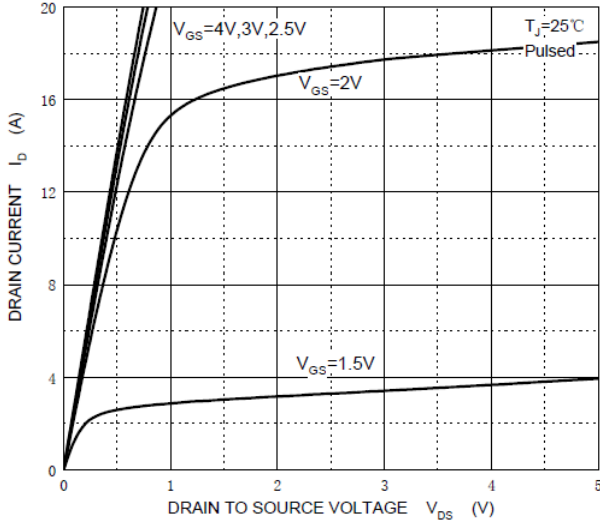


Figure2. Transfer Characteristics

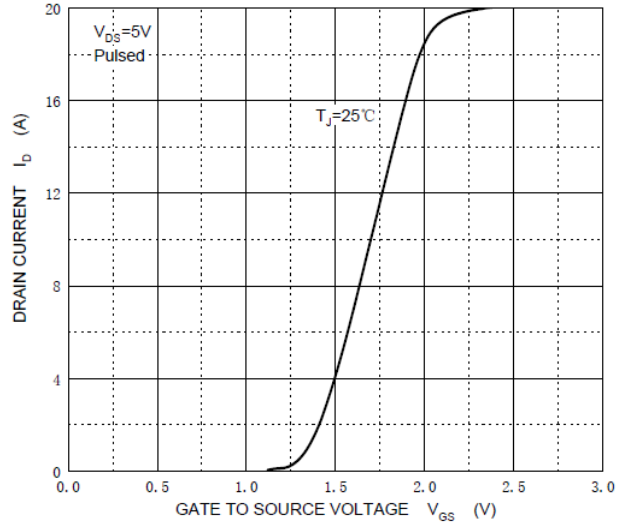


Figure3. $R_{DS(ON)}$ — I_D

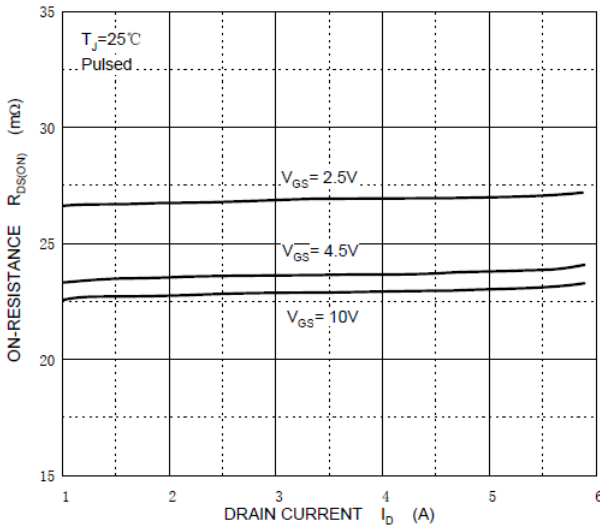


Figure4. $R_{DS(ON)}$ — V_{GS}

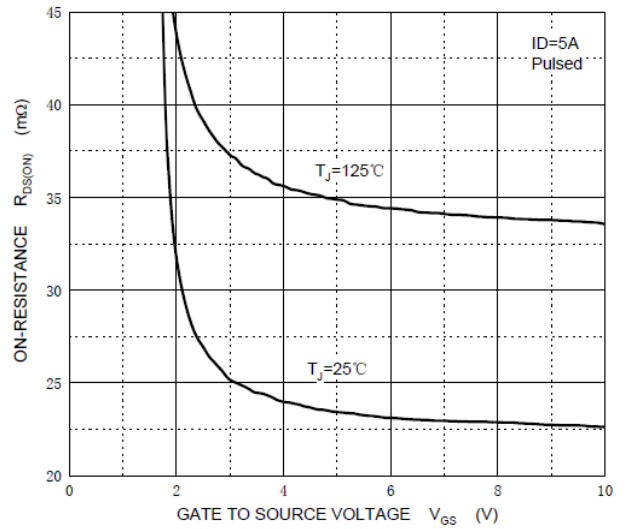


Figure5. I_S — V_{SD}

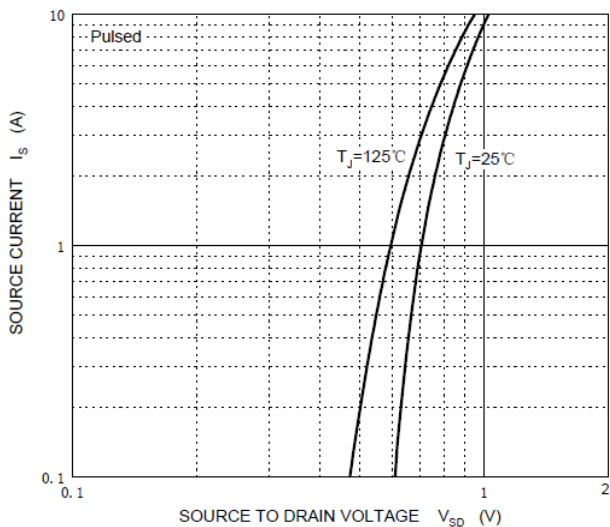
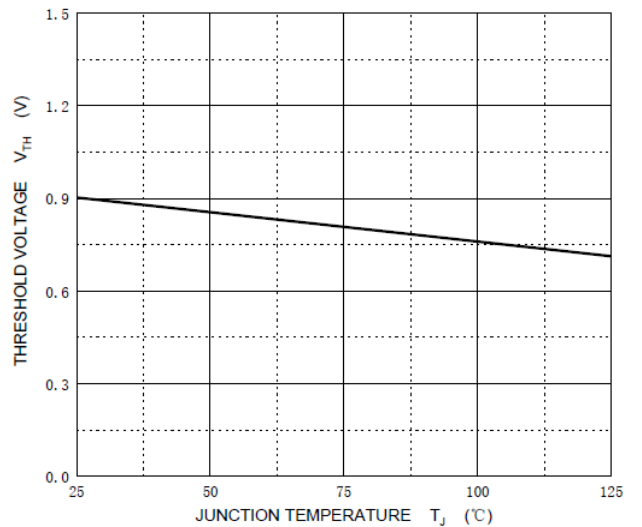
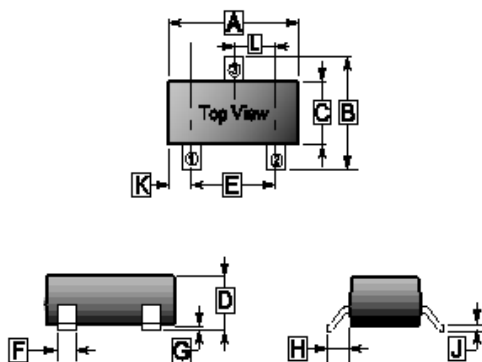


Figure6. Threshold Voltage



PACKAGE OUTLINE DIMENSIONS

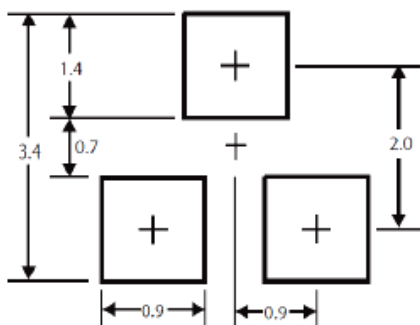
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REF.	Millimeter	
	Min.	Max.
A	2.65	3.10
B	2.10	3.00
C	1.10	1.80
D	0.89	1.40
E	1.70	2.30
F	0.28	0.55
G	-	0.18
H	0.55 REF.	
J	0.05	0.26
K	0.60 REF.	
L	0.95 TYP.	

MOUNTING PAD LAYOUT

SOT-23



*Dimensions in millimeters