Elektronische Bauelemente

SMS3400A-C

5.8A, 30V, $R_{DS(ON)}$ 32mΩ

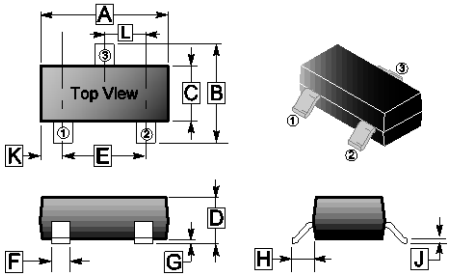
N-Channel Enhancement Mode Power MOSFET

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

DESCRIPTION

The SMS3400A-C provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness. The SOT-23 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.18
B	2.10	2.95	H	0.55 REF.	
C	1.20	1.7	J	0.08	0.20
D	0.89	1.3	K	0.6 REF.	
E	1.70	2.3	L	0.95 BSC.	
F	0.30	0.50			

FEATURES

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

MARKING

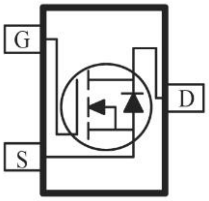
R0A

PACKAGE INFORMATION

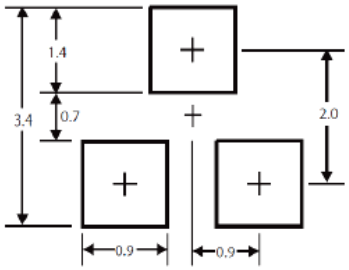
Package	MPQ	Leader Size
SOT-23	3K	7 inch

ORDER INFORMATION

Part Number	Type
SMS3400A-C	Lead (Pb)-free and Halogen-free



Mounting Pad Layout



*Dimensions in millimeters

ABSOLUTE MAXIMUM RATINGS (T_A=25°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 [1]		I_D	5.8	A
Pulsed Drain Current [3]		I_{DM}	30	A
Maximum Power Dissipation [1]	T_A=25°C	P_D	1.4	W
	T_A=70°C		0.9	
Thermal Resistance Junction-Ambient		$R_{\theta JA}$[1]	t≦ 10s, 89	°C/W
		$R_{\theta JA}$[2]	313	
Operating Junction & Storage Temperature		T_J, T_{STG}	150, -55~150	°C

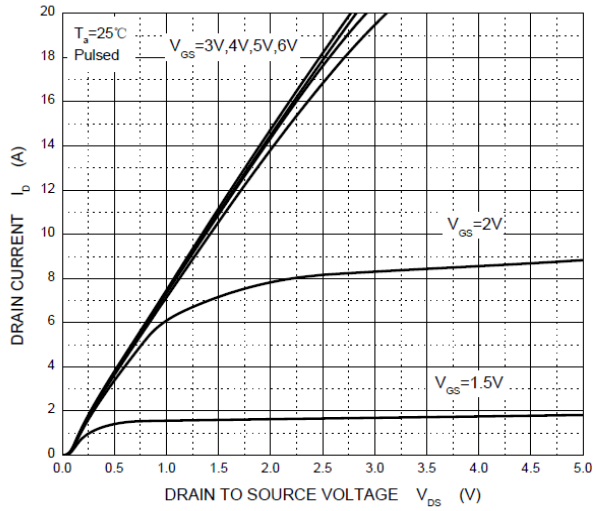
ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage	$V_{GS(th)}$	0.3	-	1.4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±12V, V_{DS}=0
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=24V, V_{GS}=0
Forward Transfer conductance	g_{fs}	-	8	-	S	V_{DS}=5V, I_D=5A
Diode Forward Voltage [4]	V_{SD}	-	-	1	V	I_S=1A, V_{GS}=0
Static Drain-Source On-Resistance [4]	$R_{DS(ON)}$	-	-	32	mΩ	V_{GS}=10V, I_D=5.8A
		-	-	38		V_{GS}=4.5V, I_D=5A
		-	-	45		V_{GS}=2.5V, I_D=4A
Total Gate Charge	Q_g	-	9.5	-	nC	I_D=5.8A V_{DS}=15V V_{GS}=4.5V
Gate-Source Charge	Q_{gs}	-	1.5	-		
Gate-Drain Change	Q_{gd}	-	3	-		
Input Capacitance	C_{iss}	-	807	-	pF	V_{GS} =0 V_{DS}=15V f=1MHz
Output Capacitance	C_{oss}	-	61	-		
Reverse Transfer Capacitance	C_{rss}	-	21	-		
Turn-on Delay Time	$T_{d(on)}$	-	2.9	-	nS	V_{DD}=15V V_{GS}=10V R_{GEN}=3Ω R_L=2.7Ω
Rise Time	T_r	-	24.4	-		
Turn-off Delay Time	$T_{d(off)}$	-	18.9	-		
Fall Time	T_f	-	12.1	-		
Gate Resistance	R_g	-	1.6	-	Ω	V_{GS}=V_{DS}=0, f =1MHz

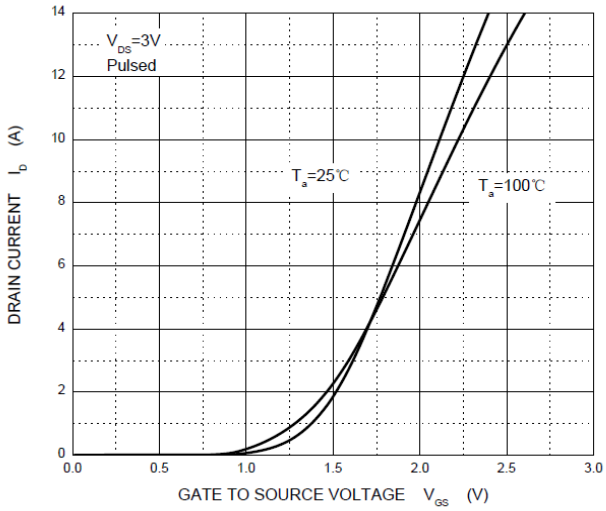
Notes:
1. The data tested by surface mounted on a 1 inch^2 FR4 board with 2OZ copper.
2. Surface mounted on min. copper pad.
3. Pulse width limited by maximum junction temperature.
4. Pulse Width≤300μs, Duty Cycle≤2%.

CHARACTERISTIC CURVES

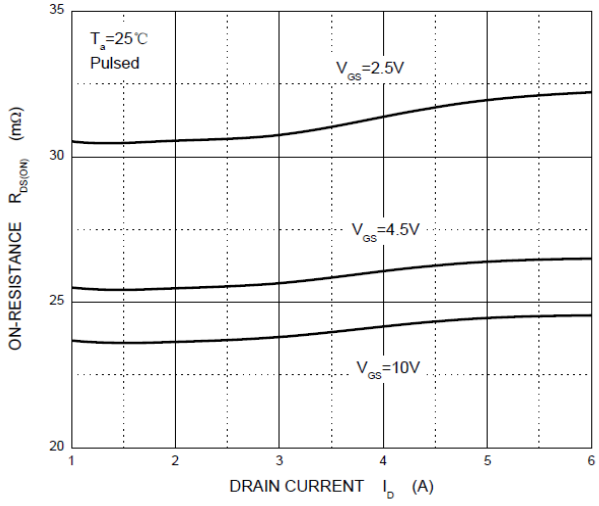
Output Characteristics



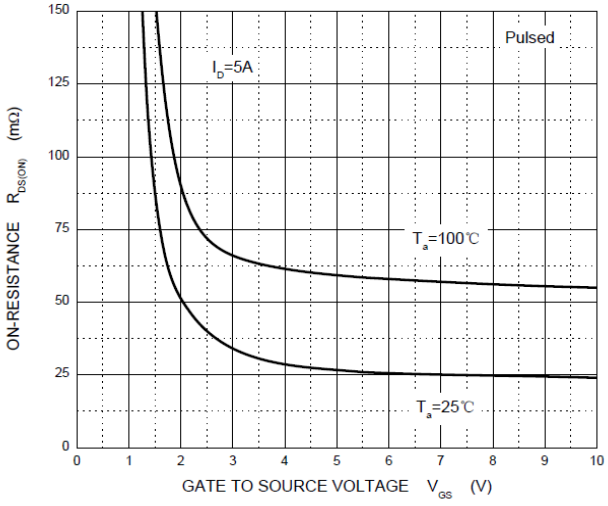
Transfer Characteristics



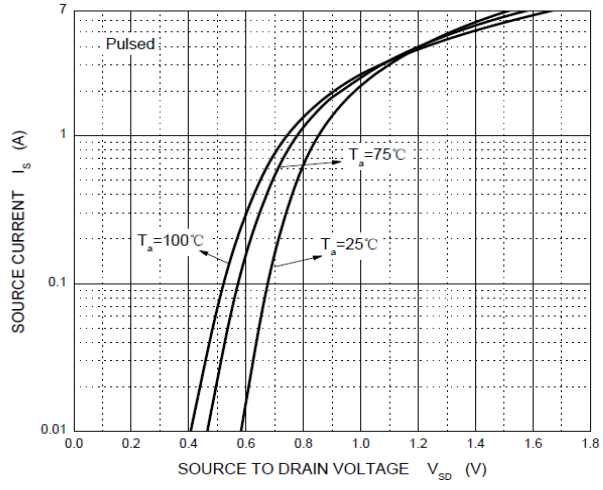
$R_{DS(ON)}$ —— I_D



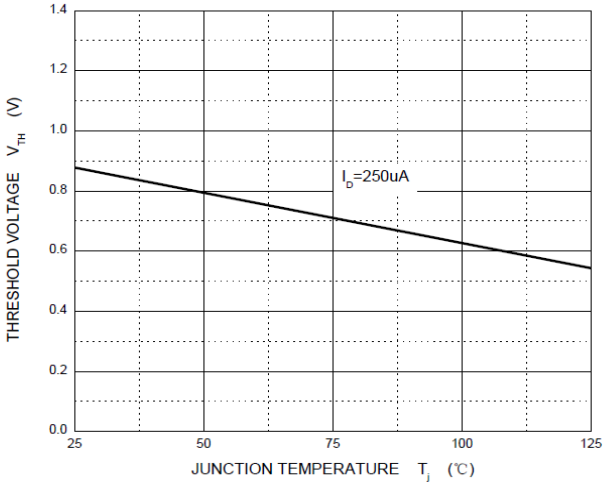
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}

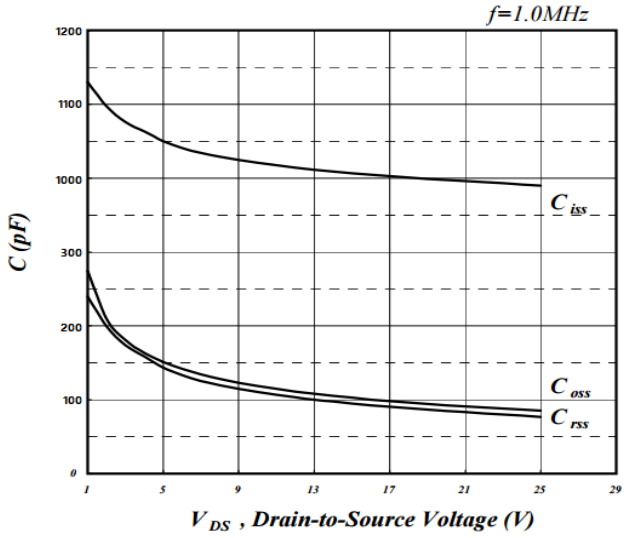


Threshold Voltage

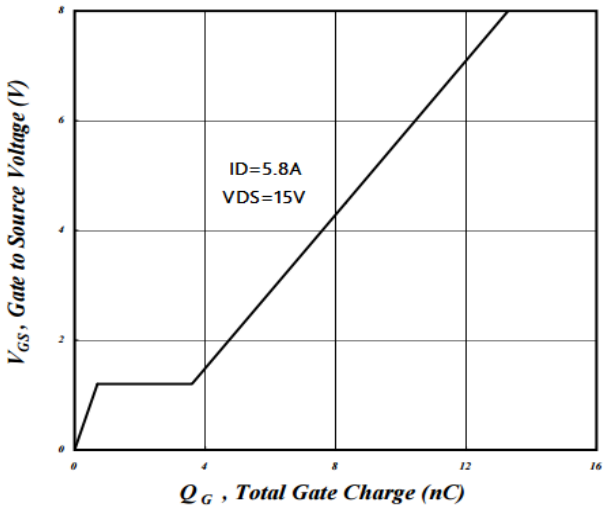


CHARACTERISTIC CURVES

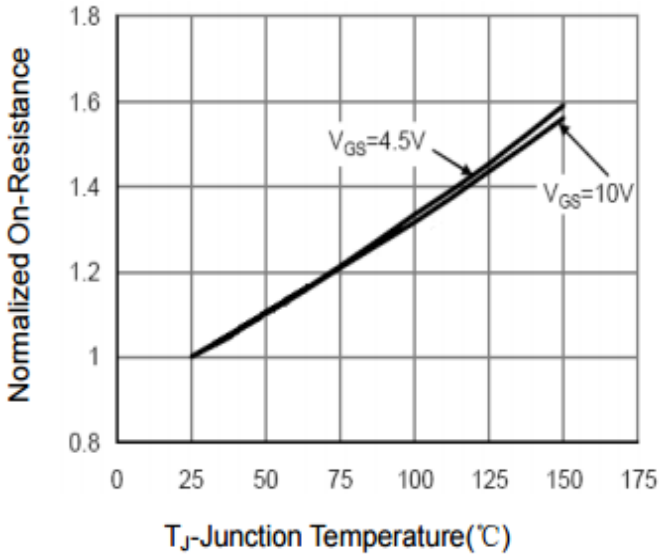
Typical Capacitance Characteristics



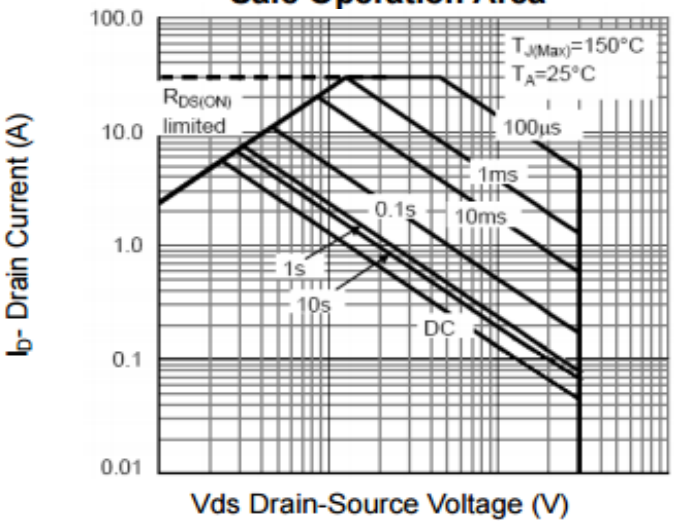
Gate Charge Characteristics



Drain-Source On-Resistance



Safe Operation Area



Normalized Maximum Transient Thermal Impedance