Elektronische Bauelemente

SMS2312-C

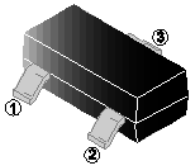
5A, 20V, $R_{DS(ON)}$ 31.8mΩ
N-Channel Enhancement Mode Power MOSFET

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

DESCRIPTION

The SMS2312-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



FEATURES

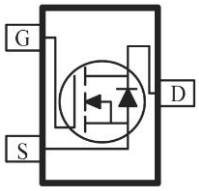
- Lower Gate Charge
- Simple Drive Requirement
- Fast Switching Characteristic

MARKING

S12

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMS2312-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current @t=5s	I_D	5	A
Pulsed Drain Current	I_{DM}	20	A
Maximum Power Dissipation @t=5s	P_D	0.35	W
Operating Junction & Storage Temperature	T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	357	°C/W

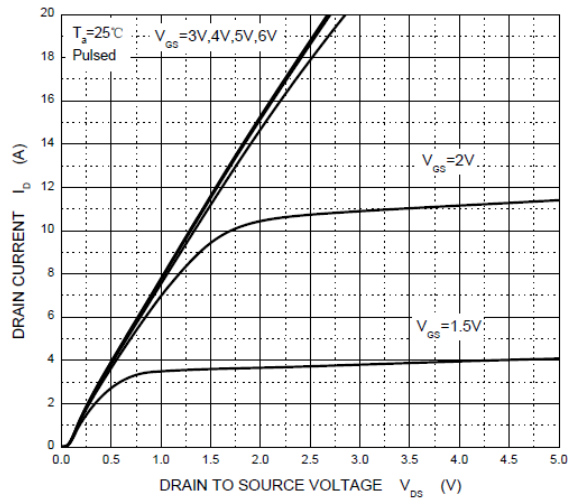
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	20	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage	$V_{GS(th)}$	0.45	0.7	1	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±8V, V_{DS}=0
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=20V, V_{GS}=0
Static Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	18	31.8	mΩ	V_{GS}=4.5V, I_D=5A
		-	23	35.6		V_{GS}=2.5V, I_D=4.7A
		-	30	41.4		V_{GS}=1.8V, I_D=4.3A
Gate Resistance	R_g	0.5	-	4.8	Ω	f=1MHz
Forward Transfer conductance [1]	g_{fs}	-	6	-	S	V_{DS}=10V, I_D=5A
Input Capacitance	C_{iss}	-	865	-	pF	V_{DS}=10V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	105	-		
Reverse Transfer Capacitance	C_{rss}	-	55	-		
Turn-on Delay Time	$T_{d(on)}$	-	10	-	nS	V_{DD}=10V V_{GEN}=5V R_G=1Ω R_L=2.2Ω I_D=4A
Rise Time	T_r	-	20	-		
Turn-off Delay Time	$T_{d(off)}$	-	32	-		
Fall Time	T_f	-	12	-		
Source-Drain Diode						
Continuous Source-Drain Diode Current	I_S	-	-	1.04	A	
Diode Forward Voltage	V_{SD}	-	0.75	1.2	V	I_S=4A, V_{GS}=0

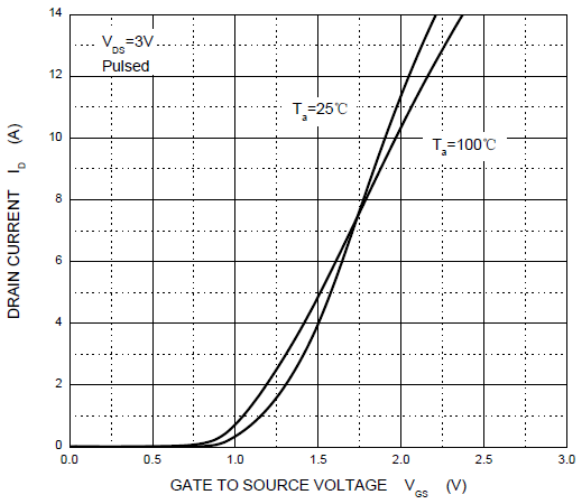
Note:
1. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

CHARACTERISTIC CURVES

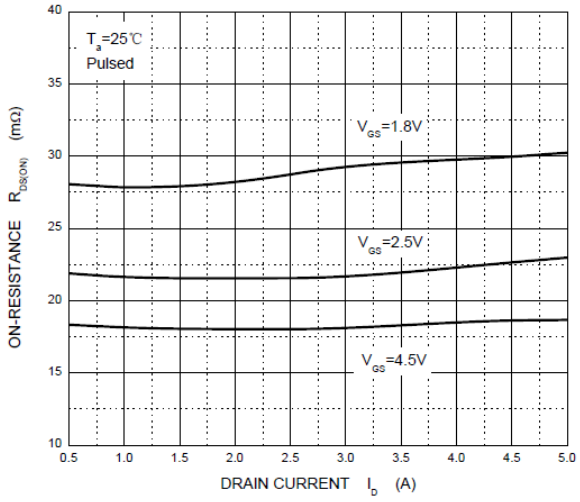
Output Characteristics



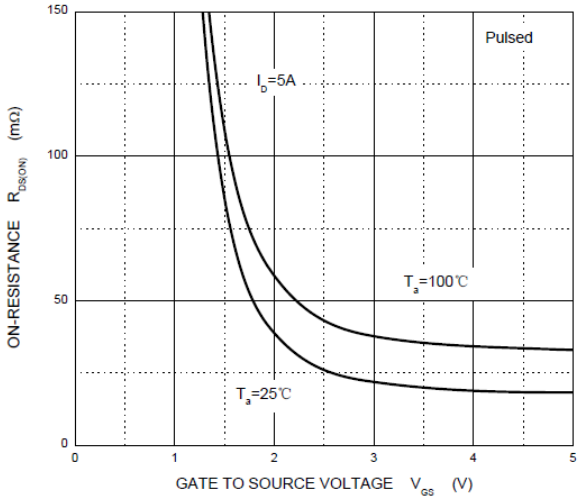
Transfer Characteristics



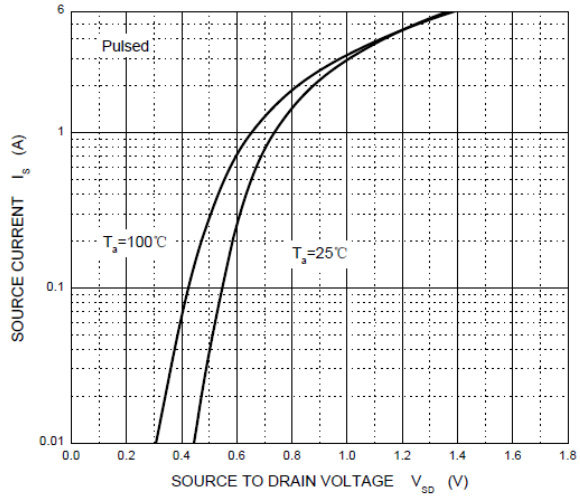
$R_{DS(ON)}$ — I_D



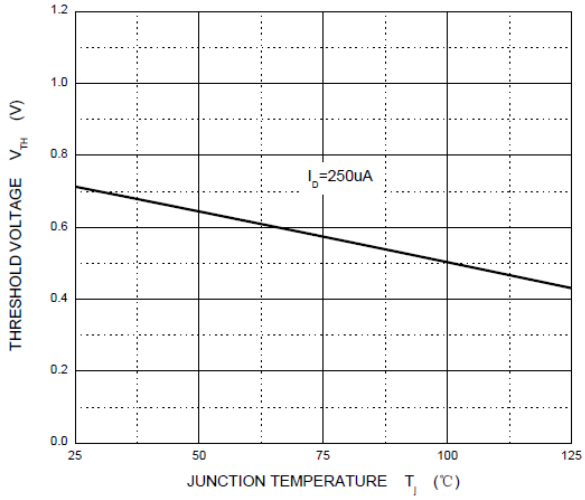
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

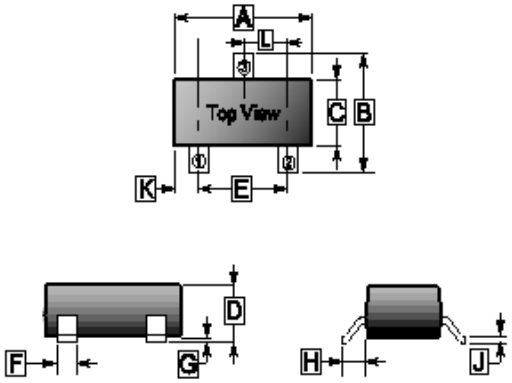


Threshold Voltage



PACKAGE OUTLINE DIMENSIONS

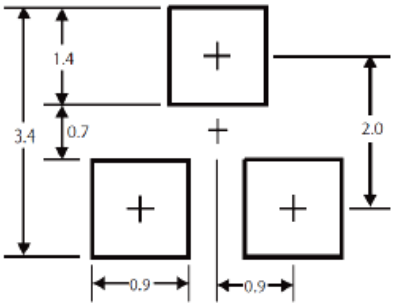
SOT-23



REF.	Millimeter	
	Min.	Max.
A	2.65	3.10
B	2.10	3.00
C	1.10	1.80
D	0.89	1.40
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