Elektronische Bauelemente

SMS318-C

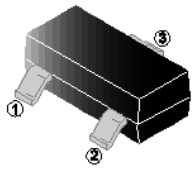
220mA, 50V, $R_{DS(ON)}$ 3.5Ω
N-Ch Enhancement Mode Power MOSFET

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

FEATURES

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/ Output Leakage
- ESD Protected Up to 2kV(HBM)

SOT-23



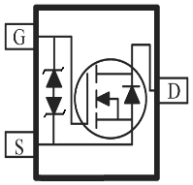
MECHANICAL DATA

- Case: SOT-23
- Case Material: Molded Plastic.
  UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating(Matte Tin Finish Annealed over Alloy 42 leadframe)
- Terminal Connections: See Diagram

MARKING

H03

SS



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

ORDER INFORMATION

Part Number	Type
SMS318-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_{DSS}	50	V
Continuous Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	220	mA
Power Dissipation	P_D	350	mW
Thermal Resistance, Junction-Ambient	$R_{\theta JA}$	357	°C/W
Junction & Storage Temperature Range	T_J, T_{STG}	150, -55~150	°C

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	50	-	-	V	V_{GS}=0, I_D=250μA
Gate Threshold Voltage	$V_{GS(th)}$	0.5	-	1.5	V	V_{DS}=V_{GS}, I_D=1mA
Forward Transconductance	g_{fs}	120	-	-	mS	V_{DS}=10V, I_D=0.22A
Gate-Body Leakage Current	I_{GSS}	-	-	±10	μA	V_{GS}= ±16V, V_{DS}=0
Zero Gate Voltage Drain Current	I_{DSS}	-	-	0.5	μA	V_{GS}=0, V_{DS}=50V
		-	-	100	nA	V_{GS}=0, V_{DS}=30V
Static Drain-Source On Resistance [1]	$R_{DS(ON)}$	-	-	3.5	Ω	V_{GS}=10V, I_D=0.22A
		-	-	6		V_{GS}=4.5V, I_D=0.22A
Total Gate Charge	Q_g	-	1.39	-	nC	V_{DS}=25V V_{GS}=10V I_D=0.3A
Gate-Source Charge	Q_{gs}	-	0.31	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	0.17	-		
Turn-On Delay Time	$T_{d(on)}$	-	3.2	-	nS	V_{DD}=30V V_{GS}=10V I_D=0.29A R_{GEN}=6Ω
Rise Time	T_r	-	2.6	-		
Turn-Off Delay Time	$T_{d(off)}$	-	17	-		
Fall Time	T_f	-	39.5	-		
Input Capacitance	C_{iss}	-	27	-	pF	V_{DS}=25V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	13	-		
Reverse Transfer Capacitance	C_{rss}	-	6	-		
Drain-source body diode characteristics						
Body Diode Forward Voltage [1]	V_{SD}	-	-	1.4	V	V_{GS}=0, I_S=0.44A

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

CHARACTERISTIC CURVES

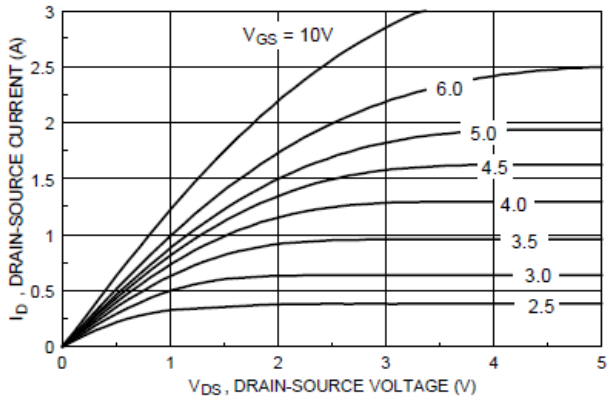


Figure 1. On-Region Characteristics.

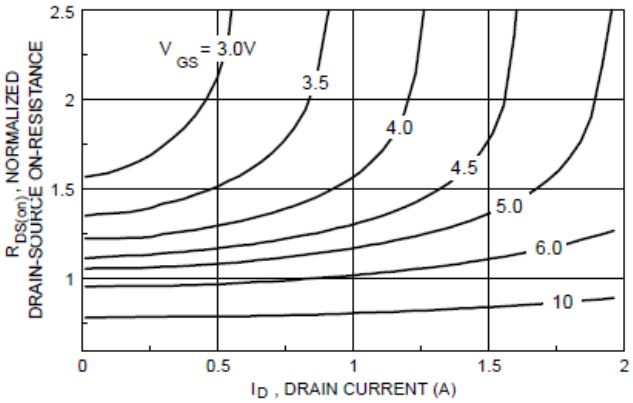


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current.

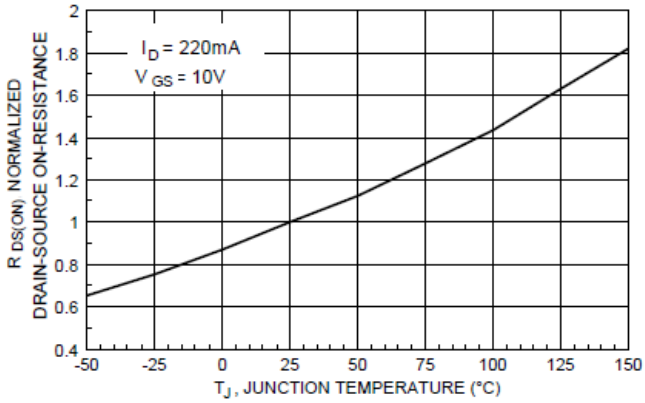


Figure 3. On-Resistance Variation with Temperature.

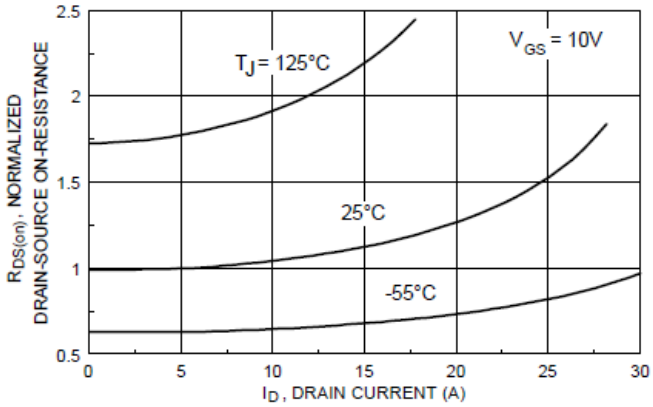


Figure 4. On-Resistance Variation with Drain Current and Temperature.

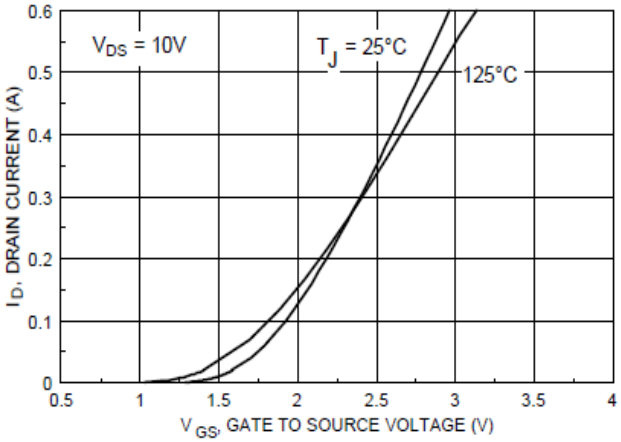


Figure 5. Transfer Characteristics.

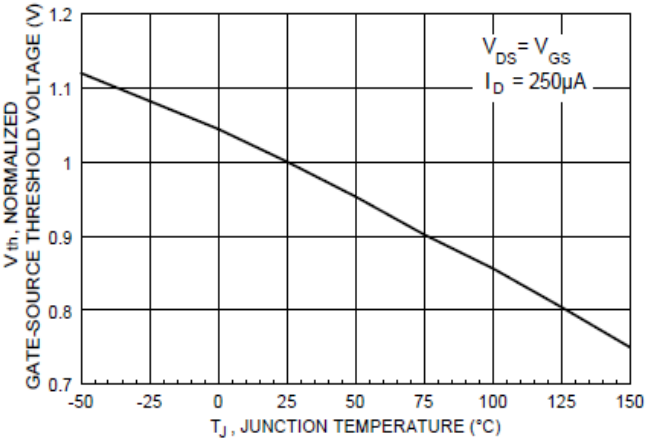


Figure 6. Gate Threshold Variation with Temperature.

CHARACTERISTIC CURVES

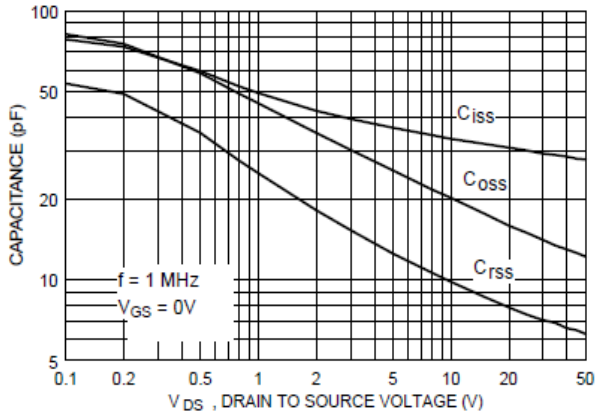


Figure 7. Capacitance Characteristics.

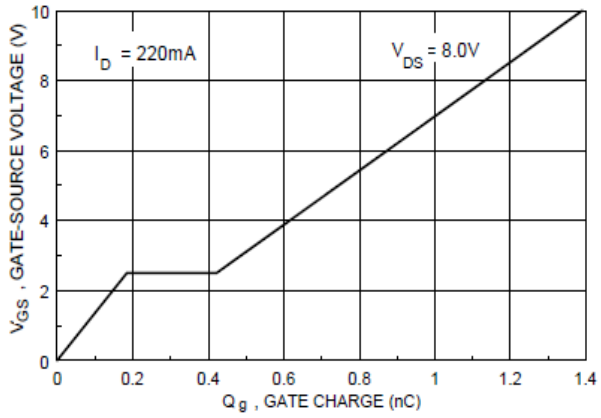


Figure 8. Gate Charge Characteristics.

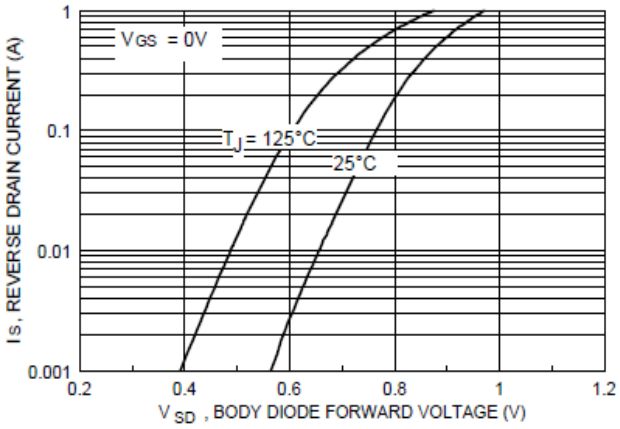


Figure 9. Body Diode Forward Voltage Variation with Current and Temperature

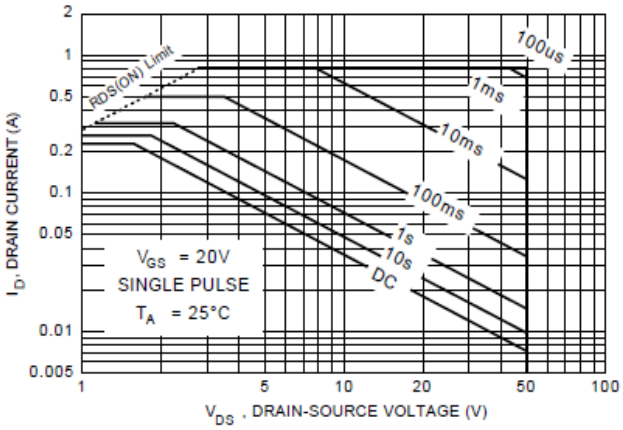


Figure 10. Maximum Safe Operating Area

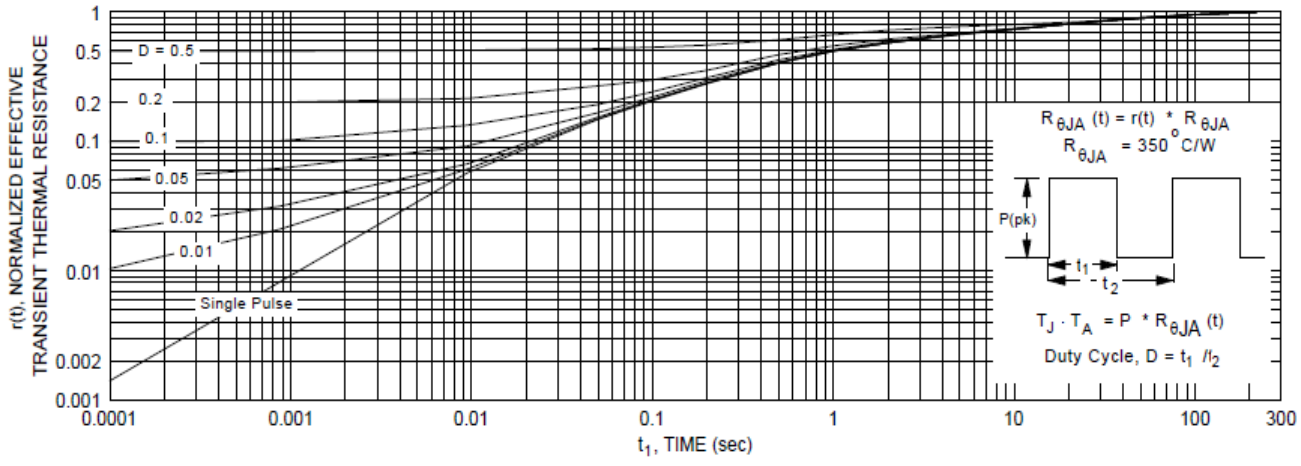
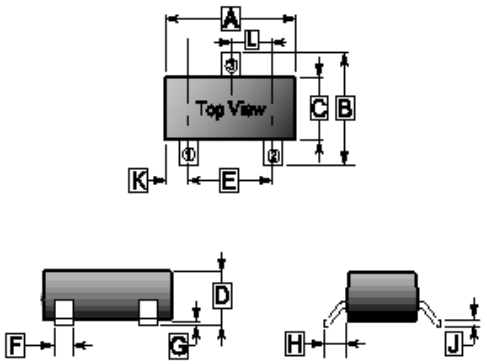


Figure 11. Transient Thermal Response Curve

PACKAGE OUTLINE DIMENSIONS

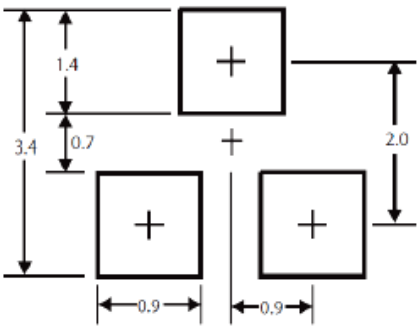
SOT-23



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