Elektronische Bauelemente

SMS318

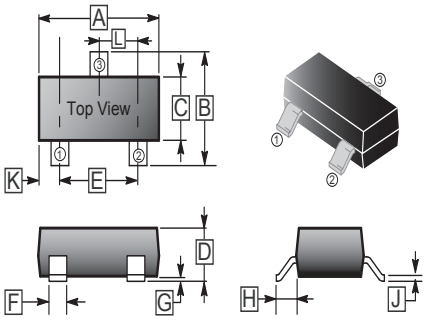
220mA, 50V, $R_{DS(ON)}$ 3.5 Ω
N-Channel Enhancement MOSFET

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

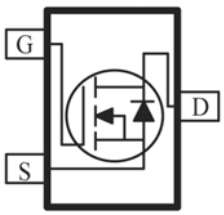
SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.04	G	-	0.18
B	2.10	2.80	H	0.40	0.60
C	1.20	1.60	J	0.08	0.20
D	0.89	1.40	K	0.6 REF.	
E	1.78	2.04	L	0.85	1.15
F	0.30	0.50			

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
- Weight: 0.008 grams (approximate)



MARKING

Product	Marking Code
SMS318	H03 / SS

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7' inch

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 to Ambient	$R_{\theta JA}$	357	°C/W
Junction and 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	Teat Conditions
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	50	-	-	V	V_{GS} = 0, I_D = 250μA
Gate-Body Leakage Current	I_{GSS}	-	-	±10	μA	V_{GS}=±20V, 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
On Characteristics						
Gate Threshold Voltage [1]	$V_{GS(th)}$	0.8	-	1.5	V	V_{DS} = V_{GS}, I_D =1mA
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
Forward Transconductance [1]	g_{FS}	120	-	-	mS	V_{DS}=10V,,I_D =0.22A
Dynamic Characteristics [2]						
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	-		
Switching Characteristics						
Turn-On Delay Time [1]	$td_{(ON)}$	-	5	-	nS	V_{DD}=30V, V_{DS}=10V, I_D=0.29A, R_{GEN}=6Ω,
Rise time [1]	tr	-	18	-		
Turn-Off Delay Time [1]	$td_{(OFF)}$	-	36	-		
Fall time [1]	tr	-	14	-		
Gate Charge	Q_G	-	2.4	-	nC	V_{DS}=25V, V_{GS}=10V, I_D =0.3A
Drain-source body diode characteristics						
Body diode forward voltage [1]	V_{SD}	-	-	1.4	V	V_{GS}=0, I_S =0.44A

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

CHARACTERISTIC CURVES

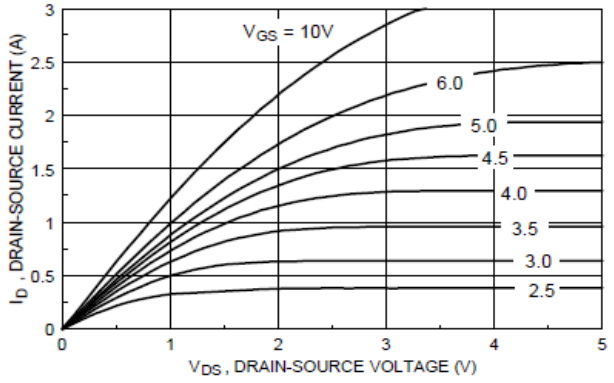


Figure 1. On-Region Characteristics.

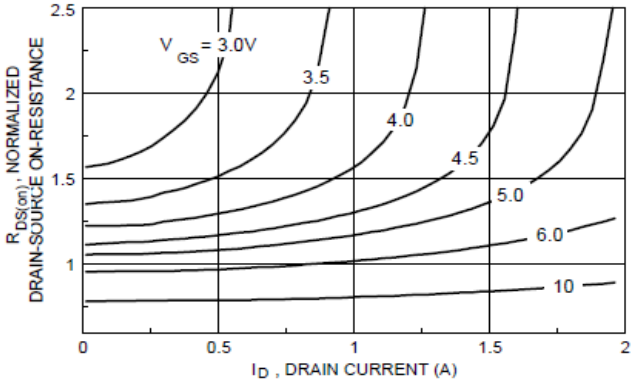


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current.

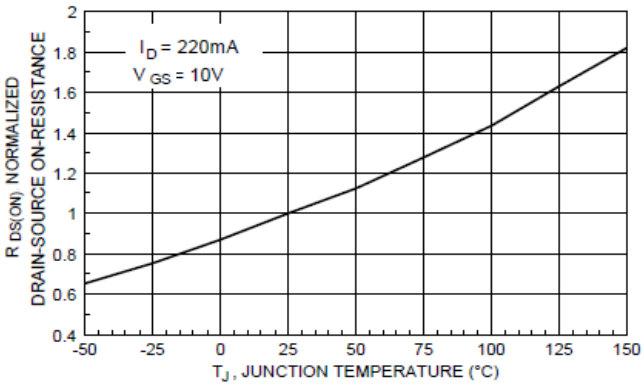


Figure 3. On-Resistance Variation with Temperature.

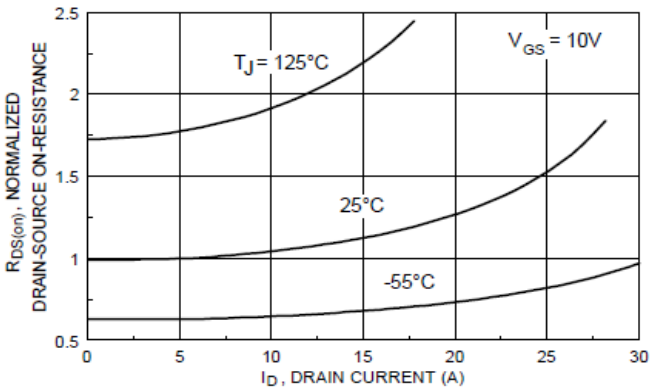


Figure 4. On-Resistance Variation with Drain Current and Temperature.

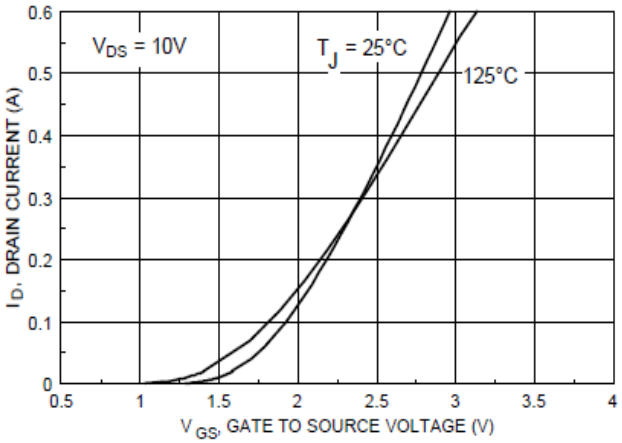


Figure 5. Transfer Characteristics.

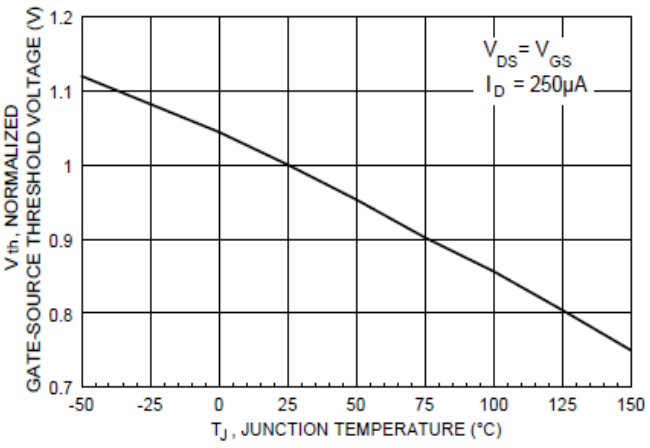


Figure 6. Gate Threshold Variation with Temperature.

CHARACTERISTIC CURVES

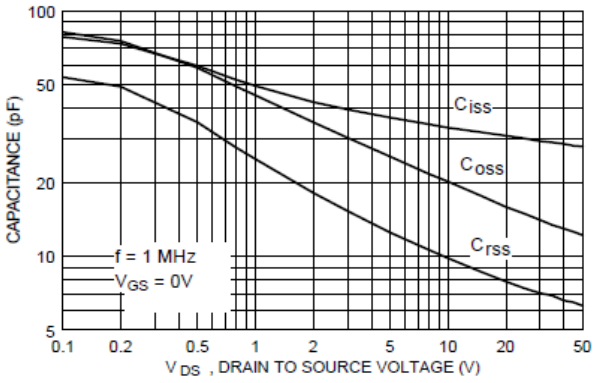


Figure 7. Capacitance Characteristics.

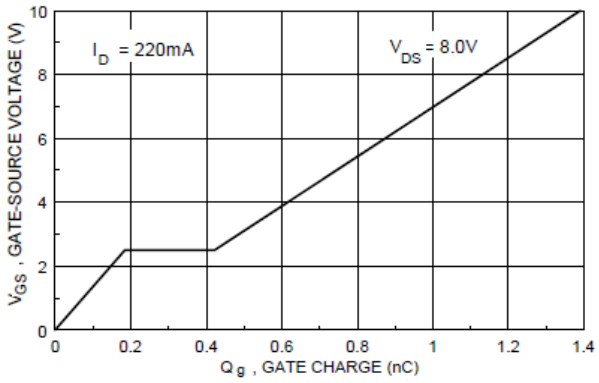


Figure 8. Gate Charge Characteristics.

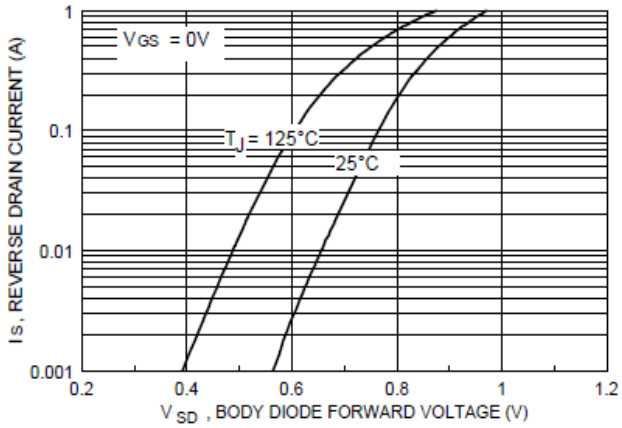


Figure 9. Body Diode Forward Voltage Variation with Current and Temperature

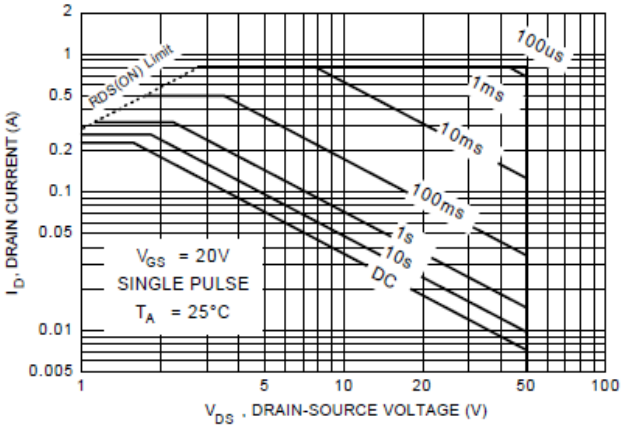


Figure 10. Maximum Safe Operating Area

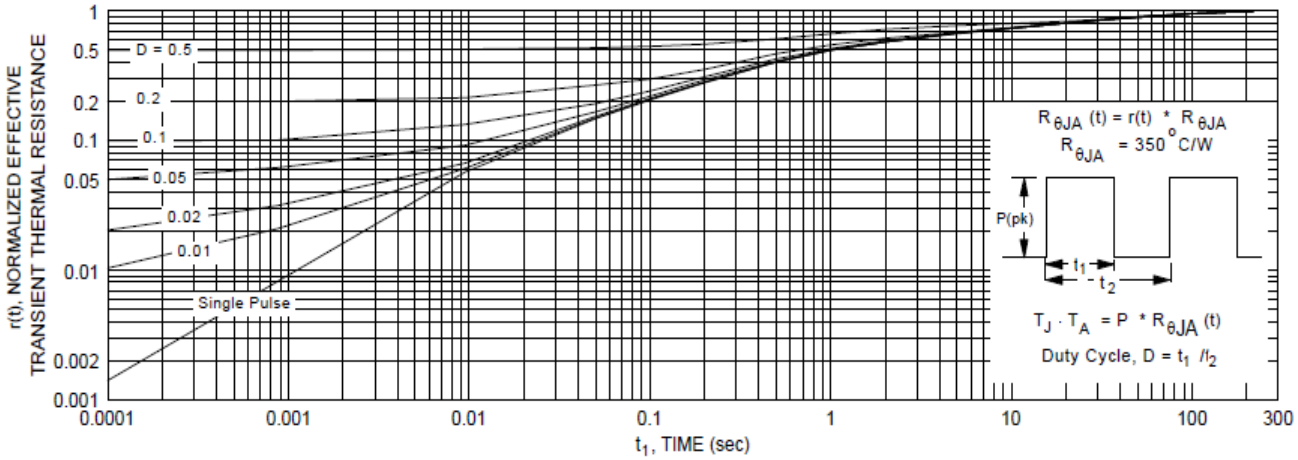


Figure 11. Transient Thermal Response Curve