

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

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)

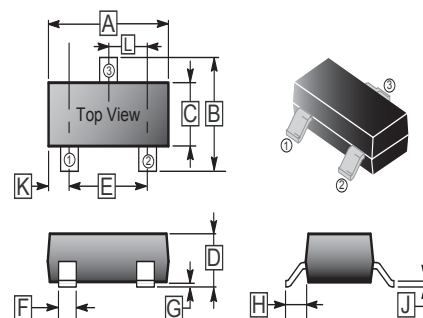
MARKING

Product	Marking Code
SMS318	H03 / SS

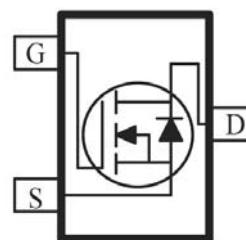
PACKAGE INFORMATION

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

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			



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	50	V
Drain-Gate Voltage ($R_{GS} \leq 20K\Omega$)	V_{DGR}	50	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	220	mA
Thermal Resistance Rating			
Power Dissipation ¹	P_D	300	mW
Thermal Resistance, Junction to Ambient ¹	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Off Characteristics ²						
Drain-Source Breakdown Voltage	BV_{DSS}	50	-	-	V	$V_{GS} = 0, I_D = 250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	0.5	μA	$V_{GS} = 0\text{V}, V_{DS} = 50\text{V}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
On Characteristics ²						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	-	2.0	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On Resistance	$R_{DS(ON)}$	-	-	3.5	Ω	$V_{GS} = 10\text{V}, I_D = 0.22\text{A}$
Forward Transconductance	g_{FS}	100	-	-	mS	$V_{DS} = 25\text{V}, I_D = 0.2\text{A}, f = 1.0\text{KHz}$
Dynamic Characteristics						
Input Capacitance	C_{iss}	-	-	50	pF	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$
Output Capacitance	C_{oss}	-	-	25	pF	
Reverse Transfer Capacitance	C_{rss}	-	-	8.0	pF	
Switching Characteristics						
Turn-On Delay Time	$t_{d(ON)}$	-	-	20	nS	$V_{DD} = 30\text{V}, I_D = 0.2\text{A}, R_{GEN} = 50\Omega,$
Turn-Off Delay Time	$t_{d(OFF)}$	-	-	20		

Notes:

1. Device mounted on FR-5 PCB 1.0 x 0.75 x 0.062 inch pad layout.
2. Short duration pulse test used to minimize self-heating effect.

CHARACTERISTIC CURVE

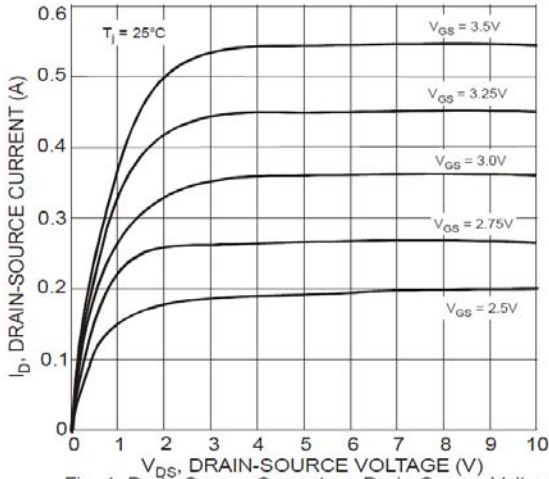


Fig. 1 Drain-Source Current vs. Drain-Source Voltage

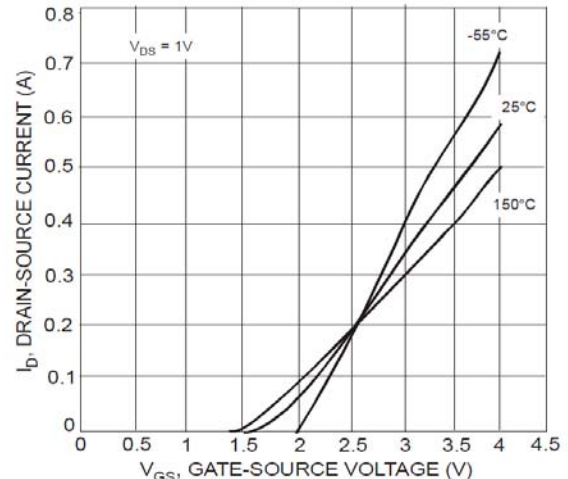


Fig. 2 Transfer Characteristics

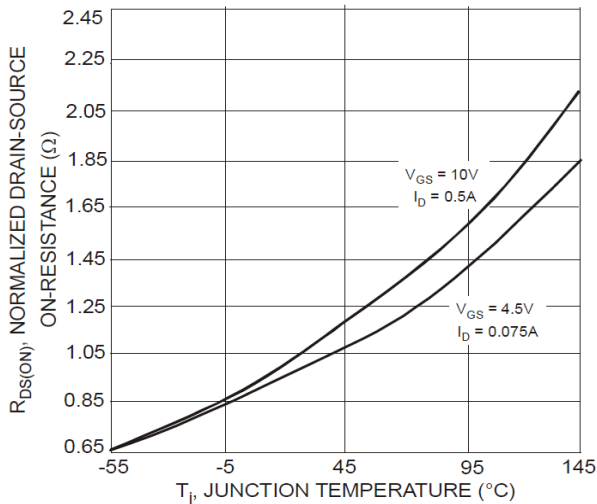


Fig. 3 Drain-Source On-Resistance vs. Junction Temperature

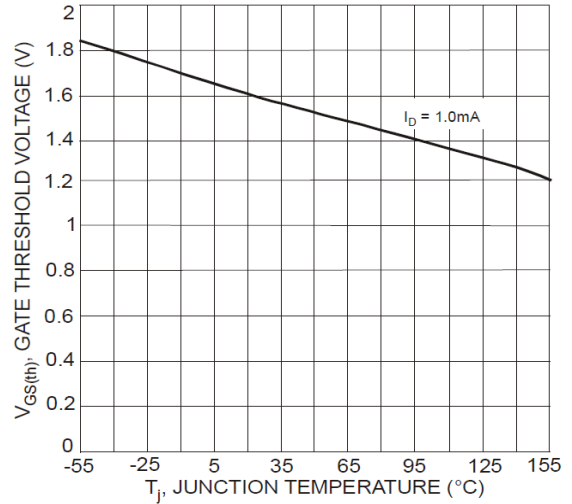


Fig. 4 Gate Threshold Voltage vs. Junction Temperature

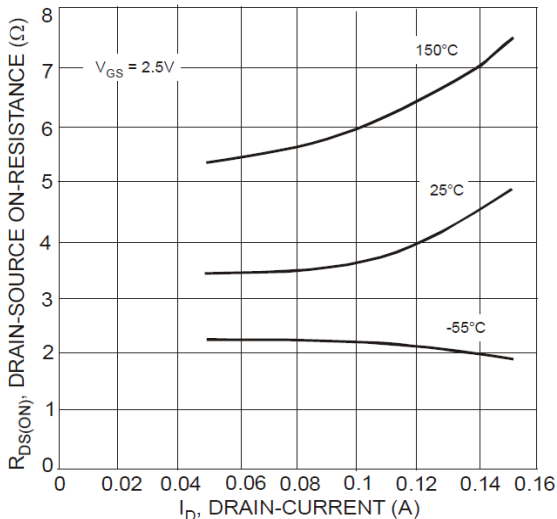


Fig. 5 Drain-Source On-Resistance vs. Drain-Current

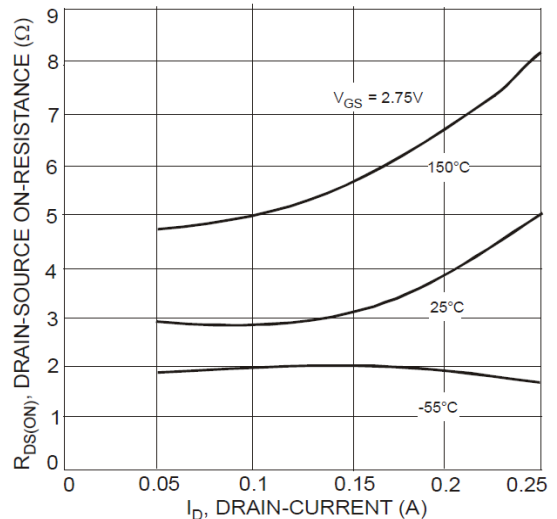


Fig. 6 Drain-Source On-Resistance vs. Drain-Current

CHARACTERISTIC CURVE

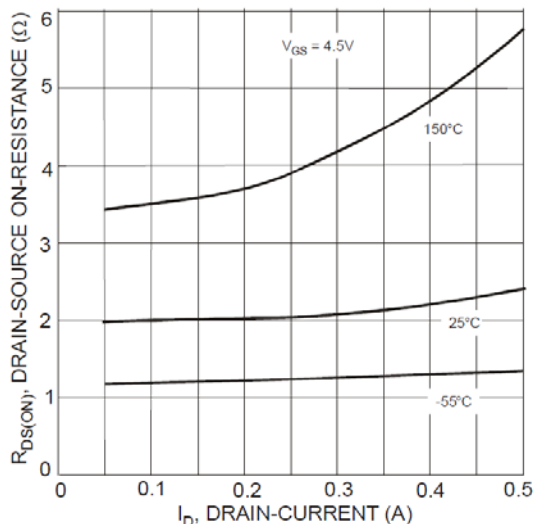


Fig. 7 Drain-Source On-Resistance vs. Drain-Current

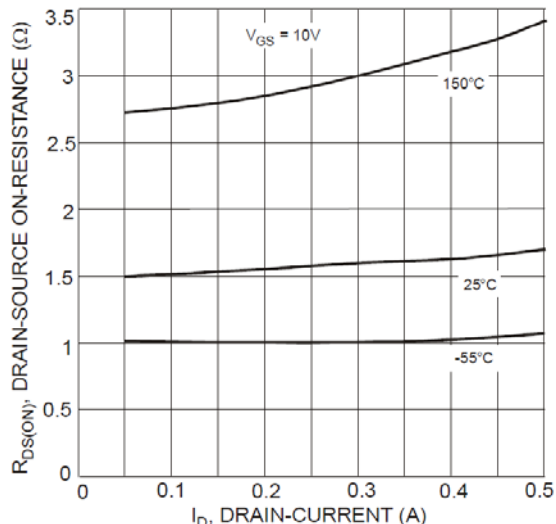


Fig. 8 Drain-Source On Resistance vs. Drain-Current

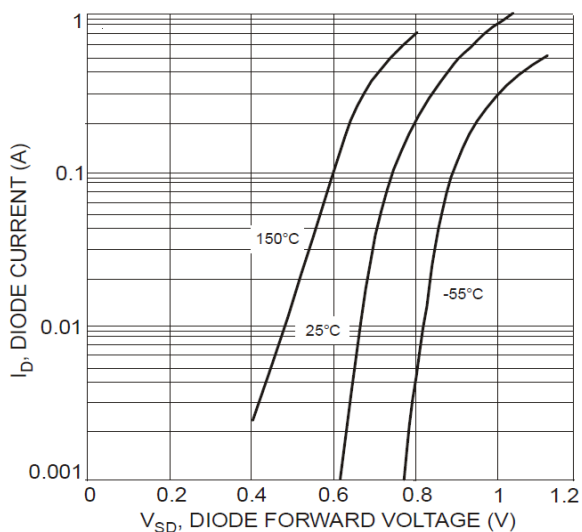


Fig. 9 Body Diode Current vs. Body Diode Voltage

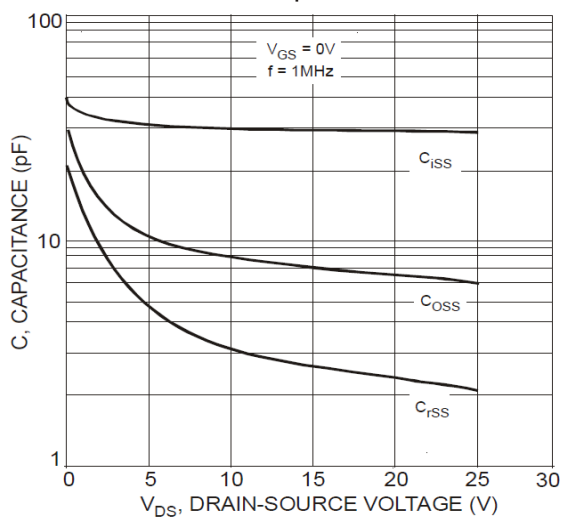


Fig. 10 Capacitance vs. Drain-Source Voltage