

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

## DESCRIPTION

The SMS318Y-C is the highest performance trench N-ch MOSFETs with extreme high cell density, which provide excellent  $R_{DS(ON)}$  and gate charge for most of the small power switching and load switch applications.

The SMS318Y-C meet the RoHS and Green Product requirement with full function reliability approved.

## FEATURES

- Advanced High Cell Density Trench Technology
- Voltage Controlled Small Signal Switch
- Low Input Capacitance
- Fast Switching Speed
- Low Input / Output Leakage

## MARKING

SS.

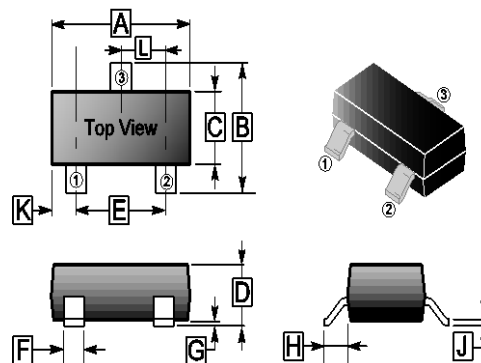
## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

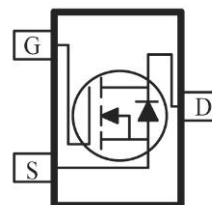
## ORDER INFORMATION

Part Number	Type
SMS318Y-C	Lead (Pb)-free and Halogen-free

## SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.65	3.10	G	0	0.18
B	2.10	3.00	H	0.55	REF.
C	1.10	1.80	J	0.08	0.26
D	0.89	1.40	K	0.60	REF.
E	1.70	2.30	L	0.95	TYP.
F	0.28	0.55			



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	50	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current @ $V_{GS}=10\text{V}$	$I_D$	$T_A=25^\circ\text{C}$	340
		$T_A=70^\circ\text{C}$	272
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	1.5	A
Total Power Dissipation	$P_D$	350	mW
Operating Junction & Storage Temperature Range	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$
<b>Thermal Resistance Ratings</b>			
Thermal Resistance Junction-Ambient <sup>2</sup>	$R_{\theta JA}$	Steady State, 357	$^\circ\text{C/W}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	50	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	0.8	-	1.6	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Gate-Source Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
		-	-	$\pm 50$		$V_{GS}=\pm 10V, V_{DS}=0V$
Drain-Source Leakage Current	$I_{DSS}$	-	-	1	$\mu A$	$V_{DS}=50V, V_{GS}=0V$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	1.1	2.5	$\Omega$	$V_{GS}=10V, I_D=300mA$
		-	1.2	3		$V_{GS}=4.5V, I_D=200mA$
Total Gate Charge	$Q_g$	-	1.7	-	nC	$V_{GS}=10V, V_{DS}=25V, I_D=0.3A$
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}=25V, V_{GS}=10V$ $R_G=6\Omega, I_D=300mA$
Turn-off Delay Time	$T_{d(off)}$	-	17	-		
Input Capacitance	$C_{iss}$	-	17.5	-	pF	$V_{GS}=0V$ $V_{DS}=25V$ $f=1MHz$
Output Capacitance	$C_{oss}$	-	11.5	-		
Reverse Transfer Capacitance	$C_{rss}$	-	6.5	-		
<b>Source-Drain Diode</b>						
Continuous Source Current	$I_S$	-	-	340	mA	
Diode Forward Voltage	$V_{SD}$	-	-	1.2	V	$I_S=300mA, V_{GS}=0V$
Reverse Recovery Time	$t_{rr}$	-	30	-	nS	$V_{GS}=0V, I_S=300mA,$ $V_R=25V, dI/dt=100A/\mu s$

Notes:

1. Pulse Test: Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 2\%$ .
2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

**CHARACTERISTIC CURVES**

Figure1. Output Characteristics

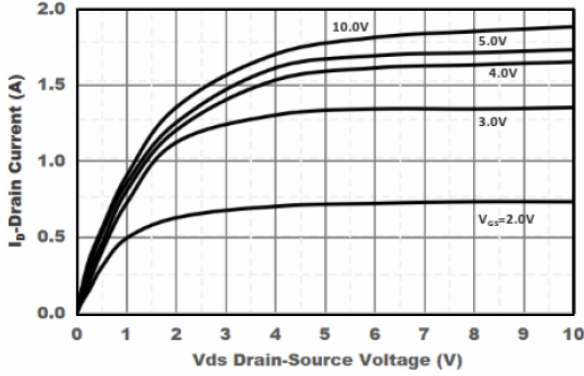


Figure2. Transfer Characteristics

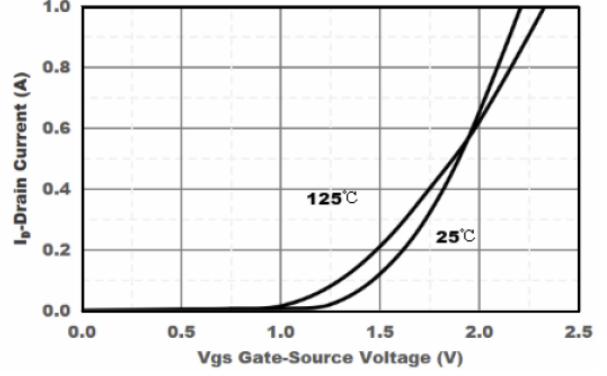


Figure3. Capacitance Characteristics

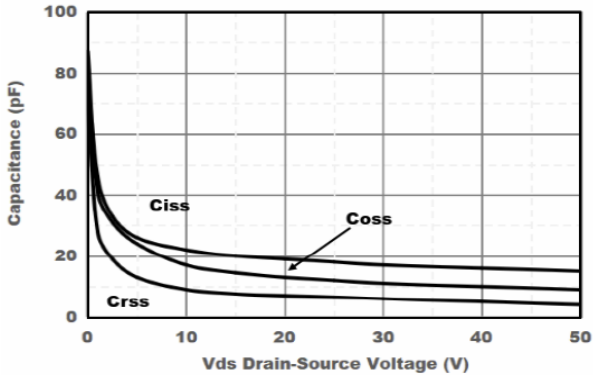


Figure4. Gate Charge

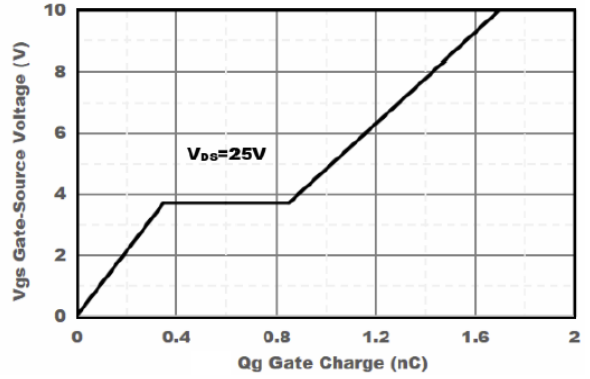


Figure5. Drain-Source on Resistance

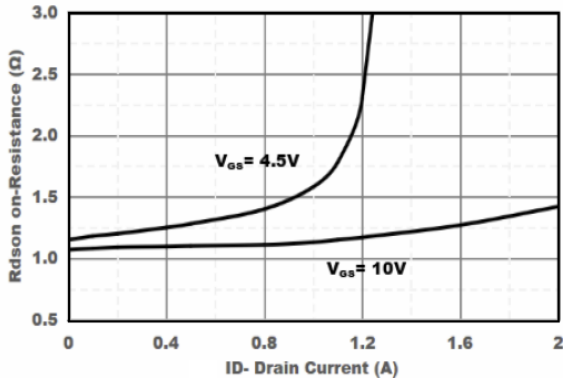


Figure6. Drain-Source on Resistance

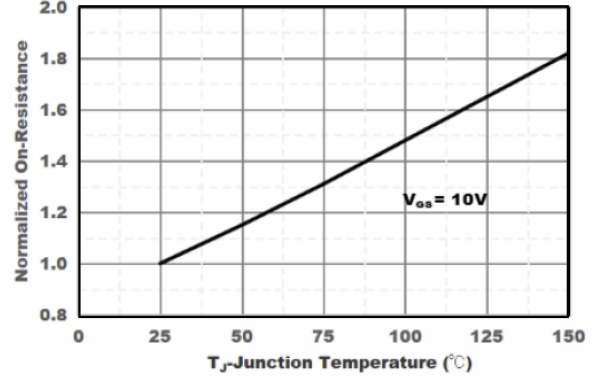


Figure7. Safe Operation Area

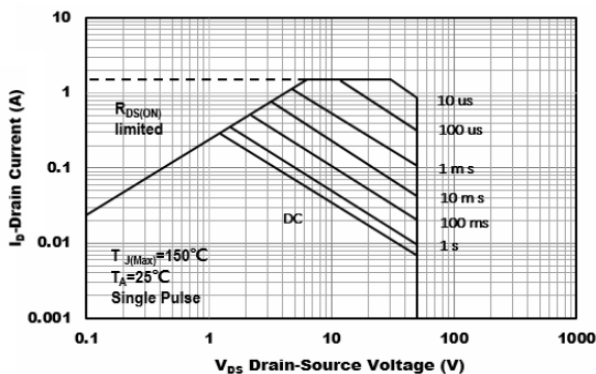


Figure8. Switching wave

