Elektronische Bauelemente

SMS3401Y-C

-4.4A , -30V , $R_{DS(ON)}$ 55 mΩ

P-Channel Enhancement Mode Power MOSFET

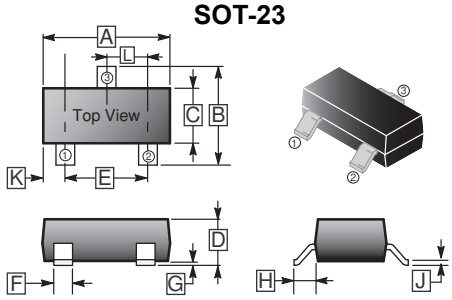
RoHS Compliant Product

A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SMS3401Y-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



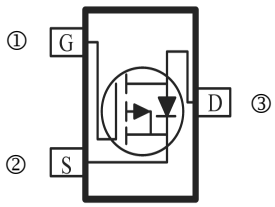
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.09	0.18
B	2.10	2.65	H	0.35	0.65
C	1.20	1.40	J	0.08	0.20
D	0.89	1.17	K	0.6 REF.	
E	1.78	2.04	L	0.95 BSC.	
F	0.30	0.50			

FEATURES

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

MARKING

3401.



PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

ORDER INFORMATION

Part Number	Type
SMS3401Y-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}	-30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current @Steady State	T_A=25°C	I_D	-4.4	A
	T_A=70°C		-3.5	
Pulsed Drain Current [1]		I_{DM}	-27	A
Maximum Power Dissipation	T_A=25°C	P_D	1.2	W
Thermal Resistance Junction-Ambient [2] @Steady State		$R_{\theta JA}$	105	°C / W
Operating Junction & Storage Temperature		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	$V_{(BR)DSS}$	-30	-	-	V	V_{GS}=0, I_D= -250μA
Gate-Threshold Voltage	$V_{GS(th)}$	-0.6	-	-1.4	V	V_{DS}=V_{GS}, I_D= -250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±12V, V_{DS}=0
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	45.5	55	mΩ	V_{GS}= -10V, I_D= -4.4A
		-	52	68		V_{GS}= -4.5V, I_D= -4A
		-	64	96		V_{GS}= -2.5V, I_D= -2A
Total Gate Charge	Q_g	-	7.2	-	nC	V_{GS}= -10V V_{DS}= -15V I_D= -4.4A
Gate Source Charge	Q_{gs}	-	1.2	-		
Gate Drain Charge	Q_{gd}	-	1.6	-		
Turn-on Delay Time	$T_{d(on)}$	-	15	-	nS	V_{GS}= -10V V_{DD}= -15V R_{GEN}=2.5Ω R_L=15Ω I_D= -1A
Rise Time	T_r	-	63	-		
Turn-off Delay Time	$T_{d(off)}$	-	21	-		
Fall Time	T_f	-	12	-		
Input Capacitance	C_{iss}	-	680	-	pF	V_{GS}=0 V_{DS}= -15V f =1.0MHz
Output Capacitance	C_{oss}	-	105	-		
Reverse Transfer Capacitance	C_{rss}	-	68	-		
Source-Drain Diode						
Forward Voltage	V_{SD}	-	-	-1.2	V	V_{GS} =0, I_S= -4.4A

Notes:
1. Pulse Width≤300μs, Duty Cycle ≤ 2%.
2. Surface Mounted on FR4 Board, When Mounted on 1 $inch^2$ FR4 Board.

CHARACTERISTIC CURVES

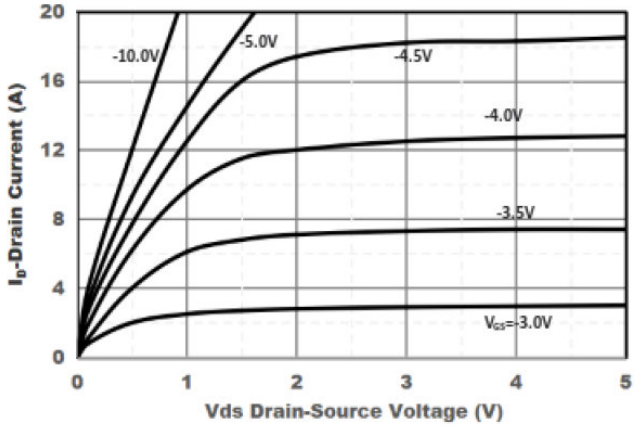


Figure1. Output Characteristics

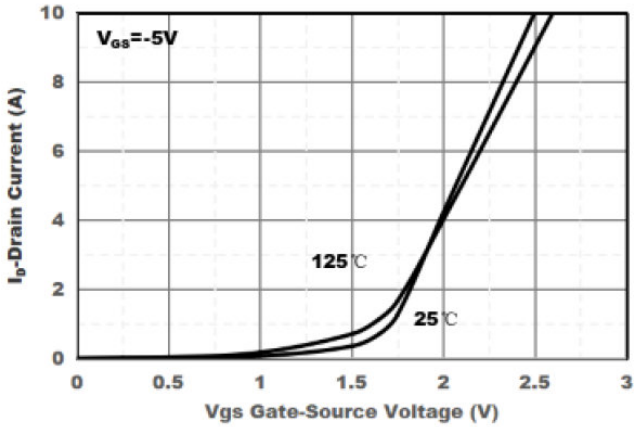


Figure2. Transfer Characteristics

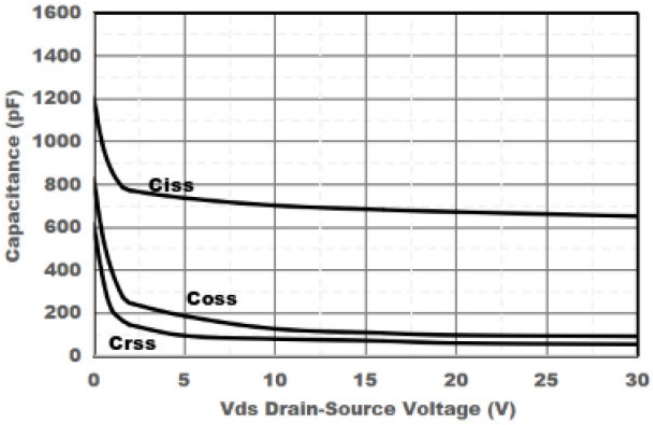


Figure3. Capacitance Characteristics

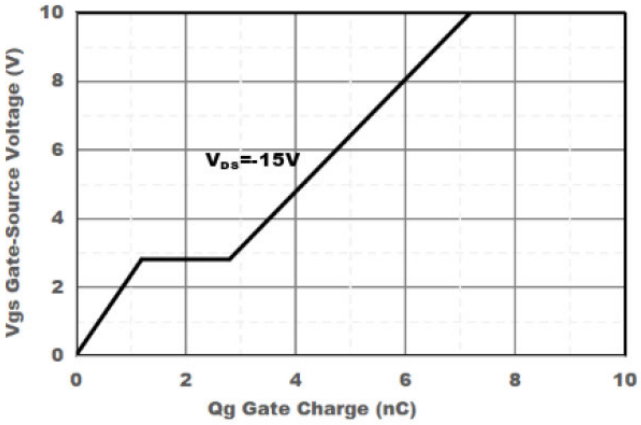


Figure4. Gate Charge

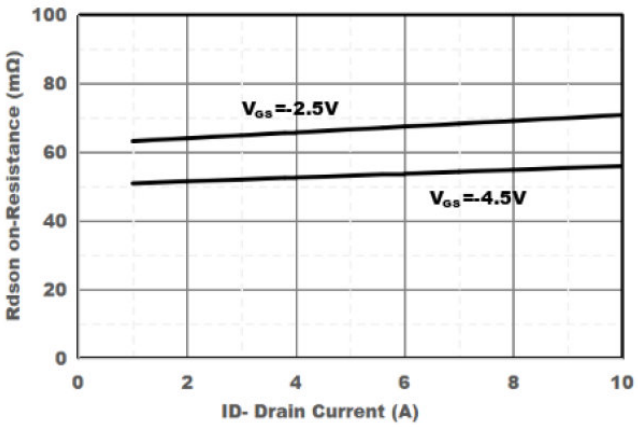


Figure5. Drain-Source on Resistance

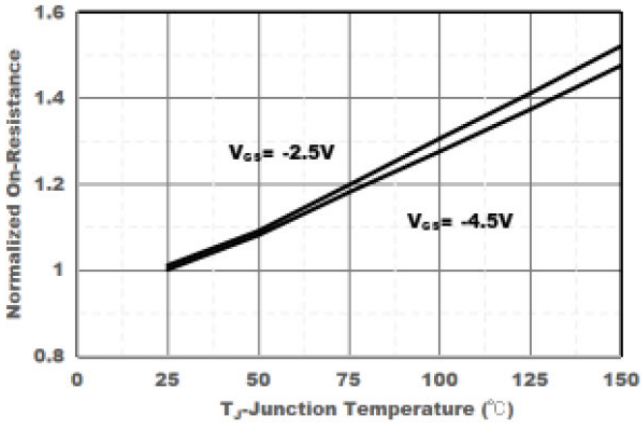


Figure6. Drain-Source on Resistance

CHARACTERISTIC CURVES

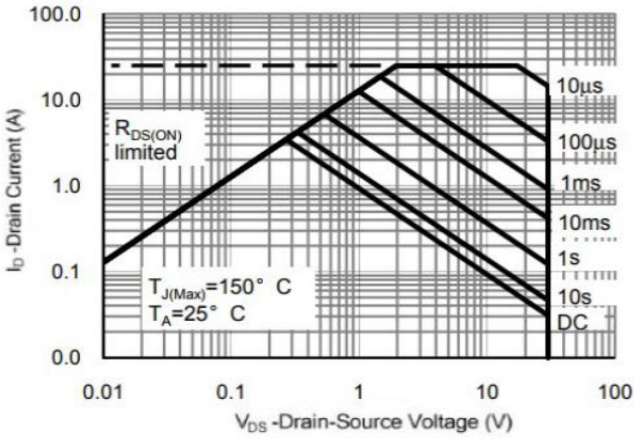


Figure7. Safe Operation Area

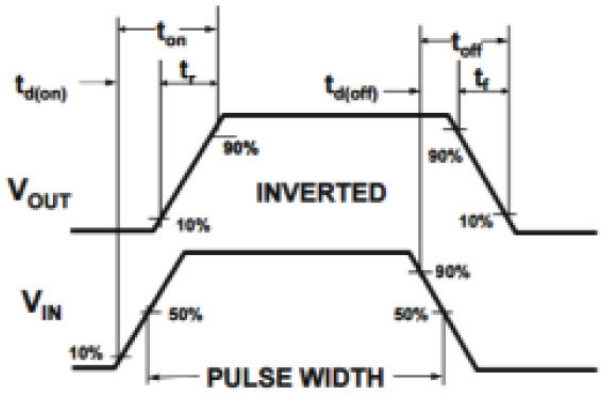


Figure8. Switching wave