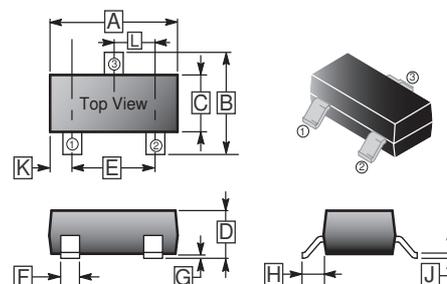


RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## FEATURES

- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- High Density Cell Design for Low  $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- ESD Protected up to 2.5KV(HBM)

## SOT-23



## MARKING

72K

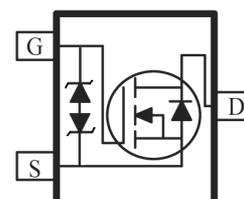
## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.18
B	2.10	3.00	H	0.55	REF.
C	1.20	1.80	J	0.08	0.26
D	0.89	1.3	K	0.6	REF.
E	1.70	2.3	L	0.95	BSC.
F	0.30	0.50			

## ORDER INFORMATION

Part Number	Type
SMS7002K	Lead (Pb)-free
SMS7002K-C	Lead (Pb)-free and Halogen-free



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current	$I_D$	340	mA
Total Power Dissipation	$P_D$	350	mW
Thermal Resistance from Junction-Ambient <sup>1</sup>	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Operating Junction and Storage Temperature	$T_J, T_{STG}$	-55~150	$^\circ\text{C}$

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

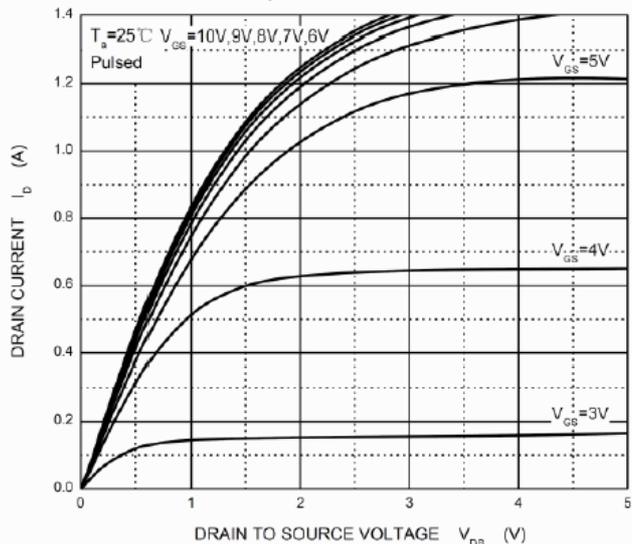
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=48\text{V}, V_{GS}=0$
Gate-Body Leakage Current	$I_{GSS}$	-	-	$\pm 10$	$\mu\text{A}$	$V_{GS}=\pm 20\text{V}, V_{DS}=0$
				$\pm 200$	nA	$V_{GS}=\pm 10\text{V}, V_{DS}=0$
				$\pm 100$	nA	$V_{GS}=\pm 5\text{V}, V_{DS}=0$
Gate Threshold Voltage <sup>2</sup>	$V_{GS(th)}$	1	1.4	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Drain-Source On-Resistance <sup>2</sup>	$R_{DS(ON)}$	-	-	5	$\Omega$	$V_{GS}=10\text{V}, I_D=500\text{mA}$
		-	-	5.3		$V_{GS}=4.5\text{V}, I_D=200\text{mA}$
Recovered Charge	$Q_r$	-	30	-	nC	$V_{GS}=0, I_D=300\text{mA}, V_R=25\text{V}$ $dI_S/dt = -100\text{A}/\mu\text{s}$
Turn-on Time	$t_{(on)}$	-	10	-	nS	$V_{GS}=10\text{V}, V_{DD}=50\text{V}, R_G=50\Omega$ $R_{GS}=50\Omega, R_L=250\Omega$
Turn-off Time	$t_{(off)}$	-	15	-		
Reverse Recovery Time	$t_{rr}$	-	30	-		
Input Capacitance	$C_{iss}$	-	40	-	pF	$V_{DS}=10\text{V}, V_{GS}=0, f=1\text{MHz}$
Output Capacitance	$C_{oss}$	-	30	-		
Reverse Transfer Capacitance	$C_{rss}$	-	10	-		
<b>Source-Drain Diode</b>						
Diode Forward Voltage	$V_{SD}$	-	-	1.5	V	$V_{GS}=0, I_S=300\text{mA}$

Notes:

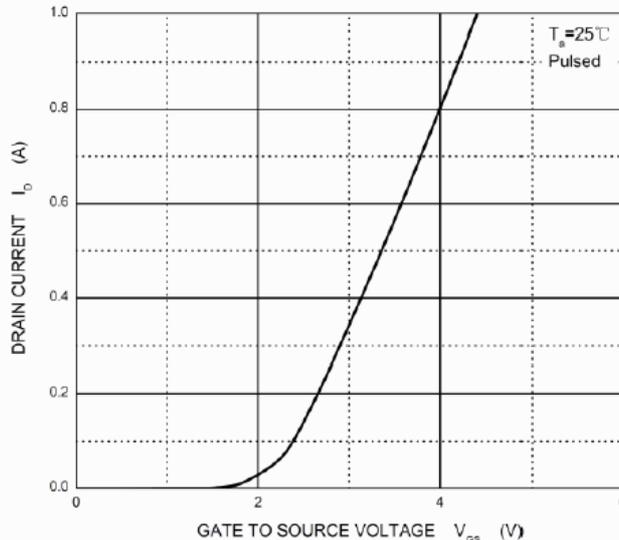
1. Surface mounted on min. copper pad.
2. Pulse Test: Pulse Width  $\leq 300\mu\text{A}$ , Duty Cycle  $\leq 2\%$ .

**TYPICAL CHARACTERISTICS**

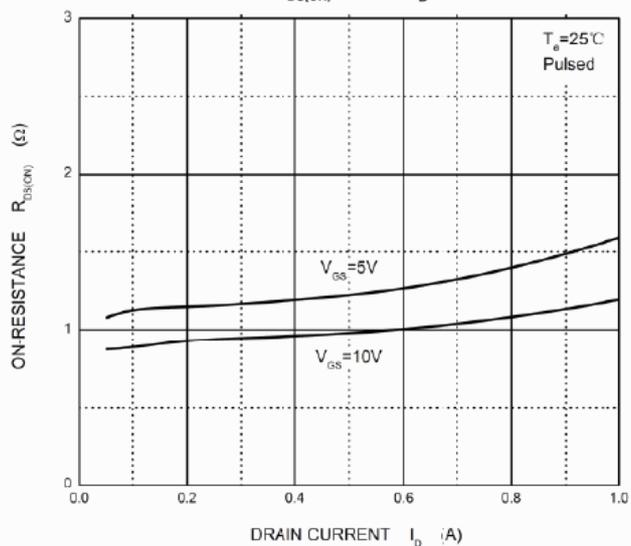
**Output Characteristics**



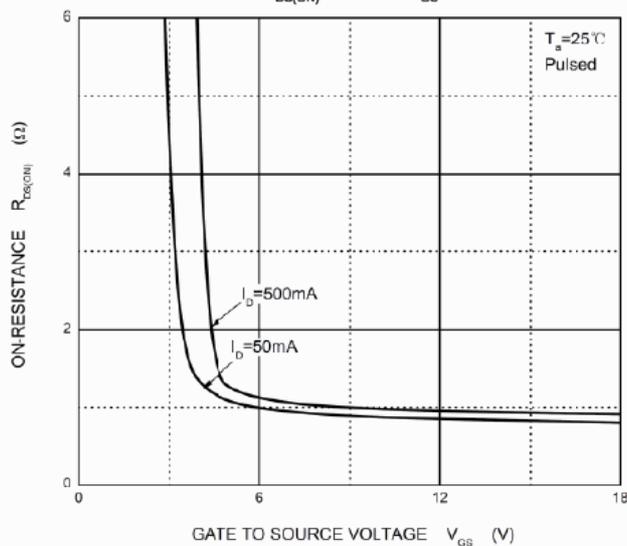
**Transfer Characteristics**



$R_{DS(ON)}$  —  $I_D$



$R_{DS(ON)}$  —  $V_{GS}$



$I_S$  —  $V_{SD}$

