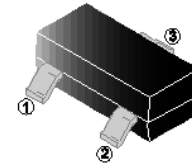


RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURES

- 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

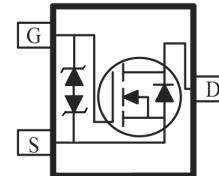
72K

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

ORDER INFORMATION

Part Number	Type
SMS7002KJ-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}	± 20	V
Drain Current	I_D	340	mA
Total Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction-Ambient ¹	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$

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

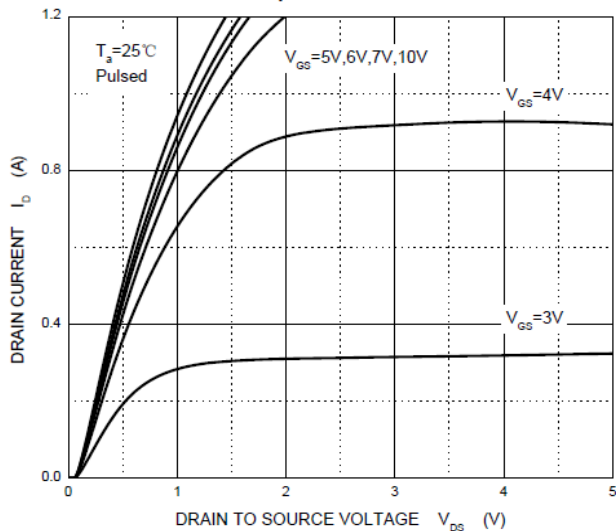
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Gate Threshold Voltage ²	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=1\text{mA}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=48\text{V}, V_{GS}=0\text{V}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 10	μA	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$
		-	-	± 200	nA	$V_{GS}=\pm 10\text{V}, V_{DS}=0\text{V}$
		-	-	± 100	nA	$V_{GS}=\pm 5\text{V}, V_{DS}=0\text{V}$
Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	0.9	2.5	Ω	$V_{GS}=10\text{V}, I_D=500\text{mA}$
		-	1.1	3		$V_{GS}=4.5\text{V}, I_D=200\text{mA}$
Recovered Charge	Q_r	-	30	-	nC	$V_{GS}=0\text{V}, I_S=300\text{mA}, V_R=25\text{V},$ $dI_S/dt=-100\text{A}/\mu\text{s}$
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	-		
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	-		
Source-Drain Diode						
Diode Forward Voltage	V_{SD}	-	-	1.5	V	$V_{GS}=0, I_S=300\text{mA}$
Reverse Recovery Time	t_{rr}	-	30	-	nS	$V_{GS}=0\text{V}, I_S=300\text{mA}, V_R=25\text{V},$ $dI_S/dt=-100\text{A}/\mu\text{s}$

Notes:

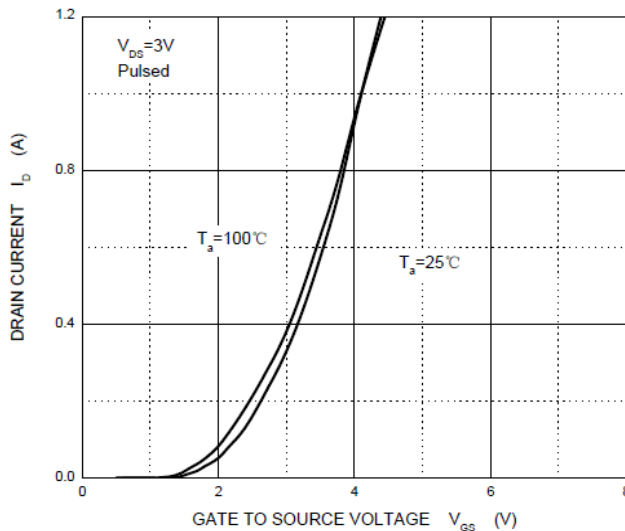
1. Surface mounted on min. copper pad.
2. Pulse Test: Pulse Width $\leq 300\mu\text{A}$, Duty Cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS

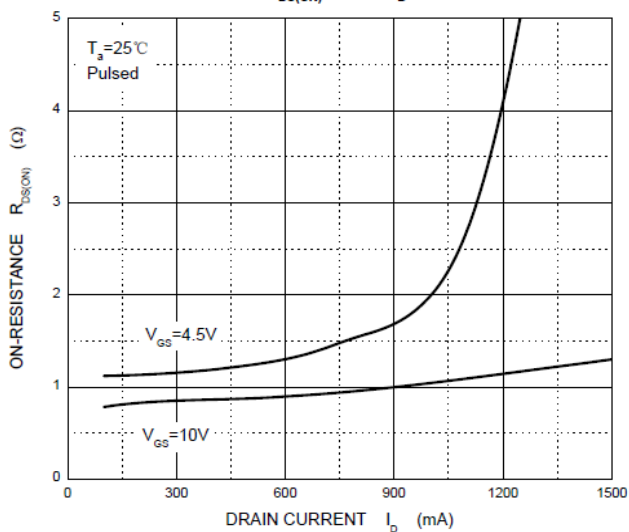
Output Characteristics



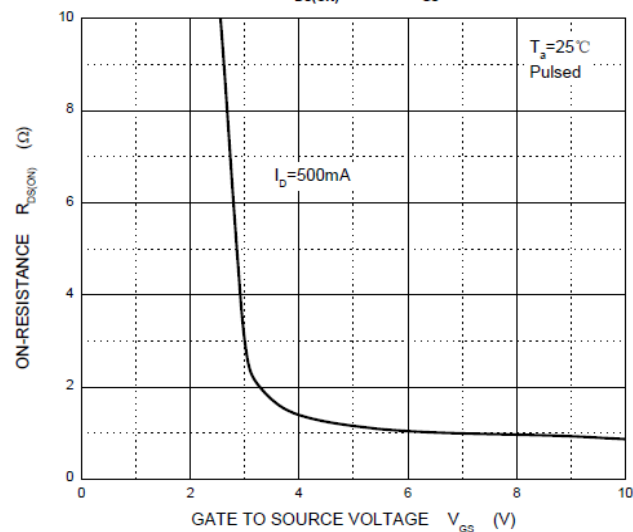
Transfer Characteristics



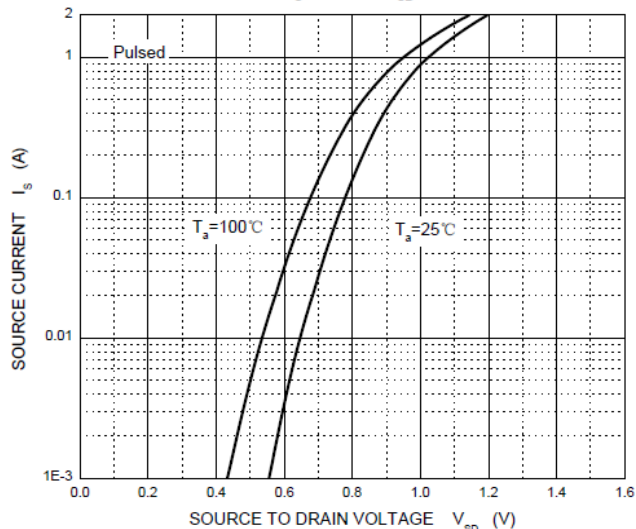
$R_{DS(ON)}$ — I_D



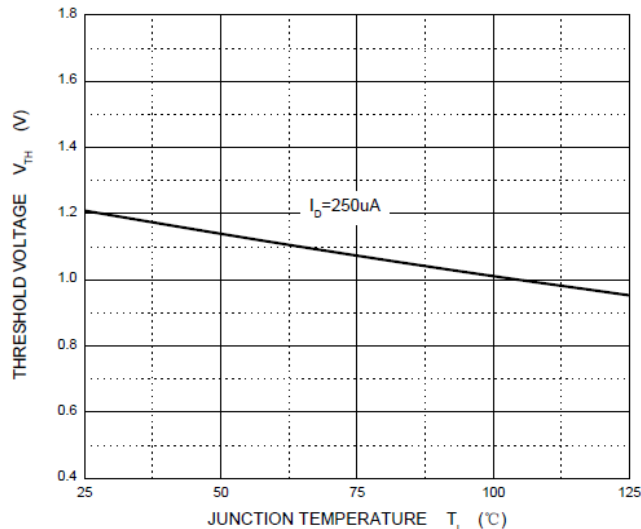
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

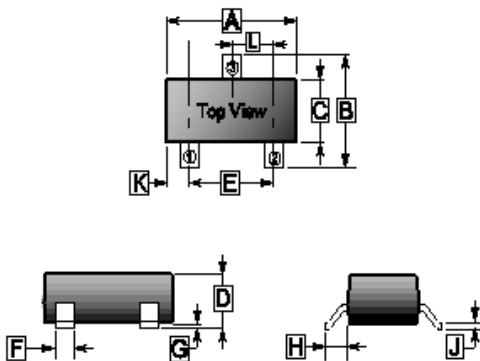


Threshold Voltage



PACKAGE OUTLINE DIMENSIONS

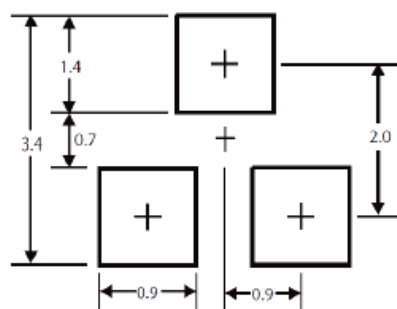
SOT-23



REF.	Millimeter	
	Min.	Max.
A	2.65	3.10
B	2.10	3.00
C	1.10	1.80
D	0.89	1.40
E	1.70	2.30
F	0.28	0.55
G	0	0.18
H	0.55 REF.	
J	0.05	0.26
K	0.60 REF.	
L	0.95 TYP.	

MOUNTING PAD LAYOUT

SOT-23



*Dimensions in millimeters