Elektronische Bauelemente

SMS72K-C

0.3A , 60V , $R_{DS(ON)}$ 3Ω

N-Channel Enhancement Mode Power MOSFET

RoHS Compliant Product

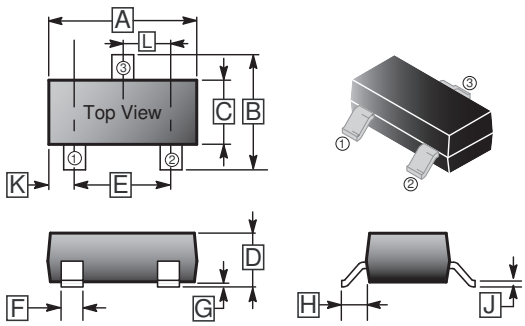
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The SMS72K-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 SMS72K-C meet the RoHS and Green Product requirement with full function reliability approved.

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	0.30	0.55			

FEATURES

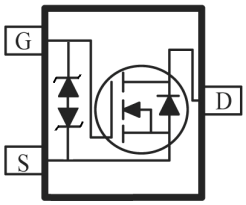
- High Density Cell Design For Ultra Low On-Resistance
- Very Low Leakage Current In Off Condition
- Green Device Available

MARKING

K72

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



ORDER INFORMATION

Part Number	Type
SMS72K-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}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current @V_{GS}=10V	I_D	0.3	A
Pulsed Drain Current [1]	I_{DM}	2	A
Total Power Dissipation	P_D	350	mW
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55~150	°C
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	357	°C / W

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60	-	-	V	V_{GS}=0V, I_D=10μA
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±10	μA	V_{GS}=±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=60V, V_{GS}=0V
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	-	3	Ω	V_{GS}=10V, I_D=0.5A
		-	-	4		V_{GS}=4.5V, I_D=0.2A
Forward Transconductance	g_{fs}	-	100	-	mS	V_{DS}=15V, I_D=0.25A
Total Gate Charge	Q_g	-	0.8	-	nC	V_{GS}=5V, V_{DS}=15V I_D=0.2A
Turn-on Delay Time	$T_{d(on)}$	-	20	-	nS	V_{DD}=30V, V_{GEN}=10V R_L=150Ω, I_D=0.2A R_G=10Ω
Turn-off Delay Time	$T_{d(off)}$	-	40	-		
Input Capacitance	C_{iss}	-	35	-	pF	V_{GS}=0V V_{DS}=25V f=1MHz
Output Capacitance	C_{oss}	-	12	-		
Reverse Transfer Capacitance	C_{rss}	-	7	-		
Source-Drain Diode						
Diode Forward Voltage [2]	V_{SD}	-	0.82	1.3	V	I_S=0.2A, V_{GS}=0V
Continuous Source Current	I_S	-	-	0.3	A	
Pulsed Source Current	I_{SM}	-	-	2	A	

Notes:
1. Maximum DC current limited by the package.
2. Pulse Test : Pulse Width≤300μs, Duty Cycle≤ 2%.

CHARACTERISTIC CURVES

FIG. 1-Output Characteristics

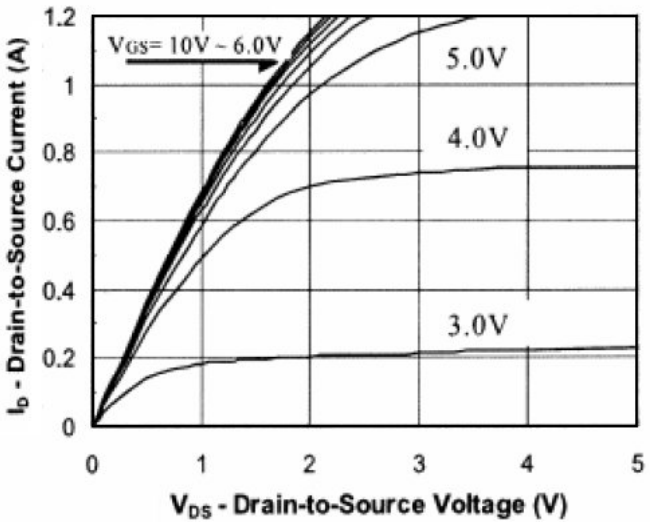


FIG. 2-Transfer Characteristics

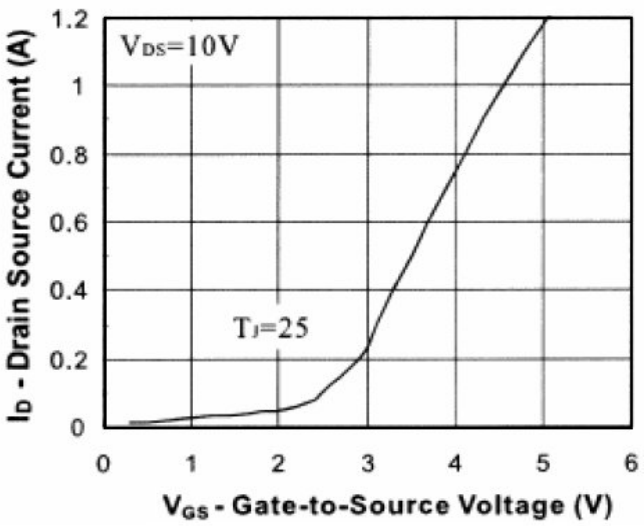


FIG. 3-On-Resistance VS. Drain Current

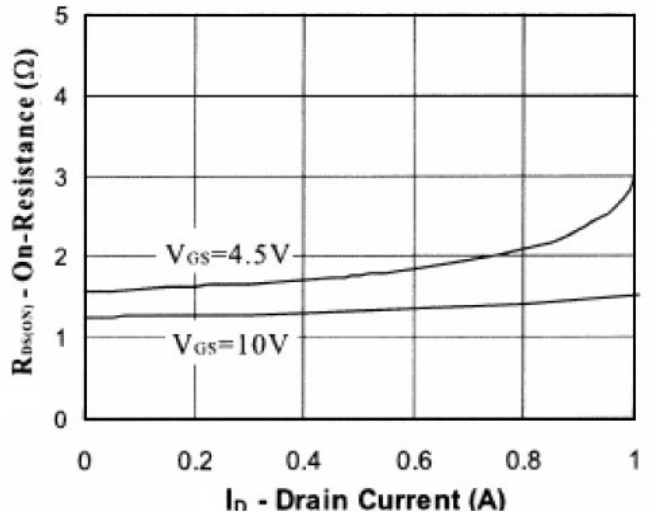


FIG. 4-On-Resistance VS. Gate-Source voltage

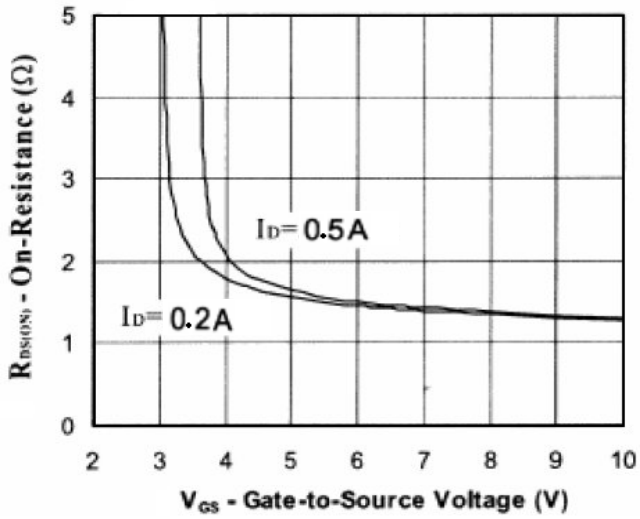


FIG. 5-On-Resistance VS. Junction Temperature

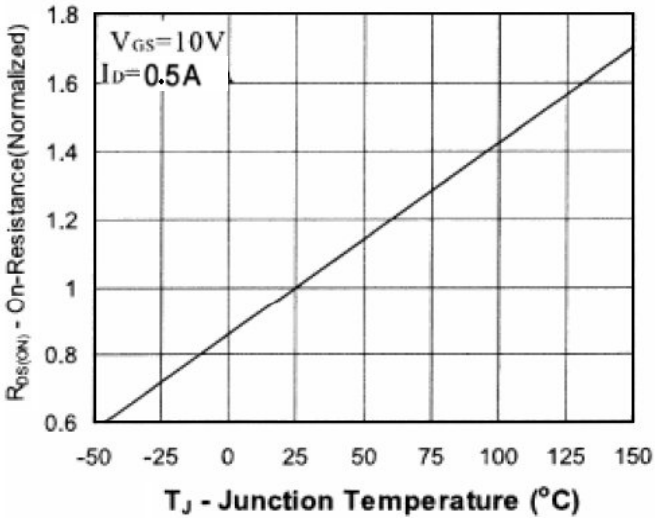
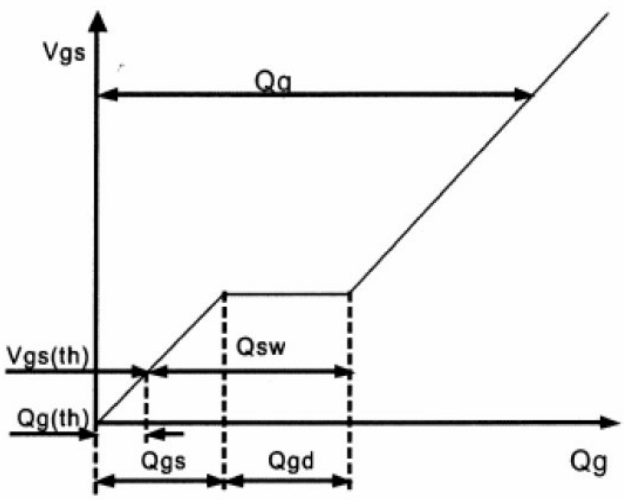


FIG. 6-Gate Charge Waveform



CHARACTERISTIC CURVES

FIG. 7-Gate Charge

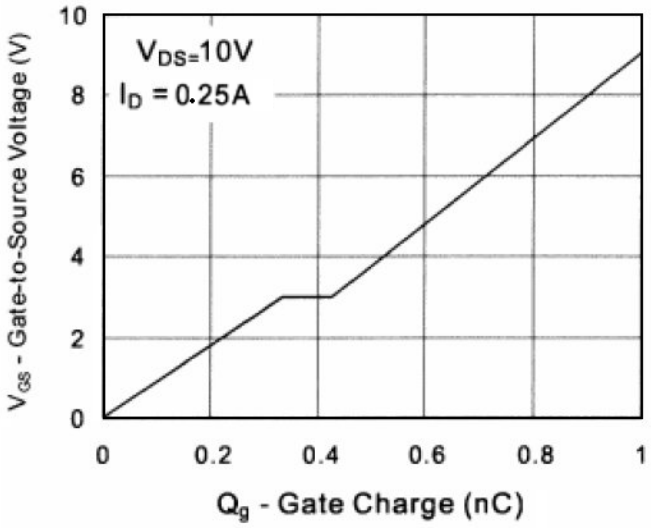


FIG. 8-Threshold Voltage VS. Temperature

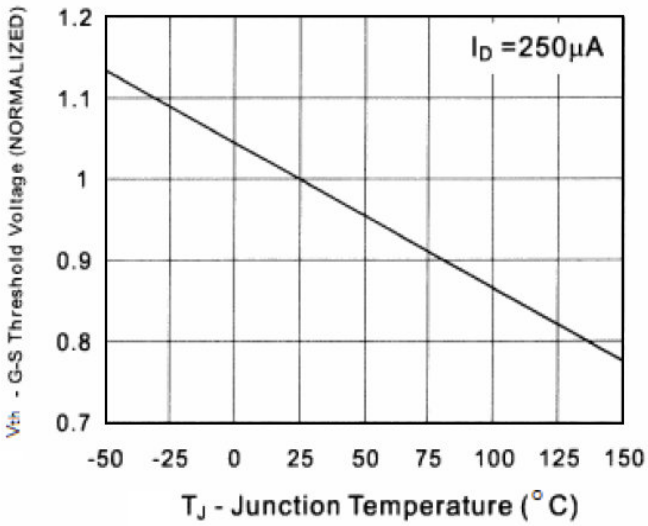


FIG. 9-Breakdown Voltage VS. Junction Temperature

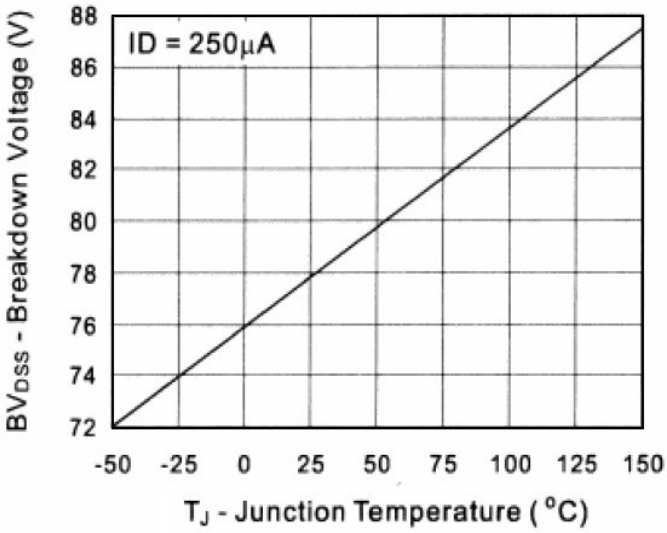


FIG. 10-Source-Drain Diode Forward Voltage

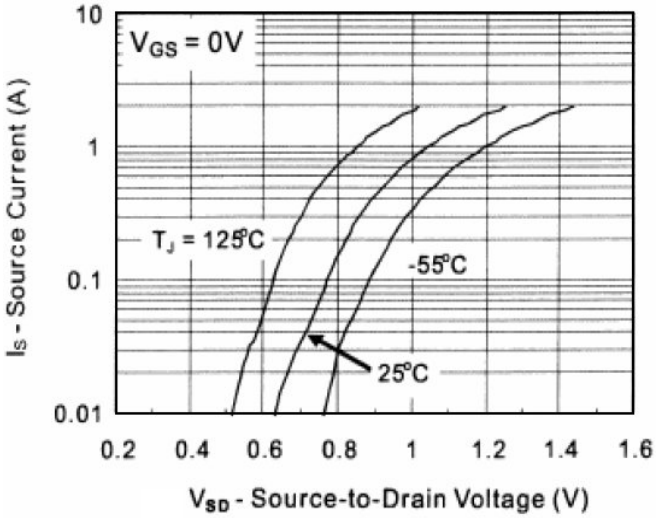


FIG. 11-Capacitance VS. Drain to Source Voltage