



SSC7002KGS9

N-Channel Small Switching MOSFET with ESD Protection

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D	ESD
60V	$\pm 20V$	$0.9\Omega@10V$	0.3A	1kV
		$1.0\Omega@4.5V$		

➤ Description

This device is an N-Channel enhancement mode MOSFET, with low on-resistance, fast switching speed and low threshold voltage, it is ideal for portable equipment.

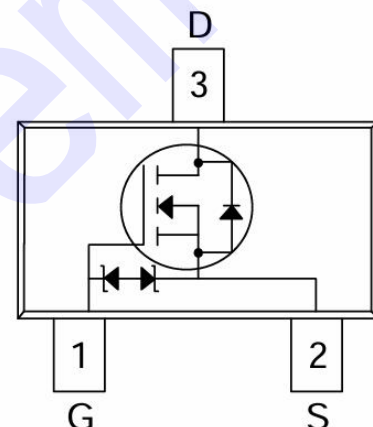
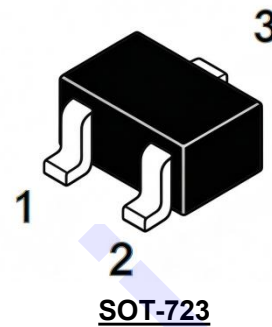
➤ Applications

- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers
- Display, Memories, Transistors, etc.
- Battery Operated System
- Solid-State Relays

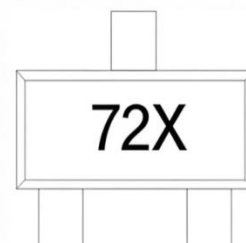
➤ Ordering Information

Device	Package	Shipping
SSC7002KGS9	SOT-723	3000/Reel

➤ Pin configuration



Pin Configuration (Top View)



Marking



➤ **Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)**

Symbol	Parameter	Ratings	Unit
V_{DSS}	Drain-to-Source Voltage	60	V
V_{GSS}	Gate-to-Source Voltage	± 20	V
I_{D}	Continuous Drain Current ^a	0.3	A
I_{DM}	Pulsed Drain Current ^b	1	A
P_{D}	Power Dissipation	0.3	W
T_{J}	Operation junction temperature	$-55\sim 150$	$^{\circ}\text{C}$
T_{STG}	Storage temperature range	$-55\sim 150$	$^{\circ}\text{C}$

➤ **Thermal Resistance Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)**

Symbol	Parameter	Maximum	Unit
$R_{\theta\text{JA}}$	Junction-to-Ambient Thermal Resistance ^a	416	$^{\circ}\text{C}/\text{W}$

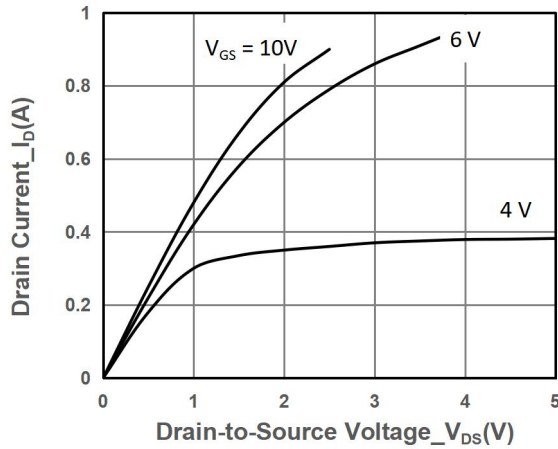
Note:

- The value of $R_{\theta\text{JA}}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user is specific board design. The power dissipation is based on the $t\leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.

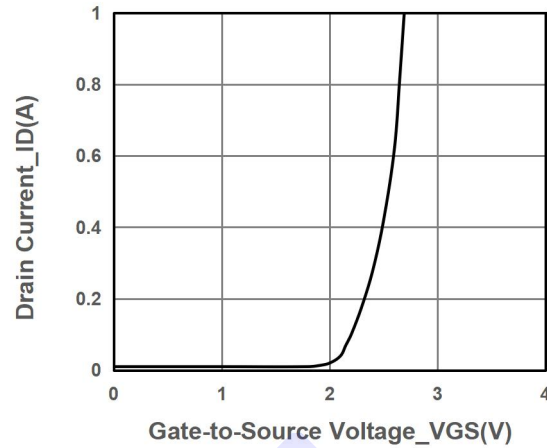
➤ **Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)**

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 0.2A$		0.9	4	Ω
		$V_{GS} = 4.5V, I_D = 0.1A$		1	5	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate-Source Leak Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 10	μA
Transconductance	G_{FS}	$V_{DS} = 10V, I_D = 0.2A$		0.08		s
Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 0.2A$		0.7	1.3	V
Input Capacitance	C_{ISS}	$V_{DS} = 30V, V_{GS} = 0V,$ $f = 1MHz$		30		pF
Output Capacitance	C_{OSS}			12		
Reverse Transfer Capacitance	C_{RSS}			4.8		
Turn-on Delay Time	$T_{D(ON)}$	$V_{GS} = 10V, R_L = 60\Omega$ $V_{DS} = 20V, R_G = 20\Omega$		4.6		ns
Rise Time	T_r			4.1		
Turn-off Delay Time	$T_{D(OFF)}$			24		
Fall Time	T_f			18		
Total Gate Charge	Q_G	$V_{GS} = 10V, V_{DS} = 15V,$ $I_D = 0.2A$		0.4		nC
Gate to Source Charge	Q_{GS}			0.1		
Gate to Drain Charge	Q_{GD}			0.11		

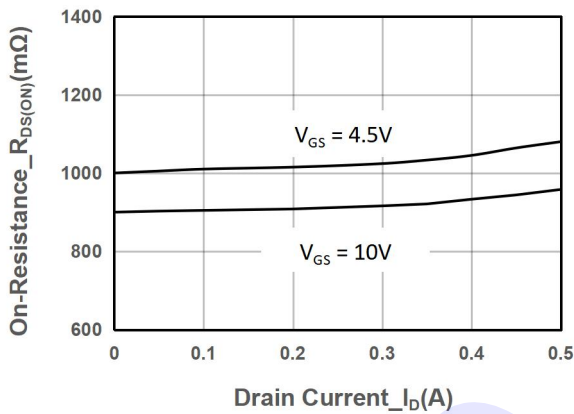
➤ **Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)**



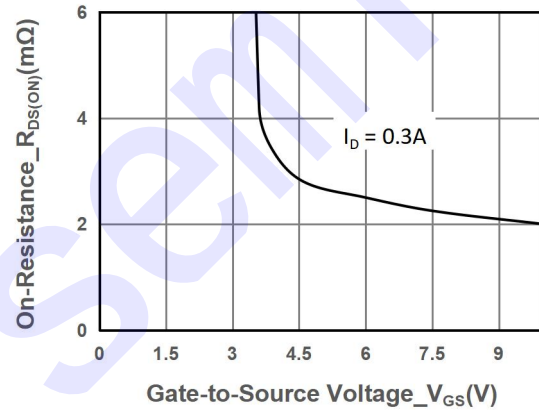
Output Characteristics



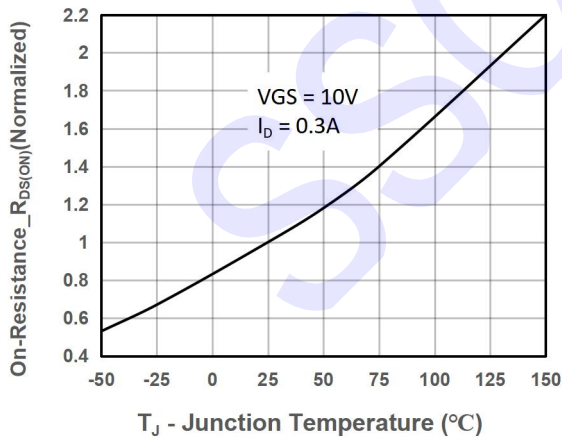
Transfer Characteristics



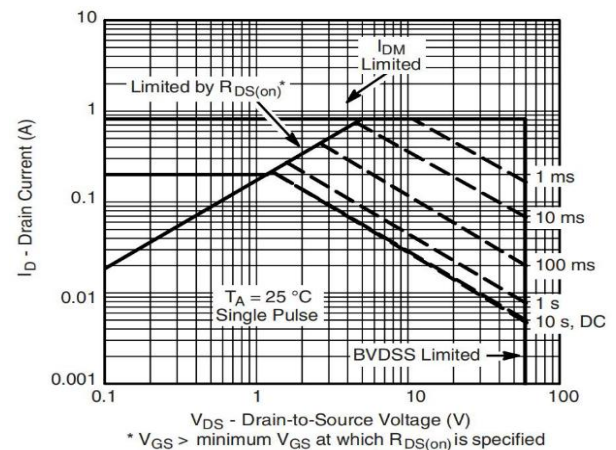
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

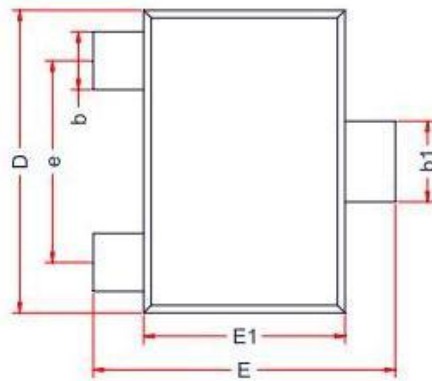


On-Resistance vs. Junction Temperature

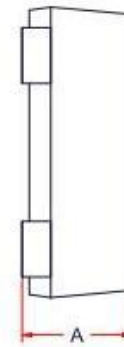


Safe Operating Area vs. Junction-to-Ambient

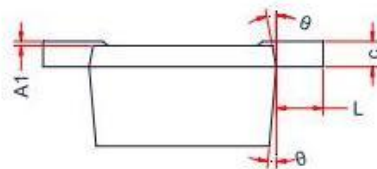
➤ Package Information



TOP VIEW



SIDE VIEW



SIDE VIEW

Symbol	MILL IMETER	
	Min	Max
A	0.43	0.55
A1	0.00	0.05
b	0.15	0.28
b1	0.22	0.37
c	0.075	0.18
D	1.15	1.25
E	1.15	1.25
E1	0.75	0.85
e	0.80Ref	
L	0.12	0.28
θ	8° Ref	



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