



## SSC7002KGS6

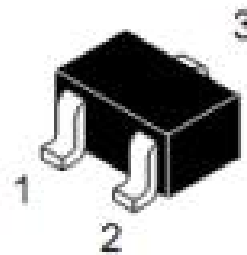
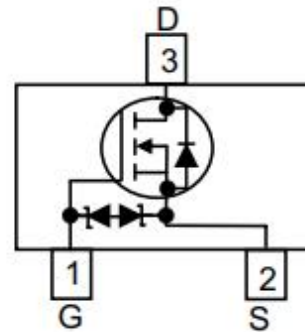
### N-Channel Small Switching MOSFET with ESD Protection

➤ **Features**

VDS	VGS	RDSON Typ.	ID	ESD
60V	±20V	2R@10V	0.3A	1kV
		3R@4V5		

➤ **Pin configuration**

Top view



SOT23

➤ **Description**

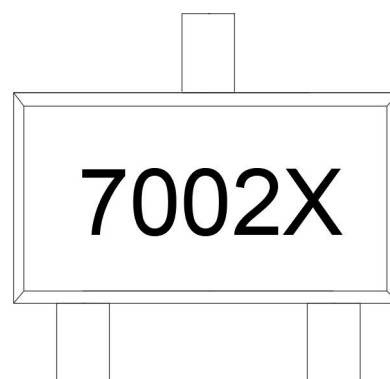
This device is an N-Channel enhancement mode MOSFET, with low on-resistance, fast switching speed and low threshold voltage, it is ideal for portable equipment.

➤ **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
SSC7002KGS6	SOT23	3000/Reel



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	$\pm 20$	V
$I_D$	Continuous Drain Current <sup>a</sup>	0.3	A
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	0.8	A
$P_D$	Power Dissipation <sup>c</sup>	0.83	W
$P_{DSM}$	Power Dissipation <sup>a</sup>	0.35	W
$T_J$	Operation junction temperature	-55 to 150	$^{\circ}\text{C}$
$T_{STG}$	Storage temperature range	-55 to 150	$^{\circ}\text{C}$

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

Symbol	Parameter	Typical	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance <sup>a</sup>		357	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		159	

Note:

- The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in<sup>2</sup> 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 current rating is based on the  $t \leq 10\text{s}$  thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation  $P_D$  is based on  $T_{J(\text{MAX})}=150^{\circ}\text{C}$ , using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

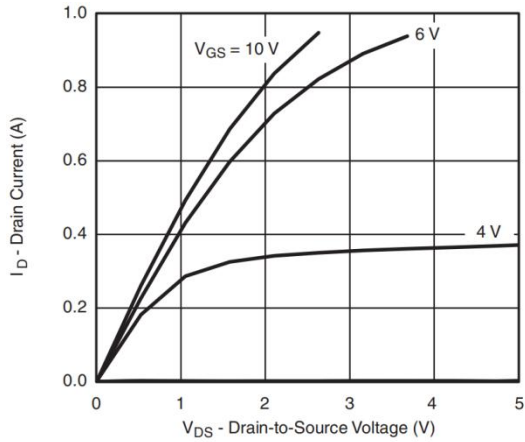


➤ **Electronics Characteristics**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

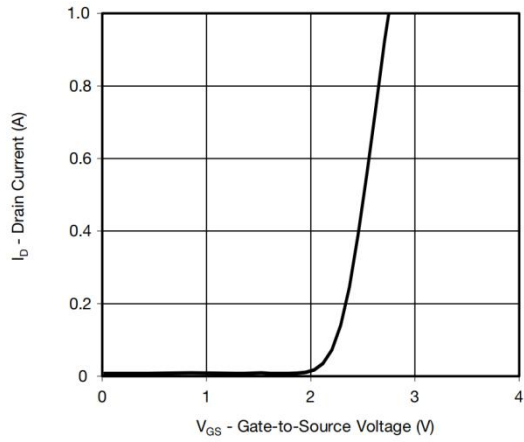
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=10\mu A$	60			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2.0	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=0.5A$		2	6	R
		$V_{GS}=4.5V, I_D=0.05A$		3	8	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
$I_{GSS}$	Gate-Source leak current	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 10$	$\mu A$
$G_{FS}$	Transconductance	$V_{DS}=10V, I_D=0.2A$		0.08		S
$V_{SD}$	Forward Voltage	$V_{GS}=0V, I_S=0.2A$		0.7	1.3	V
$C_{iss}$	Input Capacitance	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$		30	50	pF
$C_{oss}$	Output Capacitance			13	25	
$C_{rss}$	Reverse Transfer Capacitance			4.8	10	
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V,$ $V_{DS}=20V, R_G=20R,$ $R_L=60R$		4.6		ns
$T_r$	Rise Time			4.1		
$T_{D(OFF)}$	Turn-off delay time			24		
$T_f$	Fall Time			18		
$Q_G$	Total Gate Charge	$V_{GS}=10V, V_{DS}=15V,$ $I_D=0.2A$		0.4		nC
$Q_{GS}$	Gate Source Charge			0.1		
$Q_{GD}$	Gate Drain Charge			0.11		



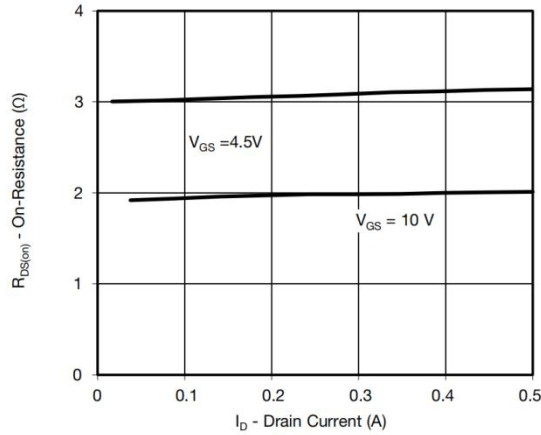
➤ **Typical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)



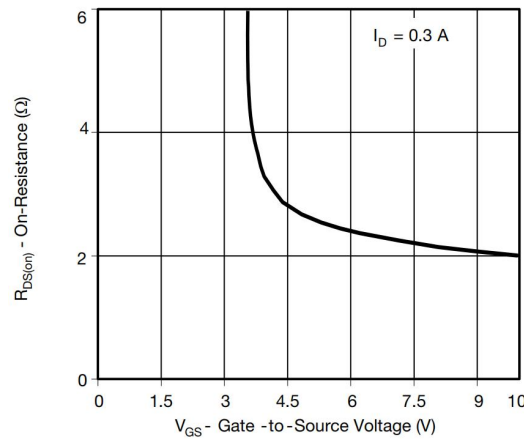
**Output Characteristics**



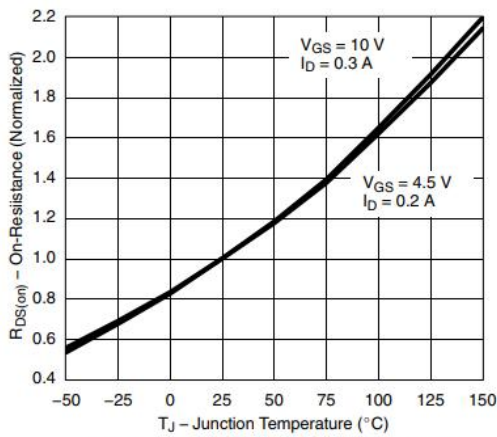
**Transfer Characteristics**



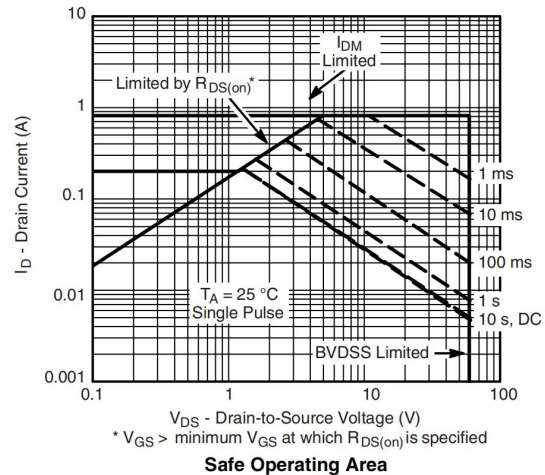
**On-Resistance vs. Drain Current**



**On-Resistance vs. Gate-to-Source Voltage**



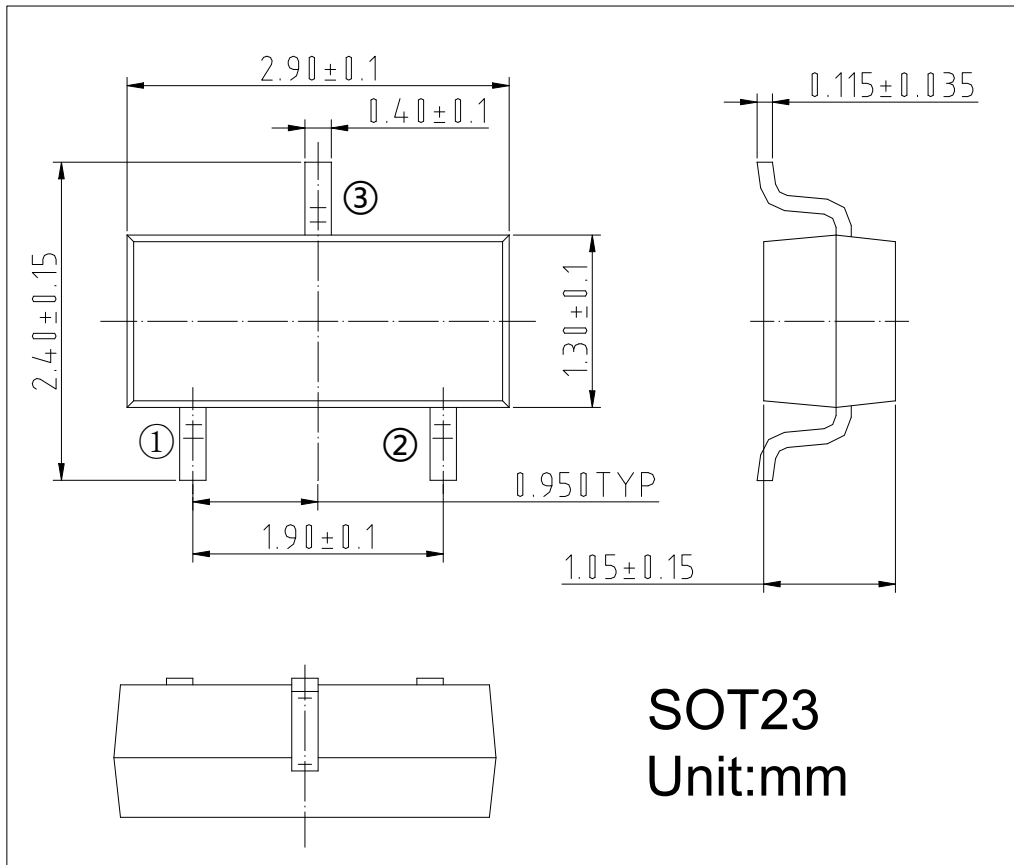
**On-Resistance vs. Junction Temperature**



**Safe Operating Area**

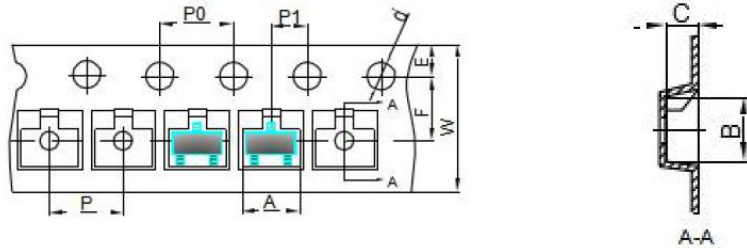


➤ Package Information



## SOT-23 Tape and reel

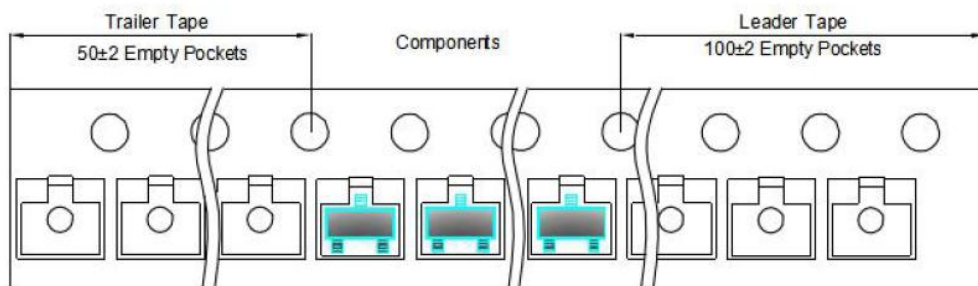
### SOT-23 Embossed Carrier Tape



Dimensions are in millimeter

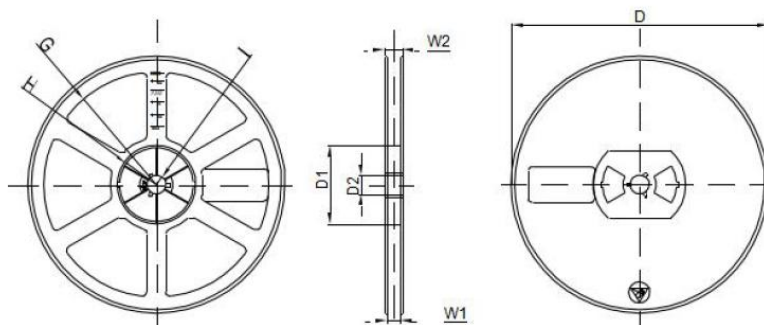
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15±0.1	2.77±0.1	1.22±0.1	Ø1.50	1.75±0.1	3.5±0.05	4.0±0.1	4.0±0.1	2±0.05	8±0.1

### SOT-23 Tape Leader and Trailer



SOT23 带尾(空封 40 格)、带头 (空封 100 格) 空封数

### SOT-23 Reel



Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	Ø54±0.2	13.3±0.2	R79.00	R26.00	R6.50±0.2	9±0.5	12±0.5



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