



SSC8164GS8

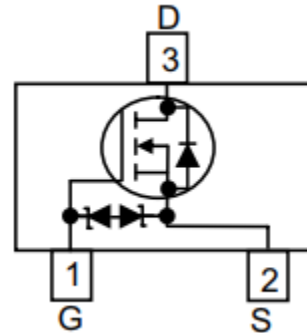
N-Channel Small Switching MOSFET with ESD Protection

➤ **Features**

VDS	VGS	RDSON Typ.	ID	ESD
60V	±20V	1R@10V	0.4A	500V
		1.5R@4V5		

➤ **Pin configuration**

Top view

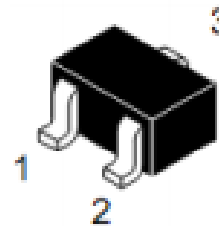


➤ **Description**

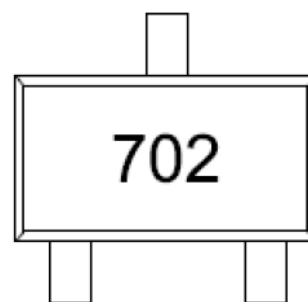
This device is an N-Channel enhancement mode MOSFET, with low on-resistance, fast switching speed and low threshold voltage, it is ideal for portable equipment.

➤ **Applications**

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



SOT523



Marking

➤ **Ordering Information**

Device	Package	Shipping
SSC8164GS8	SOT523	3000/Reel



➤ **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	0.4	A
I_{DM}	Pulsed Drain Current ^b	1	A
P_D	Power Dissipation ^c	0.8	W
P_{DSM}	Power Dissipation ^a	0.3	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 ^a		430	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		160	

Note:

- The value of $R_{\theta JA}$ 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 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 $T_{J(MAX)}=150^{\circ}\text{C}$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

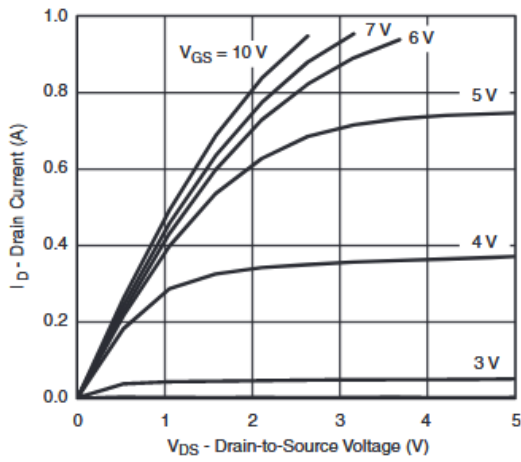


➤ **Electronics Characteristics**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

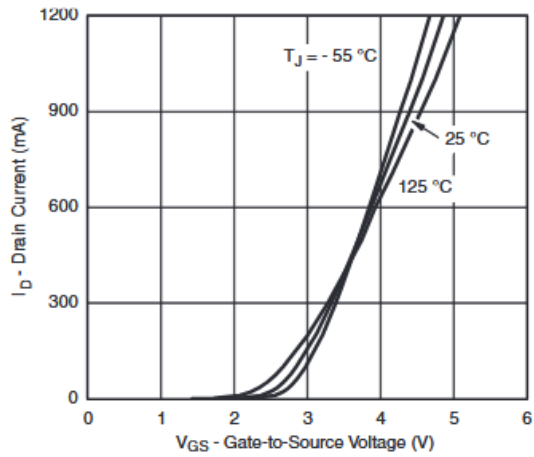
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=10\mu A$	60			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.75	1	1.25	V
$R_{DS(on)}$	Drain-Source On- Resistance	$V_{GS}=10V, I_D=0.5A$		1	2.5	R
		$V_{GS}=4.5V, I_D=0.5A$		1.5	3.5	
		$V_{GS}=2.5V, I_D=0.2A$		2.8	4	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Source leak current	$V_{GS}=\pm 15V, V_{DS}=0V$			± 10	μA
G_{FS}	Transconductance	$V_{DS}=10V, I_D=0.2A$		0.1		S
V_{SD}	Forward Voltage	$V_{GS}=0V, I_S=0.2A$			1.3	V
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		30		pF
C_{oss}	Output Capacitance			6		
C_{rss}	Reverse Transfer Capacitance			2.9		
$T_{D(ON)}$	Turn-on delay time			25		
T_r	Rise Time	$V_{GS}=10V,$ $V_{DS}=10V, I_D=100mA$		10		ns
$T_{D(OFF)}$	Turn-off delay time			35		
T_f	Fall Time			20		
Q_G	Total Gate Charge			0.4		
Q_{GS}	Gate Source Charge	$V_{GS}=10V, V_{DS}=15V, I_D=0.2A$		0.1		nC
Q_{GD}	Gate Drain Charge			0.11		



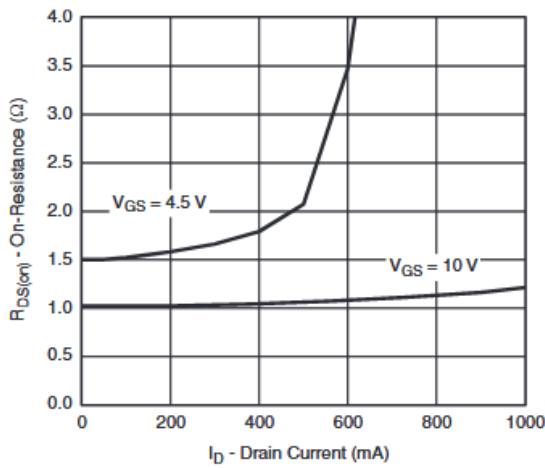
➤ **Typical Characteristics** ($T_A=25^\circ\text{C}$ unless otherwise noted)



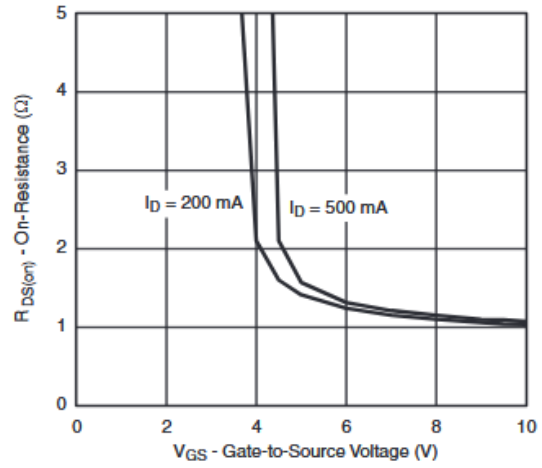
Output Characteristics



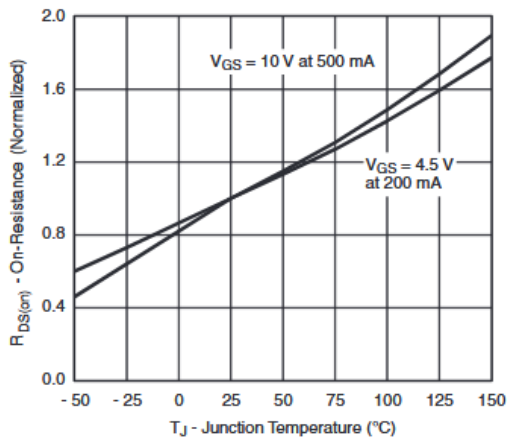
Transfer Characteristics



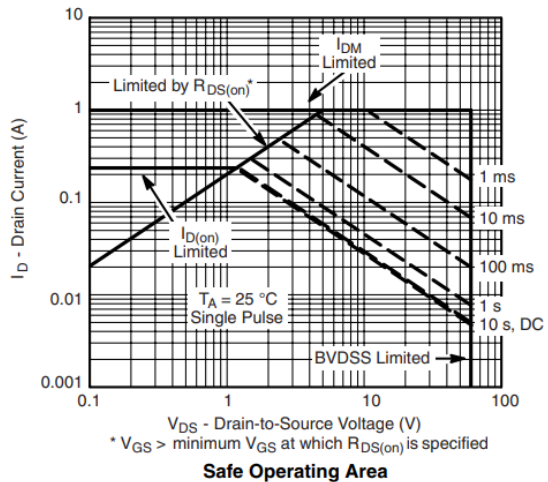
On-Resistance vs. Drain Current



On-Resistance vs. Gate-Source Voltage

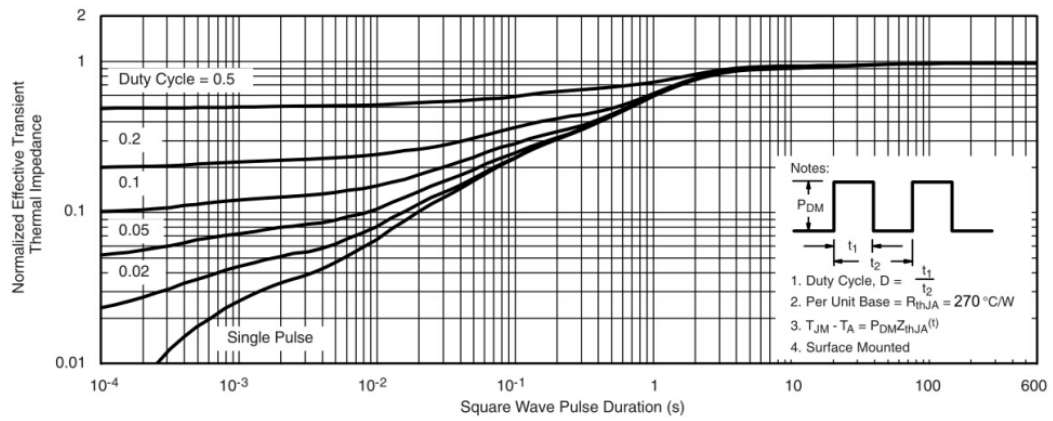


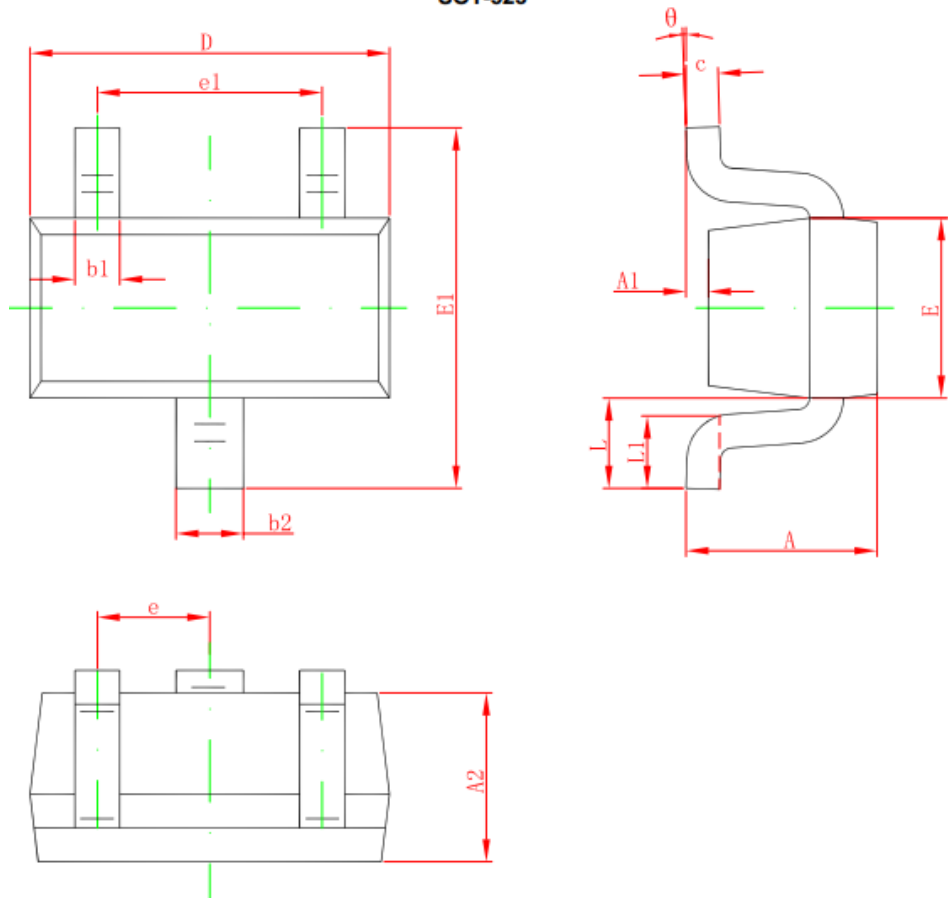
On-Resistance vs. Junction Temperature



* V_{GS} > minimum V_{GS} at which $R_{DS(on)}$ is specified

Safe Operating Area



➤ Package Information
SOT-523


Symbol	Dimension in Millimeters	
	Min.	Max.
A	0.700	0.900
A1	0.000	0.100
A2	0.700	0.800
b1	0.150	0.250
b2	0.250	0.350
c	0.100	0.200
D	1.500	1.700
E	0.700	0.900
E1	1.450	1.750
e	0.500 Typ.	
e1	0.900	1.100
L	0.400 Ref.	
L1	0.260	0.460
θ	0°	8°



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