



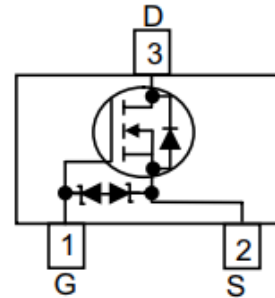
N-Channel MOSFET with ESD Protection

➤ **Features**

VDS	VGS	RDSON Typ.	ID	ESD
60V	±20V	1.1R@10V	0.44A	500V
		1.4R@4V5		

➤ **Pin configuration**

Top view

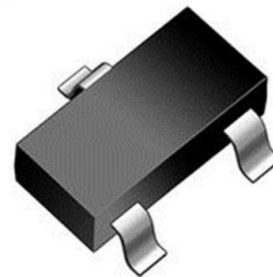


➤ **Description**

This device is an N-Channel enhancement mode MOSFET, with ESD protection, high density cell design, fast switching speed and low threshold voltage.

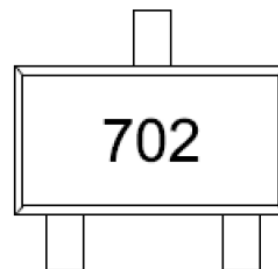
➤ **Applications**

- Small Signal Switch
- Load Switch for Portable Devices
- Battery Operated System



➤ **Ordering Information**

Device	Package	Shipping
SSC8164GS7	SOT323	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	± 20	V
I_D	Continuous Drain Current ^a	0.44	A
I_{DM}	Pulsed Drain Current ^b	1.76	A
P_D	Power Dissipation ^c	1.25	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	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	100	$^{\circ}\text{C}/\text{W}$

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.
- Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}=150^{\circ}\text{C}$.
- The power dissipation P_D is based on $T_{J(MAX)}=150^{\circ}\text{C}$, using steady state junction-to-ambient thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

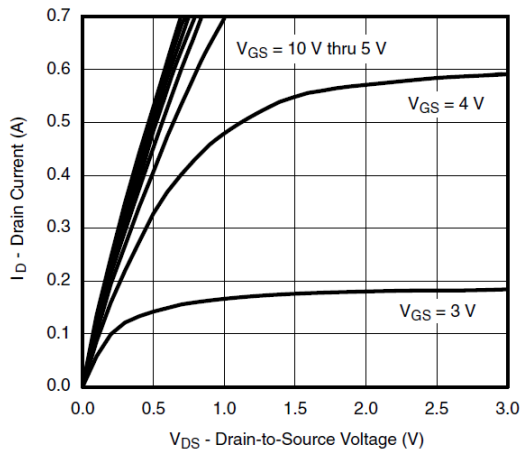


➤ **Electronics Characteristics**($T_A=25^{\circ}\text{C}$ unless otherwise noted)

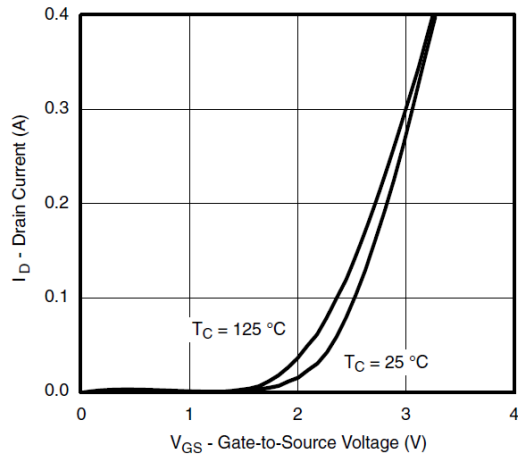
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7	0.95	1.3	V
$R_{DS(on)}$	Drain-Source On- Resistance	$V_{GS}=10V, I_D=0.4A$		1.1	2.5	R
		$V_{GS}=4.5V, I_D=0.3A$		1.4	3.2	
		$V_{GS}=2.5V, I_D=0.1A$		1.8	4	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=48V, V_{GS}=0V$			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	$V_{GS}=0V, I_S=0.2A$		0.7	1.3	V
C_{iss}	Input Capacitance	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		35		pF
C_{oss}	Output Capacitance			7.2		
C_{rss}	Transfer Capacitance			4.7		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V, R_G=1R$ $V_{DS}=30V, I_D=0.44A$		6		ns
T_r	Rise Time			12		
$T_{D(OFF)}$	Turn-off delay time			13		
T_f	Fall Time			4		
Q_G	Total Gate Charge	$V_{GS}=10V, V_{DS}=30V,$ $I_D=0.44A$		1		nC
Q_{GS}	Gate Source Charge			0.2		
Q_{GD}	Gate Drain Charge			0.15		



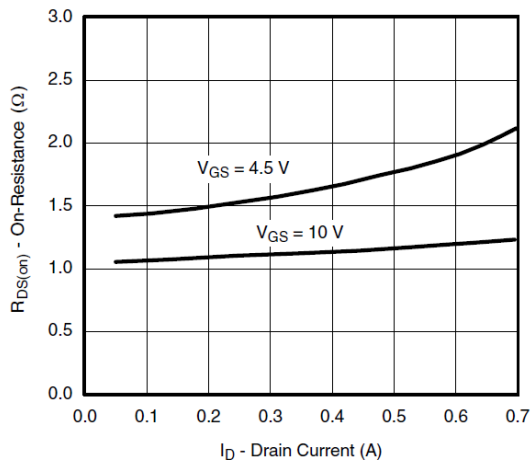
➤ **Typical Characteristics** ($T_A=25^\circ\text{C}$ unless otherwise noted)



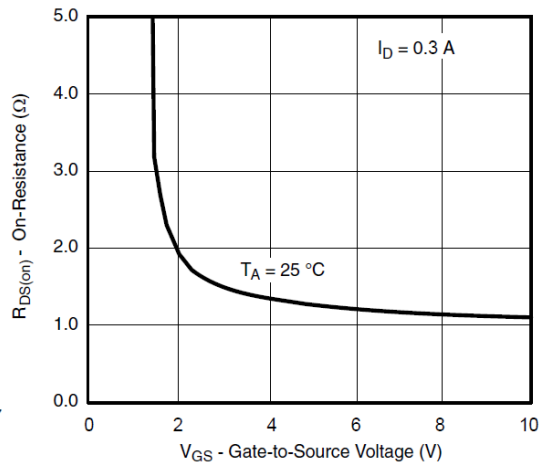
Output Characteristics



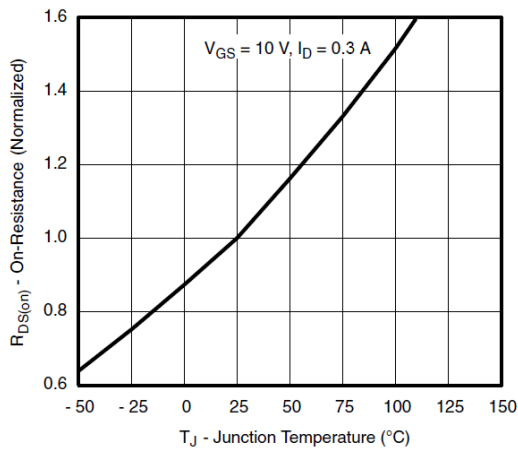
Transfer Characteristics



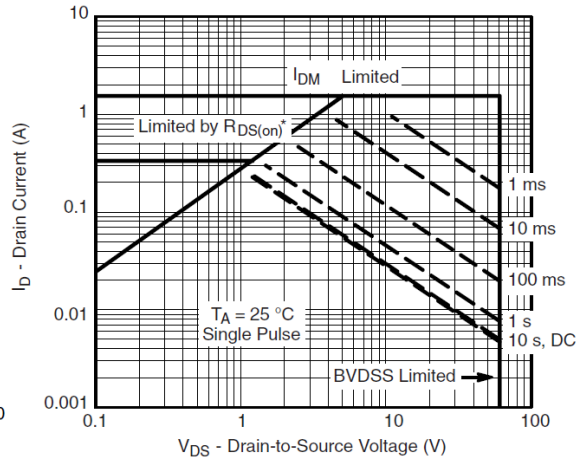
On-Resistance vs. Drain Current



$R_{DS(on)}$ vs. V_{GS}



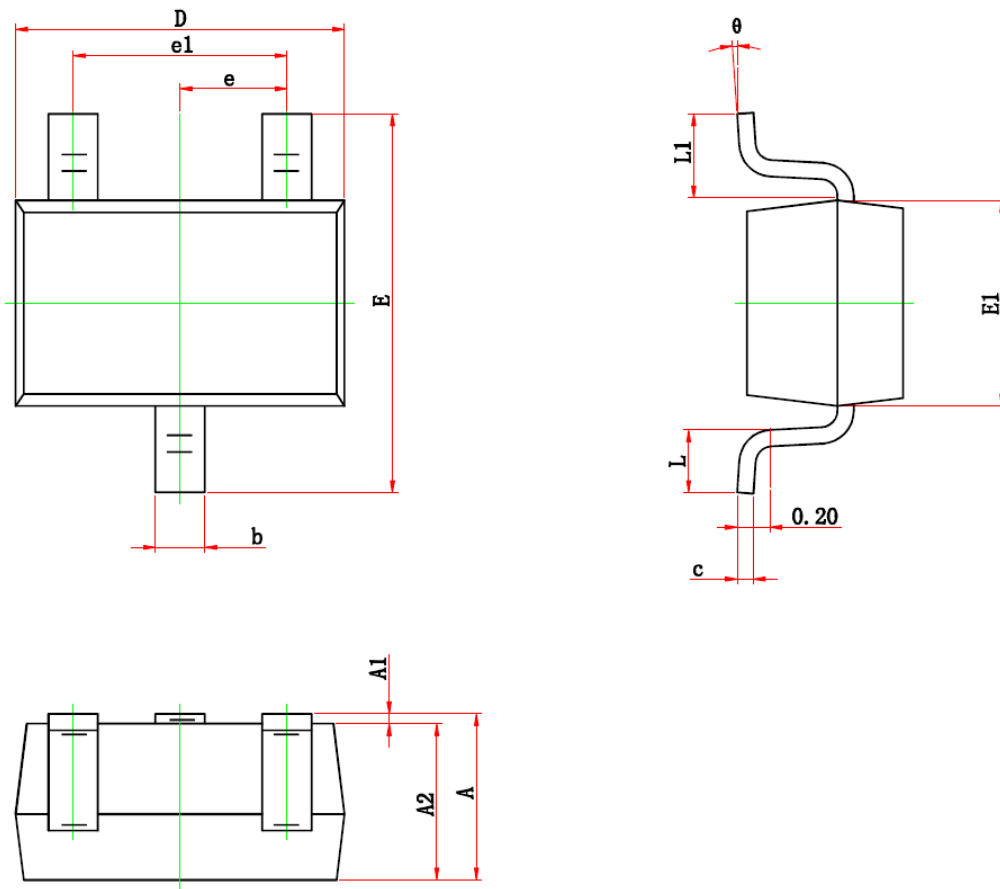
On-Resistance vs. Junction Temperature



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



➤ Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	2.150	2.450	0.085	0.096
E1	1.150	1.350	0.045	0.053
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.260	0.460	0.010	0.018
L1	0.525 REF.		0.021 REF.	
θ	0°	8°	0°	8°



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