



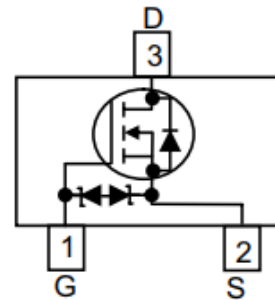
**N-Channel MOSFET with ESD Protection**

➤ **Features**

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

➤ **Pin configuration**

Top view

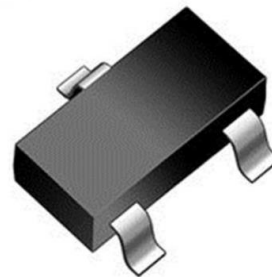


➤ **Description**

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

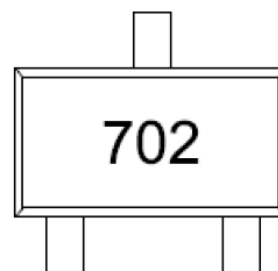
➤ **Applications**

- 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	$\pm 20$	V
$I_D$	Continuous Drain Current <sup>a</sup>	0.44	A
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	1.76	A
$P_D$	Power Dissipation <sup>c</sup>	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 <sup>a</sup>	100	$^{\circ}\text{C}/\text{W}$

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's 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.

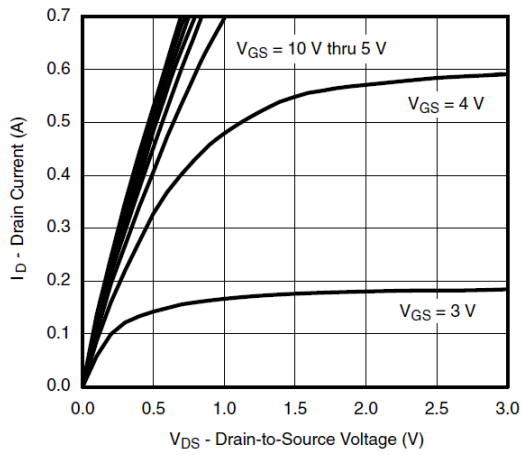


➤ **Electronics Characteristics**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

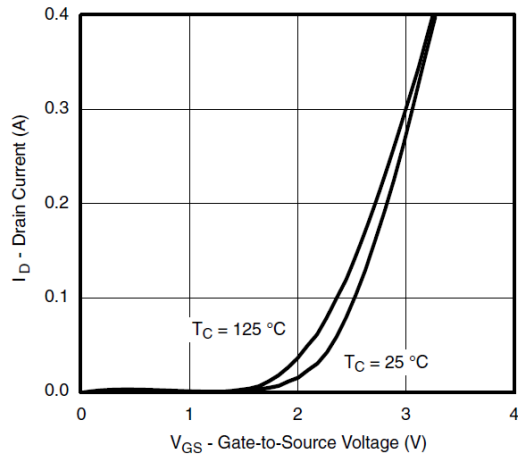
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7	0.95	1.3	V
$R_{DS(on)}$	Drain-Source On- Resistance	$V_{GS}=10V, I_D=0.4A$		1.1	2.5	R
		$V_{GS}=4.5V, I_D=0.3A$		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	$\mu A$
$I_{GSS}$	Gate-Source leak current	$V_{GS}=\pm 15V, V_{DS}=0V$			$\pm 10$	$\mu A$
$G_{FS}$	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		



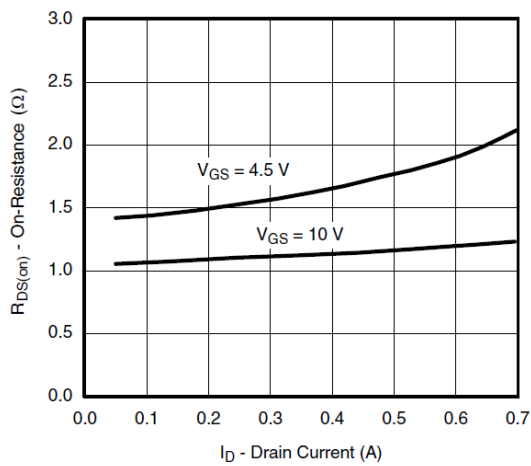
➤ **Typical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)



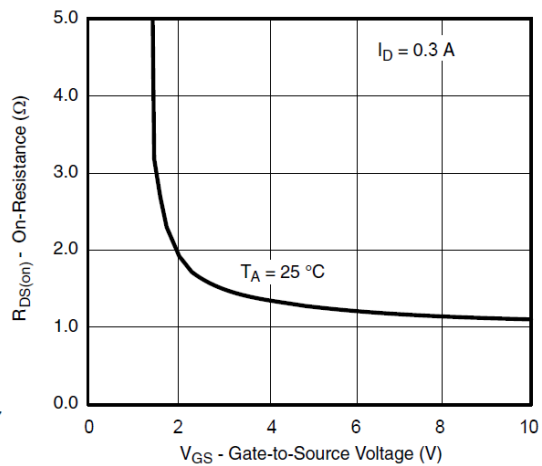
**Output Characteristics**



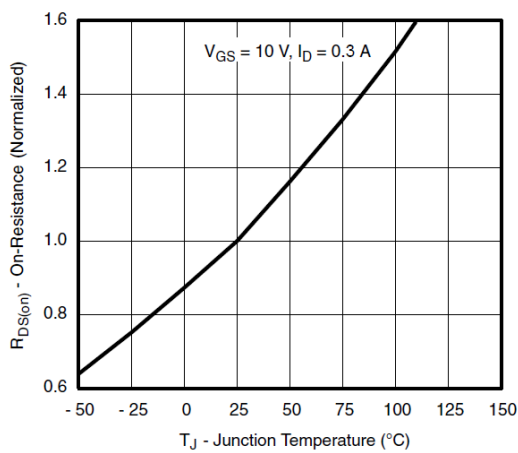
**Transfer Characteristics**



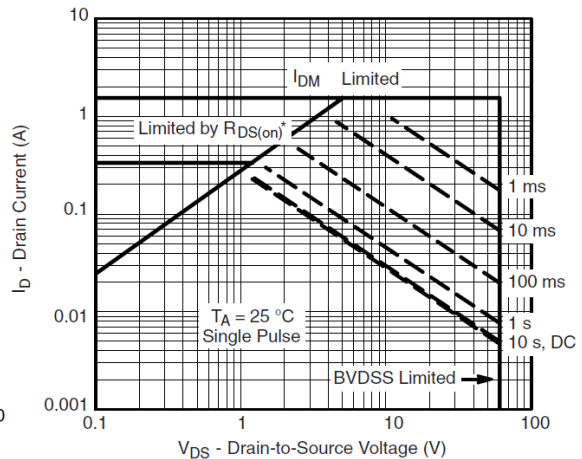
**On-Resistance vs. Drain Current**



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



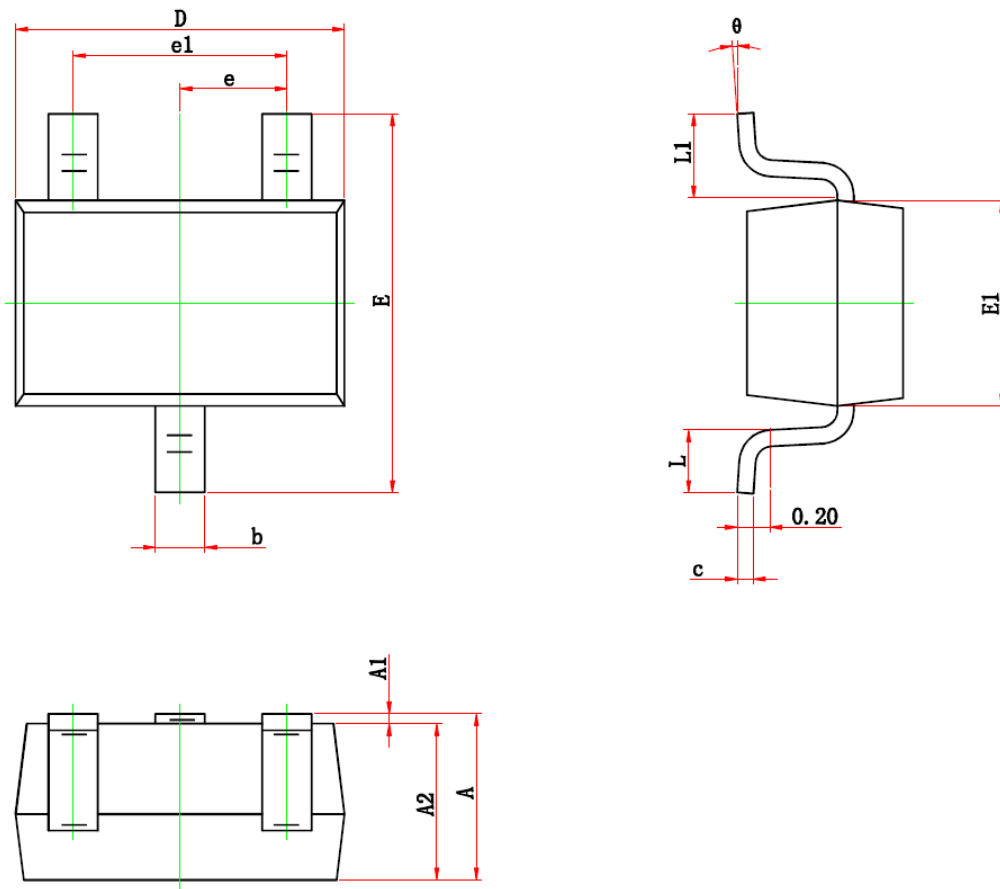
**On-Resistance vs. Junction Temperature**



**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.	
$\theta$	0°	8°	0°	8°



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