



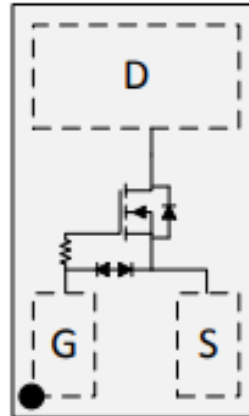
### N-Channel MOSFET with ESD Protection

➤ **Features**

VDS	VGS	RDS(on) Typ.	ID	ESD
60V	±20V	1.6R@10V	0.35A	1.2kV
		1.8R@4V5		

➤ **Pin configuration**

Top view

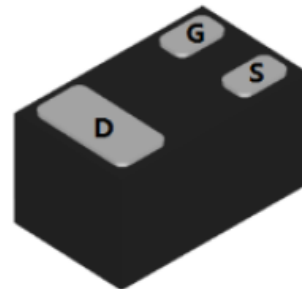


➤ **Description**

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

➤ **Applications**

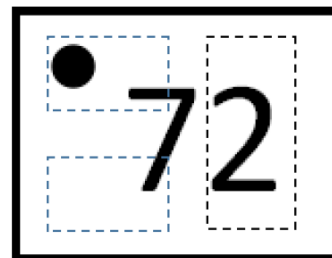
- Small Signal Switch
- Load Switch for Portable Devices
- Battery Operated System



➤ **Ordering Information**

Device	Package	Shipping
SSC7002EGN1	DFN1006	10K/Reel

Bottom 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	$\pm 20$	V
$I_D$	Continuous Drain Current <sup>a</sup>	0.35	A
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	1.4	A
$P_D$	Power Dissipation <sup>c</sup>	0.8	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>	155	$^\circ\text{C}/\text{W}$

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 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.

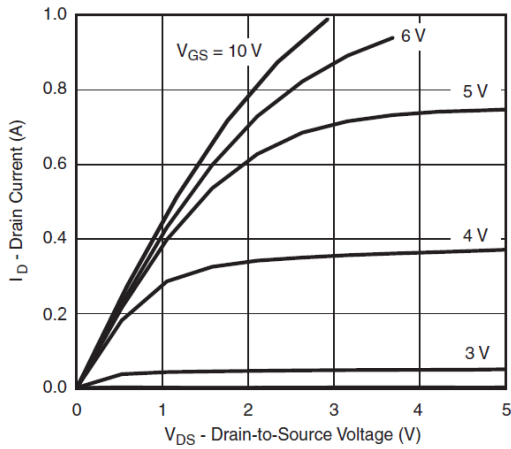


➤ **Electronics Characteristics**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

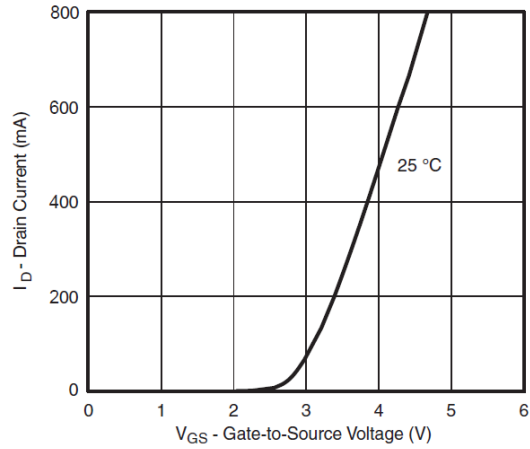
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	60			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.6	2.5	V
$R_{DS(on)}$	Drain-Source On- Resistance	$V_{GS}=10V, I_D=0.1A$		1.6	3	R
		$V_{GS}=4.5V, I_D=0.05A$		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	$V_{DS}=10V, I_D=0.2A$		0.2		S
$V_{SD}$	Forward Voltage	$V_{GS}=0V, I_S=0.1A$		0.8	1.3	V
$C_{iss}$	Input Capacitance	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		26		pF
$C_{oss}$	Output Capacitance			5.2		
$C_{rss}$	Transfer Capacitance			4.2		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=10V, R_G=1R$ $V_{DS}=30V, I_D=0.35A$		6		ns
$T_r$	Rise Time			11		
$T_{D(OFF)}$	Turn-off delay time			10		
$T_f$	Fall Time			5		
$Q_G$	Total Gate Charge	$V_{GS}=10V, V_{DS}=30V,$ $I_D=0.35A$		0.9		nC
$Q_{GS}$	Gate Source Charge			0.2		
$Q_{GD}$	Gate Drain Charge			0.15		



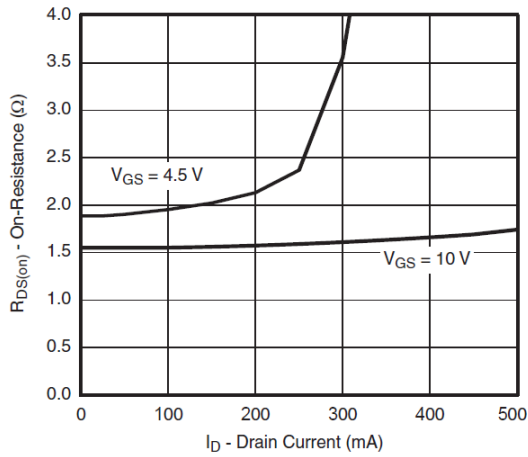
➤ **Typical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)



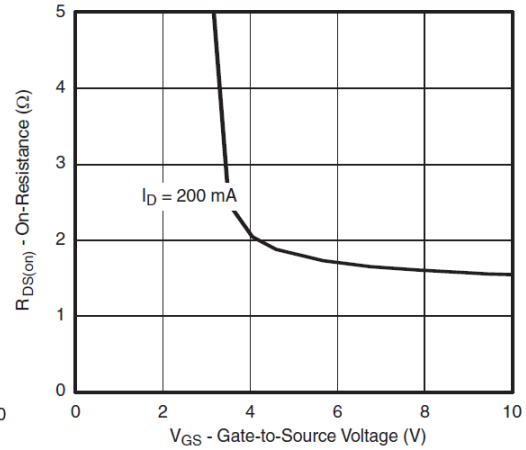
Output Characteristics



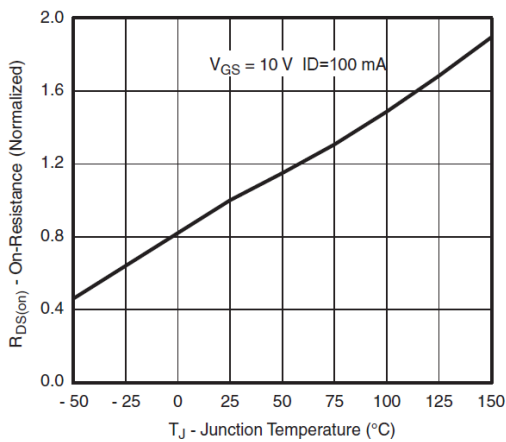
Transfer Characteristics



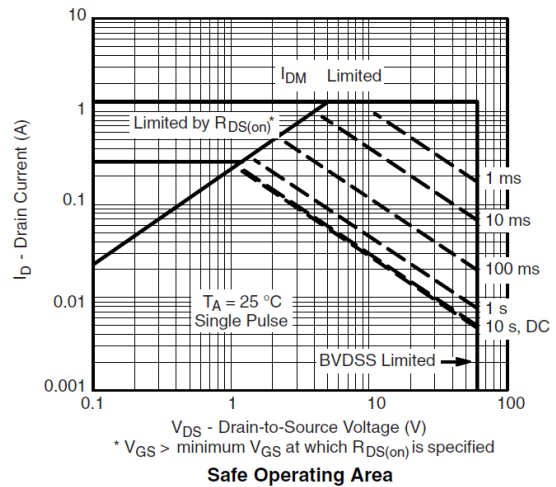
On-Resistance vs. Drain Current



On-Resistance vs. Gate-Source Voltage



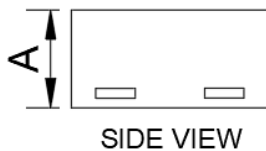
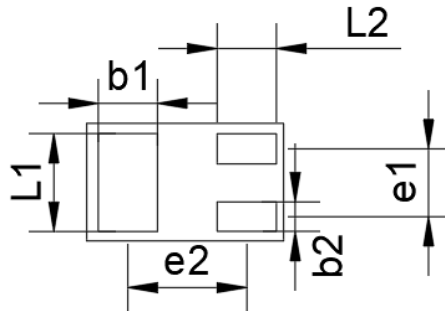
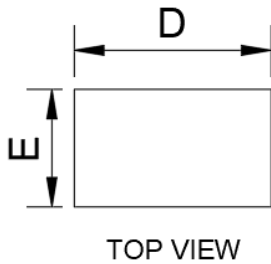
On-Resistance vs. Junction Temperature



Safe Operating Area



➤ Package Information



COMMON DIMENSION (MM)			
PKG	DFN1006		
REF.	MIN.	NDM,	MAX
A	0.40	0.50	0.55
D	0.90	1.00	1.05
E	0.50	0.60	0.65
b1	0.20	0.25	0.30
b2	0.10	0.15	0.20
L1	0.45	0.50	0.55
L2	0.25	0.30	0.35
e1	0.350 BSC		
e2	0.675 BSC		

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