



SSCU14DN40GS1

Dual N-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
40V	$\pm 20V$	14m Ω @10V	8A
		19m Ω @4V5	

➤ Description

This SSCU14DN40GS1 uses advanced trench technology to provide excellent RDSON and low gate charge. The complementary MOSFETS may be used to form a level shifted high side switch, and for a host of other applications.

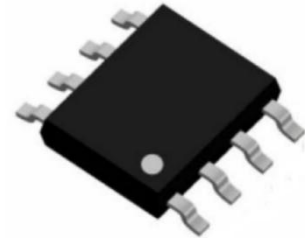
➤ Applications

- Load Switch
- PWM Application
- Power Management

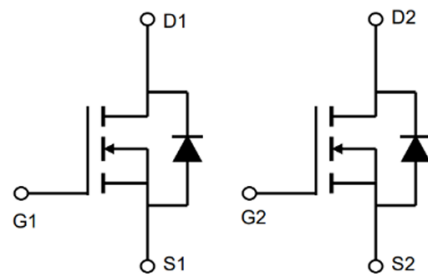
➤ Ordering Information

Device	Package	Shipping
SSCU14DN40GS1	SOP-8	4000/Reel

➤ Pin configuration



SOP-8



Pin Configuration (Top View)



Marking

(XXYY: Internal Traceability Code)



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

Symbol	Parameter		Ratings	Unit
V_{DSS}	Drain-to-Source Voltage		40	V
V_{GSS}	Gate-to-Source Voltage		± 20	V
I_D	Continuous Drain Current ^d	$T_A=25^{\circ}\text{C}$	8.0	A
		$T_A=100^{\circ}\text{C}$	5.0	
I_{DM}	Pulsed Drain Current ^b		32	A
P_D	Power Dissipation ^c	$T_A=25^{\circ}\text{C}$	2.1	W
		$T_A=100^{\circ}\text{C}$	0.8	
I_{AS}	Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse		16	A
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		64	mJ
T_J	Operation junction temperature		-55~150	$^{\circ}\text{C}$
T_{STG}	Storage temperature range		-55~150	

➤ **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	60	$^{\circ}\text{C/W}$

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. The power dissipation 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.
- The maximum current rating is package limited.



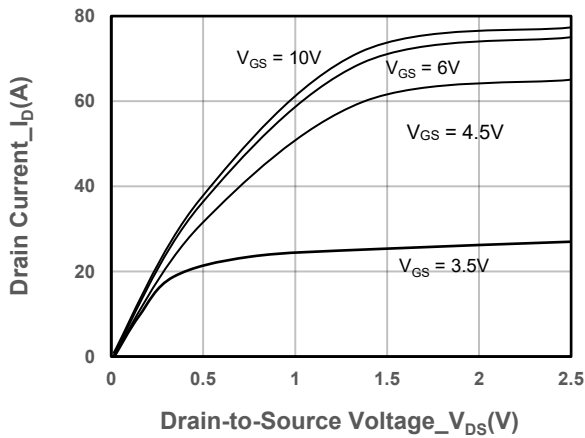
SSCU14DN40GS1

➤ Electrical Characteristics (T_A=25°C unless otherwise noted)

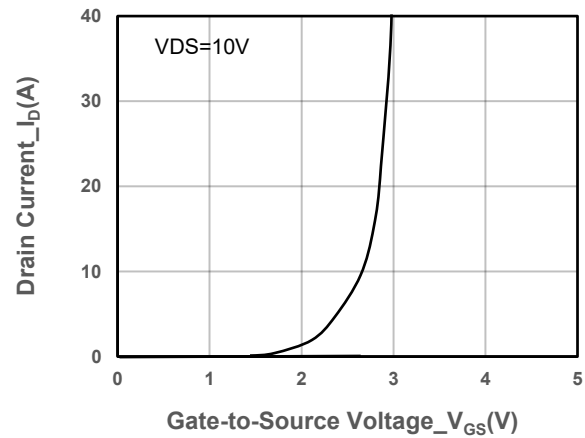
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250uA	40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.5	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 7A		14	20	mΩ
		V _{GS} = 4.5V, I _D = 6A		19	26	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 40V, V _{GS} = 0V			1	uA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 1A		0.8	1.2	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		1.6		Ω
Input Capacitance	C _{ISS}	V _{DS} = 20V, V _{GS} = 0V, f = 1MHz		1130		pF
Output Capacitance	C _{OSS}			83		
Reverse Transfer Capacitance	C _{RSS}			68		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 20V, I _D = 7A		18.6		nC
Gate to Source Charge	Q _{GS}			3		
Gate to Drain Charge	Q _{GD}			5		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 20V, R _G = 3Ω		4.6		ns
Rise Time	T _r			12		
Turn-off Delay Time	T _{D(OFF)}			17		
Fall Time	T _f			6		
Diode Recovery Time	T _{rr}	I _F =7A, di/dt=100A/us		13		ns
Diode Recovery Charge	Q _{rr}	I _F =7A, di/dt=100A/us		5		nC



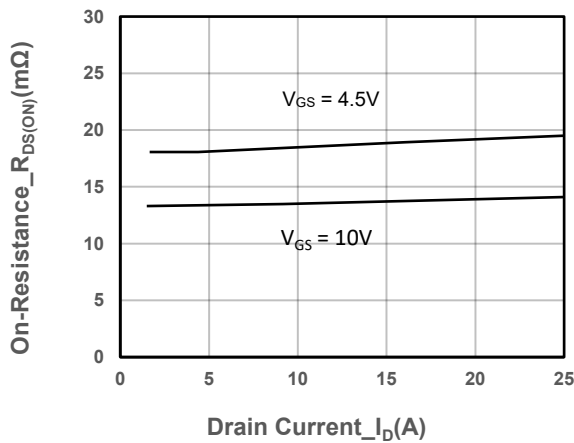
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



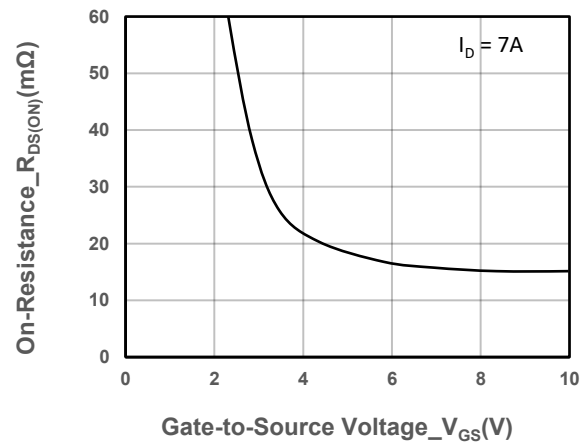
Output Characteristics



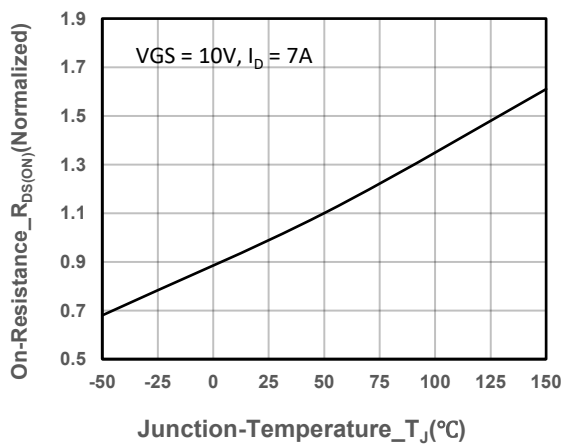
Transfer Characteristics



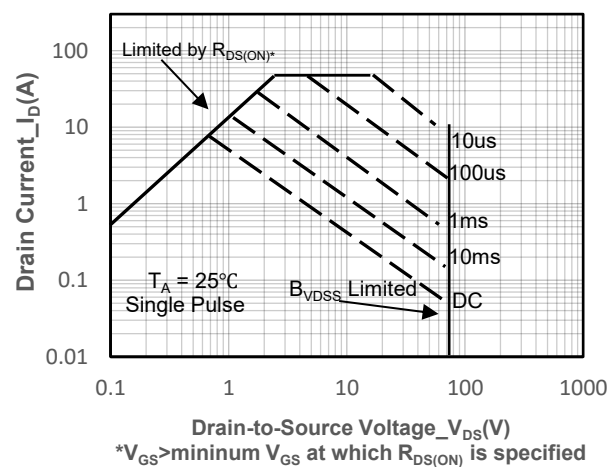
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

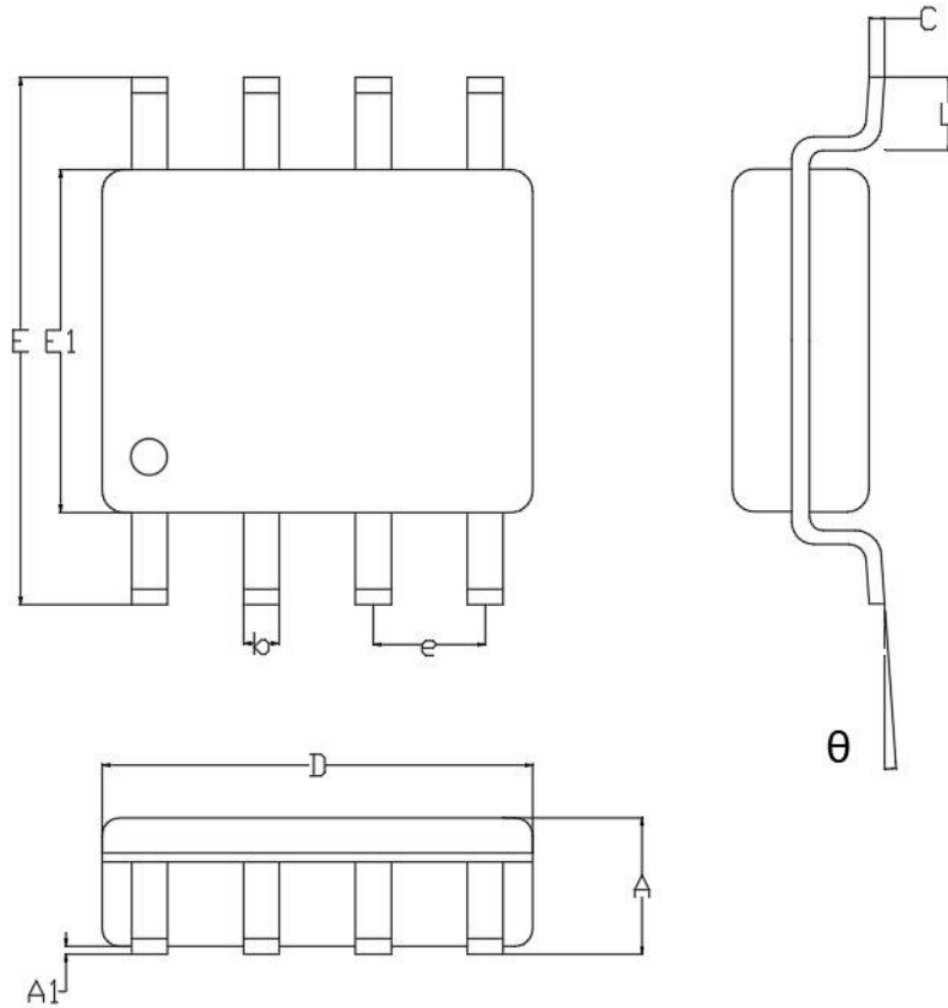


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	1.35	1.50	1.75
A1	0.05	0.10	0.25
b	0.33	-	0.51
c	0.15	-	0.30
D	4.70	4.90	5.10
E	5.80	6.00	6.20
E1	3.70	3.90	4.10
e	1.27 (BSC)		
L	0.40	-	1.30
θ	0°	-	8°



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