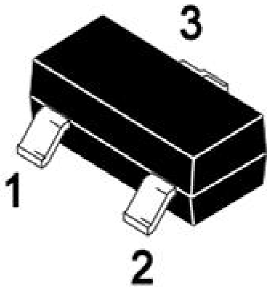
SSCU11N20GS6

N-Channel Enhancement Mode MOSFET

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
20V	±12V	11mΩ@10V	8.5A
		12mΩ@4.5V	
		14mΩ@2.5V	

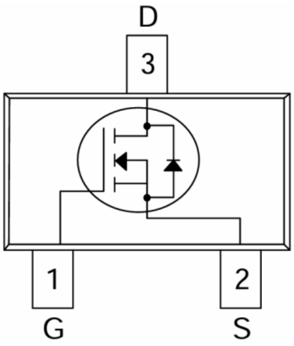
➢ Pin configuration



SOT-23

➢ Description

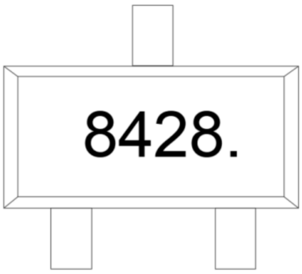
This SSCU11N20GS6 combines advanced trench MOSFET technology with a low resistance package to provide extremely low RDSON. This device is ideal for load switch and battery protection applications.



Pin Configuration (Top View)

➢ Applications

- Load Switch
- Battery Isolation



Marking

➢ Ordering Information

Device	Package	Shipping
SSCU11N20GS6	SOT-23	3000/Reel

➢ Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
V_{DSS}	Drain-to-Source Voltage	20	V
V_{GSS}	Gate-to-Source Voltage	±12	V
I_D	Continuous Drain Current [a]	8.5	A
I_{DM}	Pulsed Drain Current [b]	34	A
P_D	Power Dissipation [c]	1.2	W
T_J	Operation junction temperature	-55~150	℃
T_{STG}	Storage temperature range	-55~150	℃

➢ Thermal Resistance Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	108	℃/W

Note:

a. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.copper, in a still air environment with T_A=25℃.The value in any given application depends on the user is specific board design. The power dissipation is based on the t≤10s thermal resistance rating.

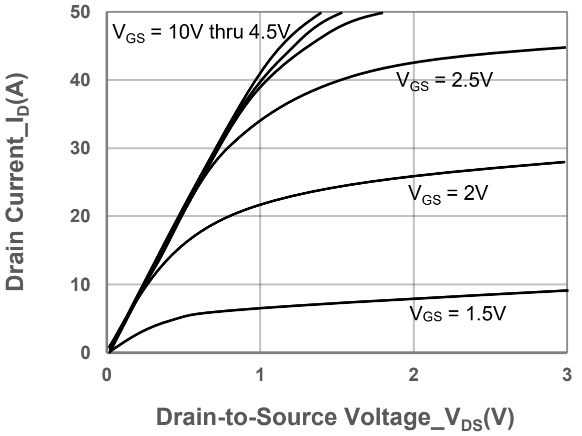
b. Repetitive rating, pulse width limited by junction temperature.

c. The power dissipation P_D is based on $T_{J(MAX)}$=150°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.

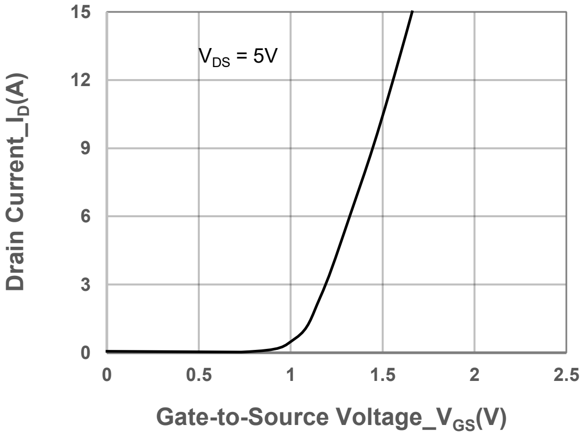
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250uA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	0.5	0.7	1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 4.5A		11	16	mΩ
		V_{GS} = 4.5V, I_D = 3.5A		12	18	
		V_{GS} = 2.5V, I_D = 2.5A		14	20	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V			±0.1	μA
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 0.5A		0.7	1.3	V
Input Capacitance	C_{ISS}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz		1035		pF
Output Capacitance	C_{OSS}			128		
Reverse Transfer Capacitance	C_{RSS}			119		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 10V, R_L = 1Ω, R_G = 3Ω,		7		ns
Rise Time	Tr			15		
Turn-off Delay Time	$T_{D(OFF)}$			42		
Fall Time	Tf			10		
Total Gate Charge	Q_G	VGS = 10V, VDS = 10V, ID= 4A		9		nC
Gate Source Charge	Q_{GS}			1.5		
Gate Drain Charge	Q_{GD}			2.5		

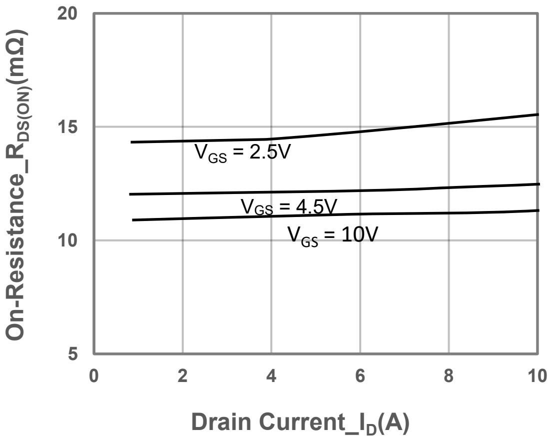
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



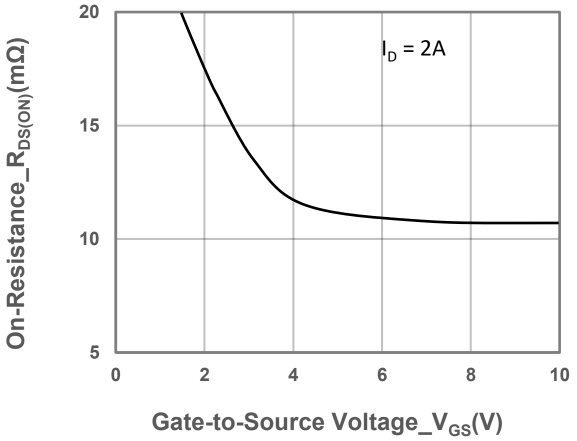
Output Characteristics



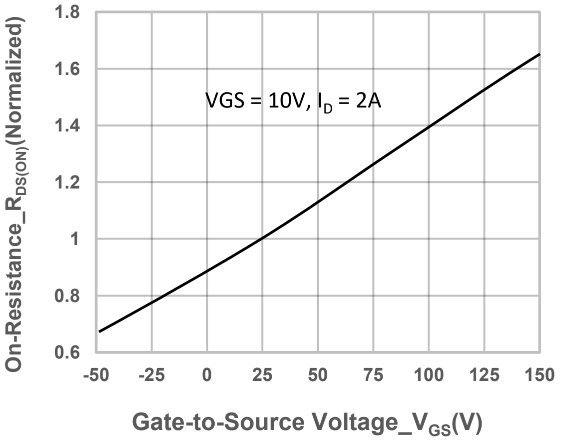
Transfer Characteristics



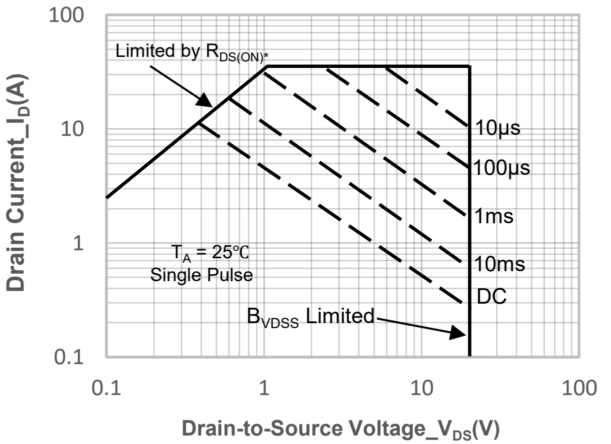
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



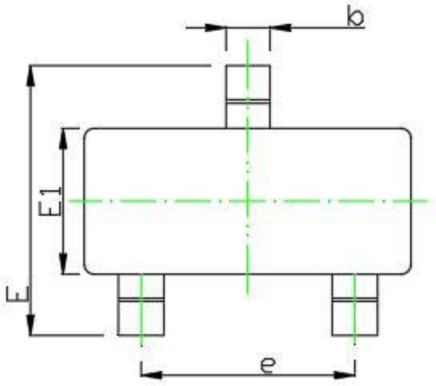
On-Resistance vs. Junction Temperature

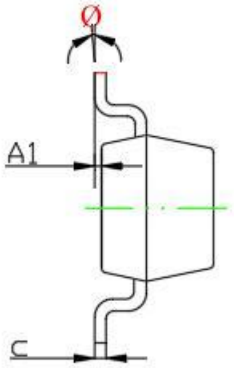


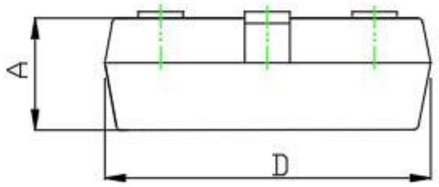
*V_{GS}>mininum V_{GS} at which $R_{DS(ON)}$ is specified

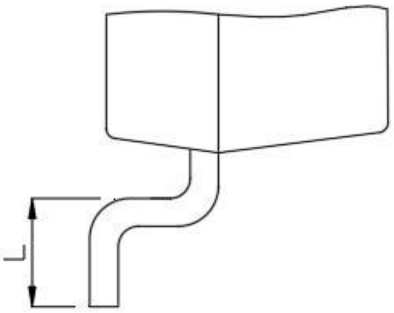
Safe Operating Area vs. Junction-to-Ambient

Package Information









Symbol	MILL IMETER		
	Min	Nom	Max
A	0.90	1.00	1.15
A1	0.01	0.05	0.10
b	0.35	0.40	0.45
c	0.08	0.11	0.16
D	2.80	2.90	3.00
E	2.25	2.40	2.55
E1	1.20	1.30	1.40
e	0.80	1.90	2.00
L	0.30	0.40	0.50
θ	0°	/	8°

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