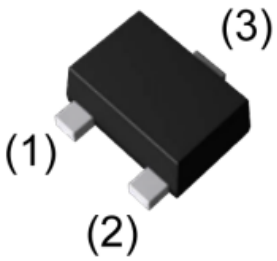
SSCU1RN30GS8

N-Channel Small Switching MOSFET with ESD Protection

➢ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D	ESD
30V	±12V	1Ω@10V	0.6A	500V
		1.2Ω@4V5		
		1.7Ω@2V5		

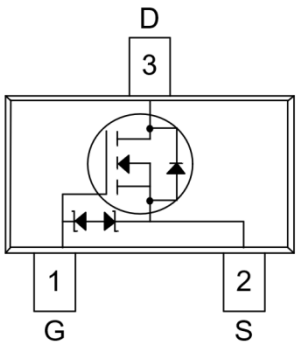
➢ Pin configuration



SOT-523

➢ Description

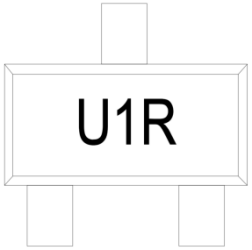
This device is an N-Channel enhancement mode MOSFET, with low on-resistance, fast switching speed and low threshold voltage, it is ideal for portable equipment.



Pin Configuration (Top View)

➢ Applications

- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers
- Display, Memories, Transistors, etc.
- Battery Operated System
- Solid-State Relays



Marking

➢ Ordering Information

Device	Package	Shipping
SSCU1RN30GS8	SOT-523	3000/Reel

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

Symbol	Parameter	Ratings	Unit
V_{DSS}	Drain-to-Source Voltage	30	V
V_{GSS}	Gate-to-Source Voltage	±12	V
I_D	Continuous Drain Current [a]	0.6	A
I_{DM}	Pulsed Drain Current [b]	2.4	A
P_D	Power Dissipation [c]	0.6	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	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	260	℃/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.

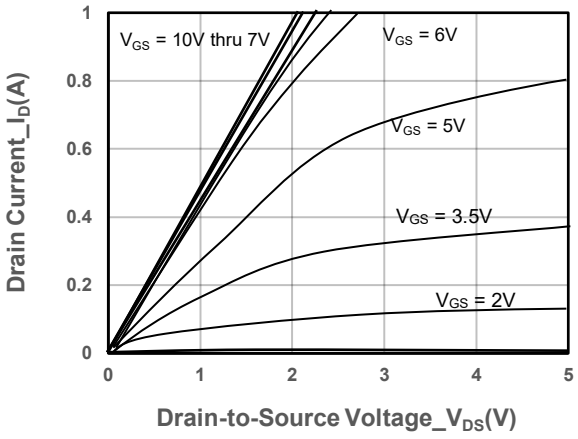
b. Repetitive rating, pulse width limited by junction temperature.

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.

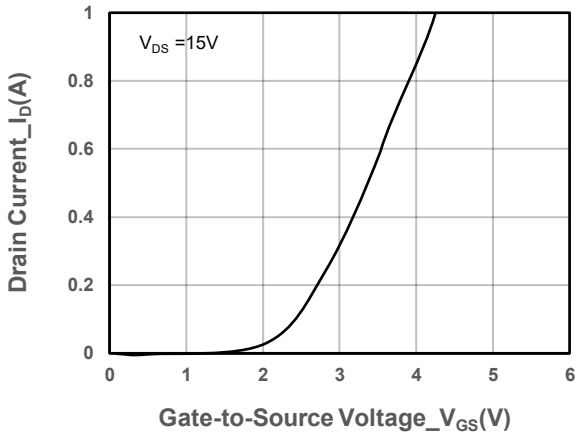
➢ Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	0.75	1	1.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 0.5A		1	1.5	Ω
		V_{GS} = 4.5V, I_D = 0.5A		1.2	1.8	
		V_{GS} = 2.5V, I_D = 0.2A		1.7	3.5	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =30V, V_{GS} = 0V			1	uA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V			±10	uA
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S =0.2A			1.3	V
Input Capacitance	C_{ISS}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		33		pF
Output Capacitance	C_{OSS}			6.8		
Reverse Transfer Capacitance	C_{RSS}			4.8		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 10V, ID=0.1A		25		ns
Rise Time	T_r			10		
Turn-off Delay Time	$T_{D(OFF)}$			35		
Fall Time	T_f			20		
Total Gate Charge	Q_G	V_{GS} =10V, V_{DS} = 15V, I_D =0.2A		1		nC
Gate to Source Charge	Q_{GS}			0.12		
Gate to Drain Charge	Q_{GD}			0.12		

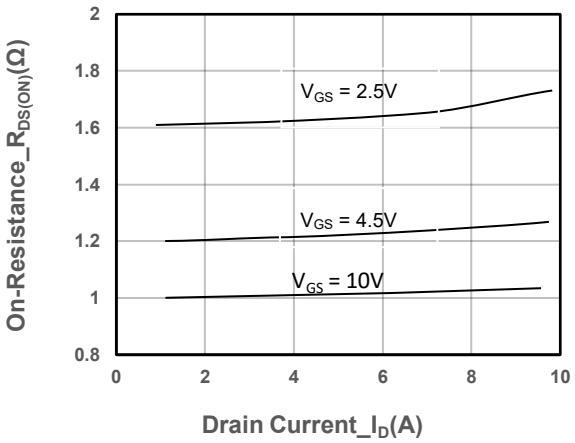
➢ Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



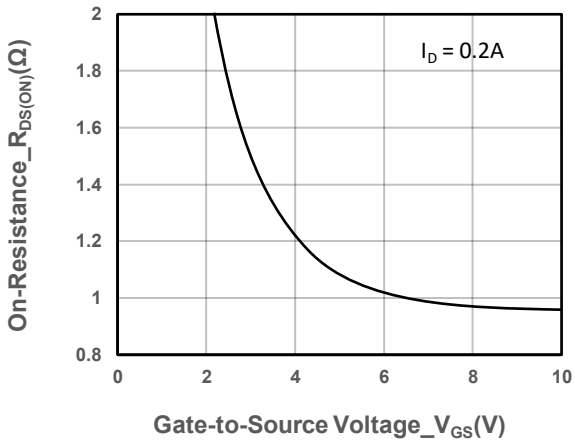
Output Characteristics



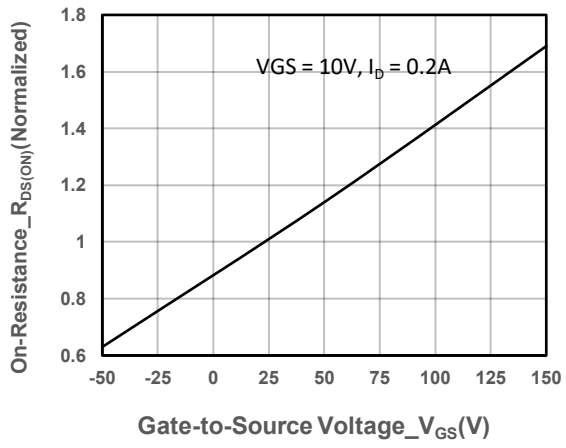
Transfer Characteristics



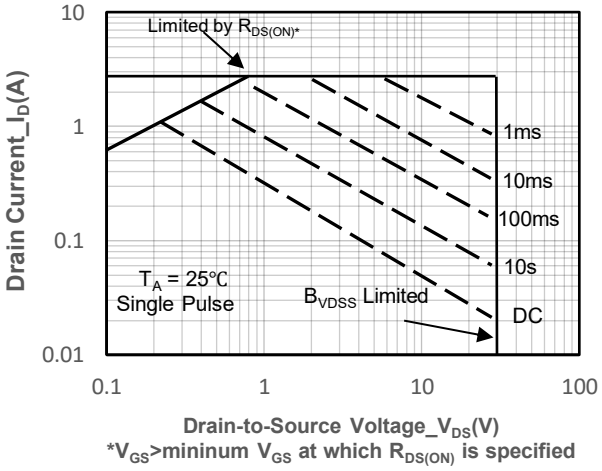
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

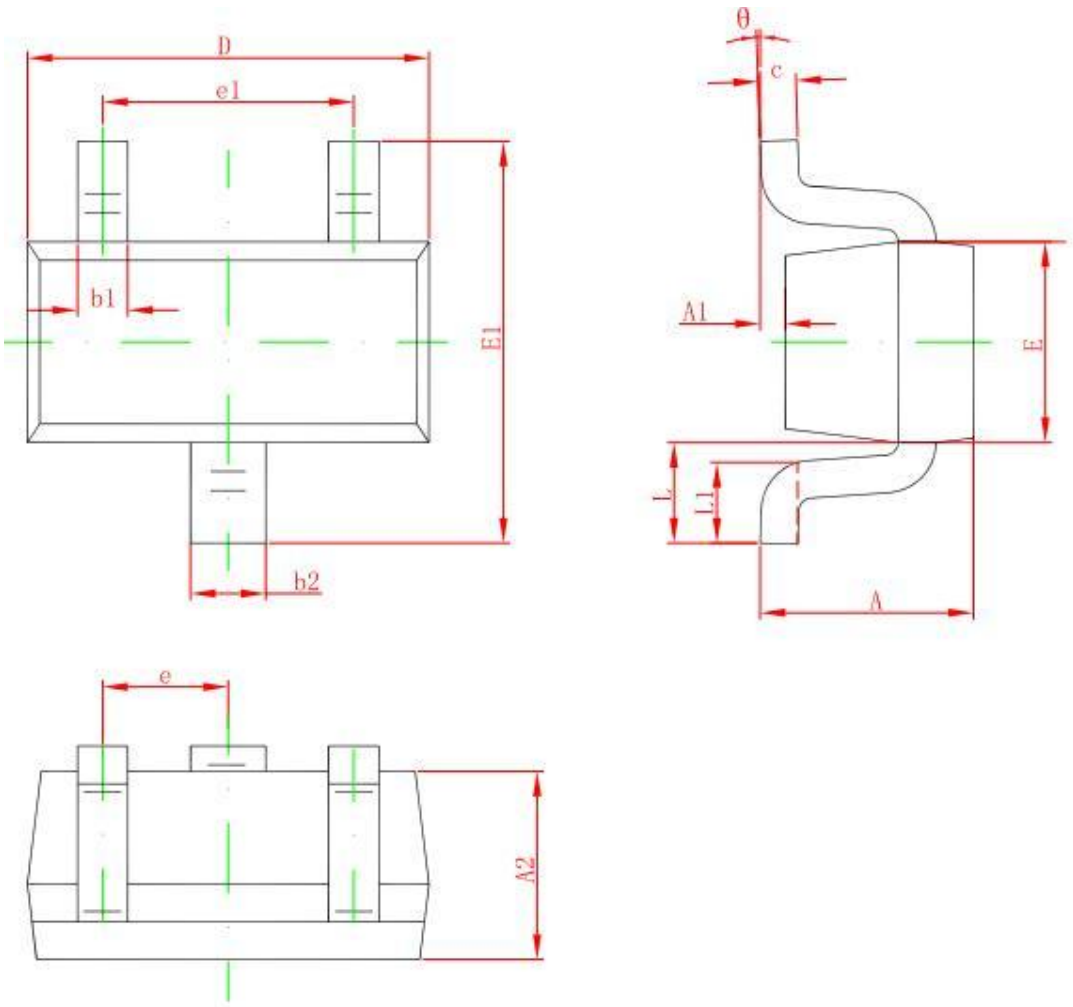


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➢ Package Information



Symbol	MILL IMETER		Symbol	MILL IMETER	
	Min	Max		Min	Max
A	0.70	0.90	E	0.70	0.90
A1	0.00	0.10	E1	1.45	1.75
A2	0.70	0.80	e	0.50Typ	
b1	0.15	0.25	e1	0.90	1.10
b2	0.25	0.35	L	0.40Ref	
c	0.08	0.20	L1	0.20	0.46
D	1.50	1.70	θ	0°	8°

DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.