



SSCU330P100GS3

P-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
-100V	$\pm 20V$	330m Ω @10V	-8.5A
		360m Ω @4V5	

➤ Description

This device is P-Channel enhancement MOSFET. Uses trench technology and design to provide excellent RDSON with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

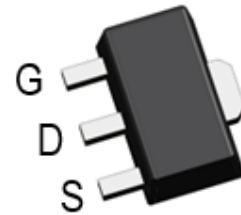
➤ Applications

- Motor Drive Control
- DCDC Conversion
- Power Supplies
- Synchronous Rectification

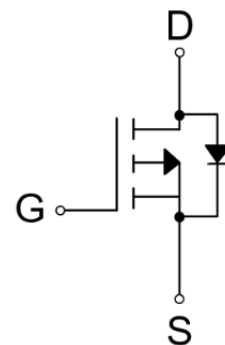
➤ Ordering Information

Device	Package	Shipping
SSCU330P100GS3	SOT-89-3L	1000/Reel

➤ Pin Configuration



SOT-89-3L (Top View)



Pin Configuration



Marking

(YW: Internal Traceability Code)

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

Symbol	Parameter		Ratings	Unit
V_{DS}	Drain-to-Source Voltage		-100	V
V_{GS}	Gate-to-Source Voltage		± 20	V
I_D	Continuous Drain Current ^d	$T_C=25^{\circ}\text{C}$	-8.5	A
		$T_C=100^{\circ}\text{C}$	-5	
I_{DSM}	Continuous Drain Current ^a	$T_A=25^{\circ}\text{C}$	-1.7	A
		$T_A=70^{\circ}\text{C}$	-1.3	
I_{DM}	Pulsed Drain Current ^b		-31	A
P_D	Power Dissipation ^c	$T_C=25^{\circ}\text{C}$	39	W
		$T_C=100^{\circ}\text{C}$	15	
P_{DSM}	Power Dissipation ^a	$T_A=25^{\circ}\text{C}$	1.5	W
		$T_A=70^{\circ}\text{C}$	1.0	
I_{AS}	Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse		-9.5	A
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		22	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	36	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	3.2	

Note:

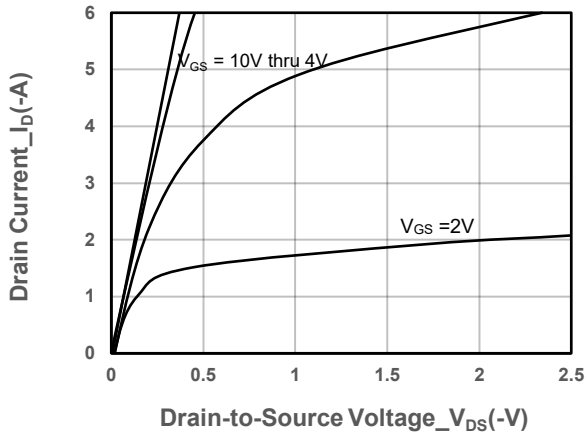
- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user is specific board design. The power dissipation is based on the $t \leq 10\text{s}$ 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.

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

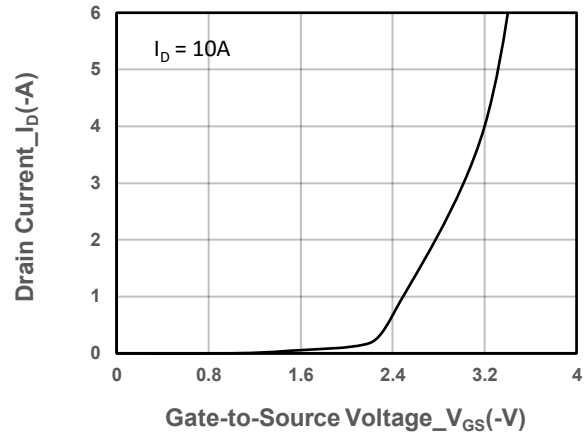
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.8	-2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -1.5A		330	420	mΩ
		V _{GS} = -4.5V, I _D = -1A		360	480	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -100V, V _{GS} = 0V			-1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = -1A			-1.2	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		9.5		Ω
Input Capacitance	C _{ISS}	V _{DS} = -50V, V _{GS} = 0V, f = 1MHz		1090		pF
Output Capacitance	C _{OSS}			35		
Reverse Transfer Capacitance	C _{RSS}			26		
Total Gate Charge	Q _G	V _{GS} = -10V, V _{DS} = -50V, I _D = -2A		13		nC
Gate to Source Charge	Q _{GS}			2.1		
Gate to Drain Charge	Q _{GD}			3.5		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = -10V, V _{DS} = -50V, I _D = -2A, R _G = 3Ω		13		ns
Rise Time	T _r			6		
Turn-off Delay Time	T _{D(OFF)}			39		
Fall Time	T _f			14		
Diode Recovery Time	T _{rr}	I _F =8A, di/dt=100A/us		19		ns
Diode Recovery Charge	Q _{rr}	I _F =8A, di/dt=100A/us		18		nC



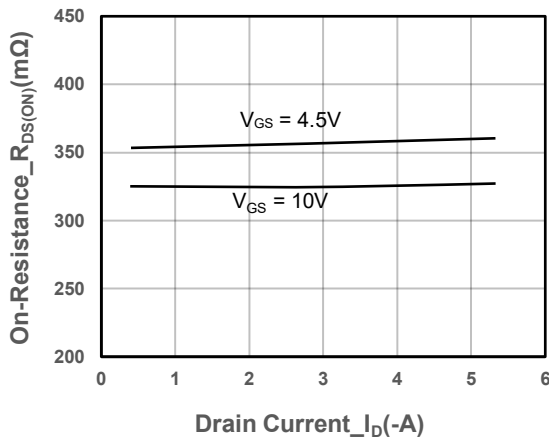
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



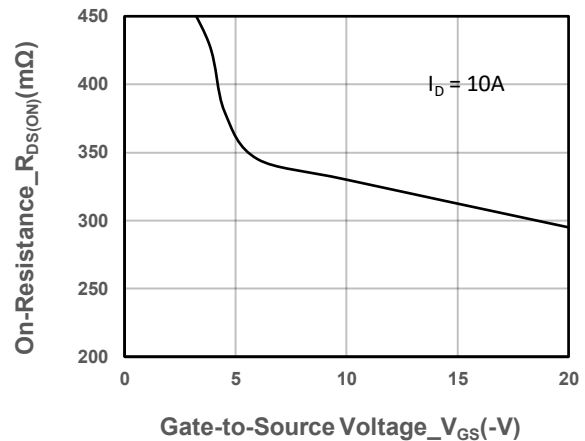
Output Characteristics



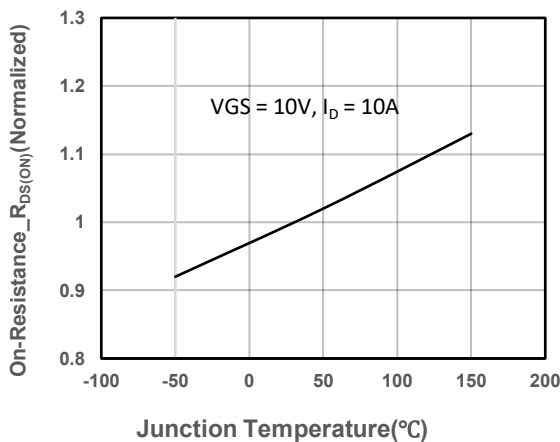
Transfer Characteristics



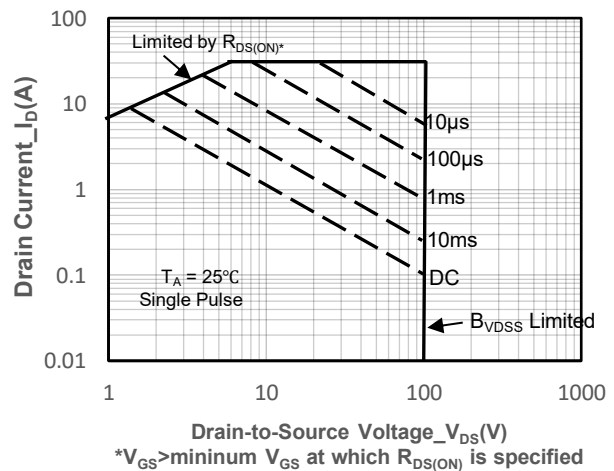
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



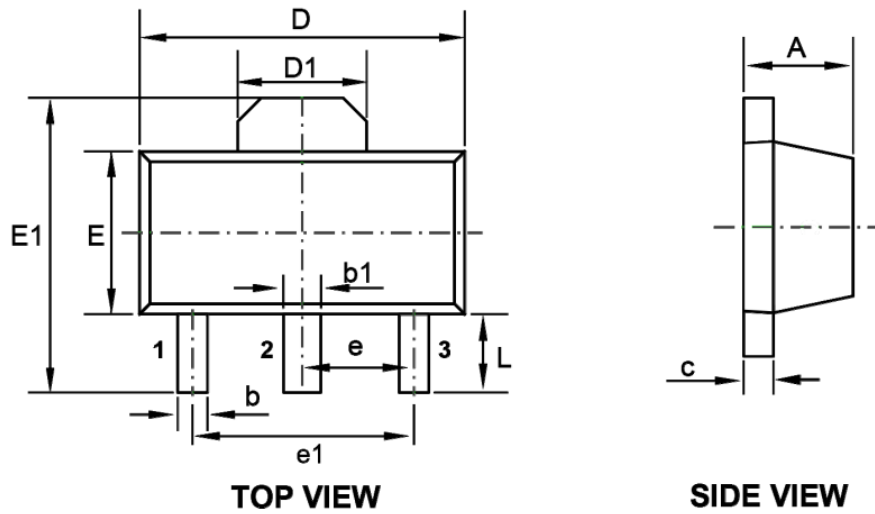
On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

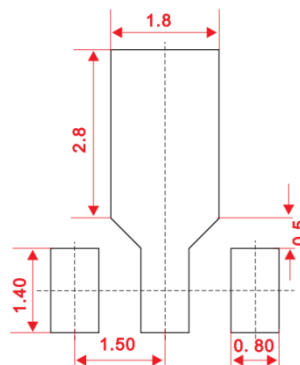
➤ Package Information

● Mechanical Data



DIM	Millimeters		
	Min.	Typ.	Max.
A	1.40	-	1.60
b	0.32	-	0.52
b1	0.40	-	0.58
c	0.35	-	0.44
D	4.40	-	4.60
D1	1.55 REF.		
E	2.30	-	2.60
E1	3.94	-	4.25
e		1.50	
e1		3.00	
L	0.90	-	1.20

● Recommended Pad outline (Unit: mm)





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