



SSCU90N100GS3

N-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)} Typ.	I _D
100V	±20V	90mΩ@10V	5A
		100mΩ@4.5V	

➤ Description

This device uses advanced trench technology to provide excellent RDSON and low gate charge. This device is suitable for use as a load switch, DC-DC conversion and power switch applications.

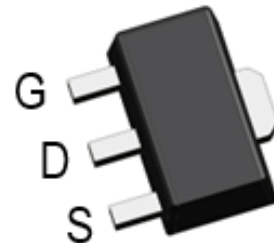
➤ Applications

- Load Switch
- Portable Devices
- DCDC Conversion

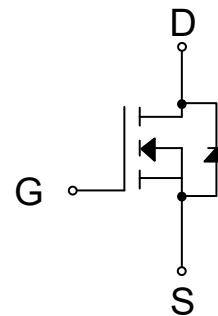
➤ Ordering Information

Device	Package	Shipping
SSCU90N100GS3	SOT-89-3L	1000/Reel

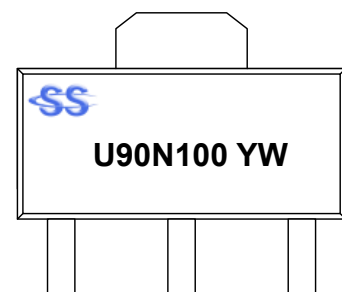
➤ Pin configuration



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_{DSS}	Drain-to-Source Voltage	100	V
V_{GSS}	Gate-to-Source Voltage	± 20	V
I_D	Continuous Drain Current ^a	5	A
I_{DM}	Pulsed Drain Current ^b	20	A
P_D	Power Dissipation ^c	4.6	W
T_J	Operation junction temperature	-55~150	$^\circ\text{C}$
T_{STG}	Storage temperature range	-55~150	$^\circ\text{C}$

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

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	27	$^\circ\text{C/W}$

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.

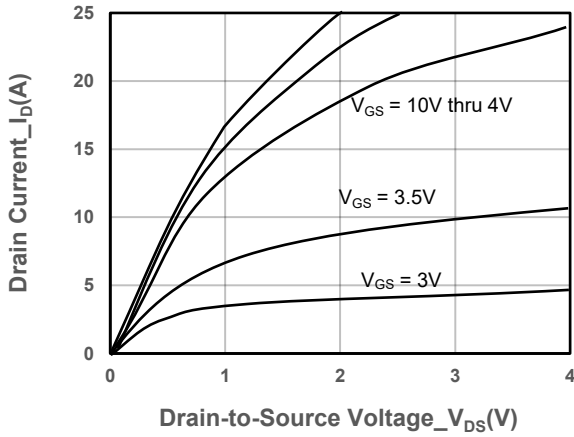


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

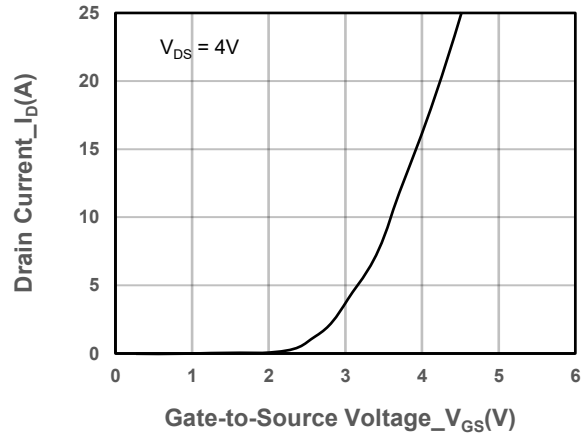
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250uA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.5	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 5A		90	118	mΩ
		V _{GS} = 4.5V, I _D = 3A		100	132	
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			±0.1	μA
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 1A		0.7	1.3	V
Input Capacitance	C _{ISS}	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz		837		pF
Output Capacitance	C _{OSS}			49		
Reverse Transfer Capacitance	C _{RSS}			42.5		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 50V, R _G = 1.8Ω		12		ns
Rise Time	T _r			14		
Turn-off Delay Time	T _{D(OFF)}			42		
Fall Time	T _f			9		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 50V, I _D = 2A		23		nC
Gate Source Charge	Q _{GS}			3.2		
Gate Drain Charge	Q _{GD}			4.5		
Body Diode Reverse Recovery	T _{rr}	I _F = 2A, di/dt = 100A/us		30		ns
Body Diode Reverse Recovery	Q _{rr}	I _F = 2A, di/dt = 100A/us		37		nC



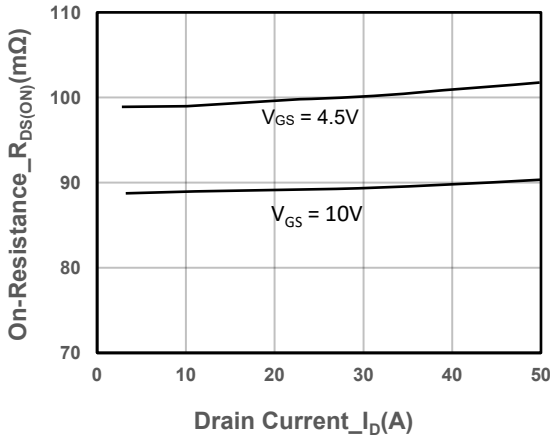
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



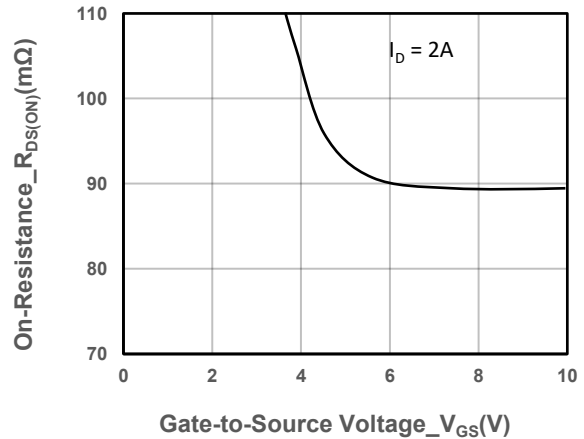
Output Characteristics



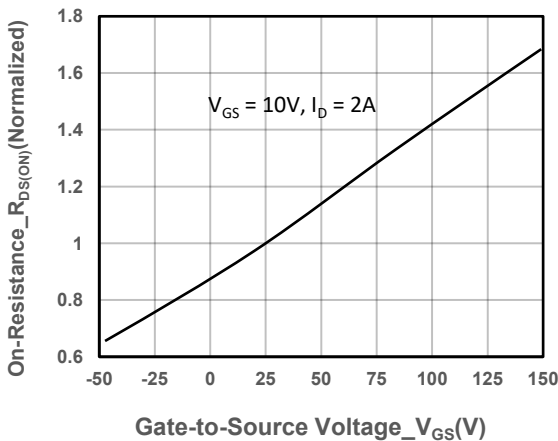
Transfer Characteristics



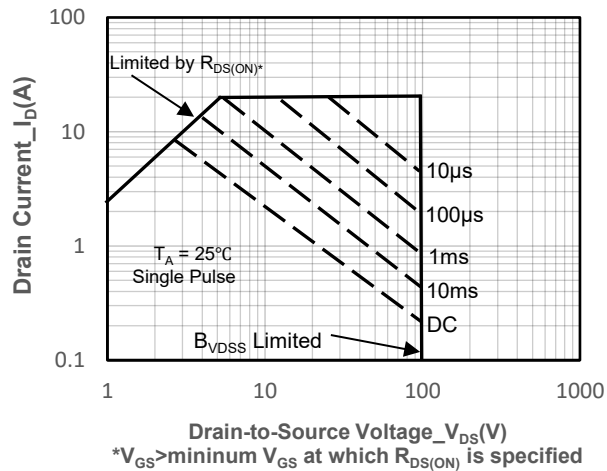
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



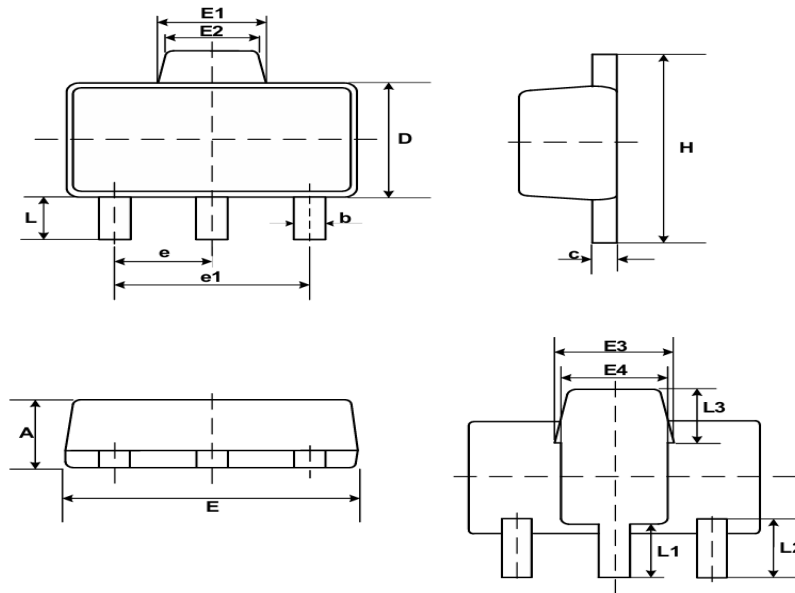
On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

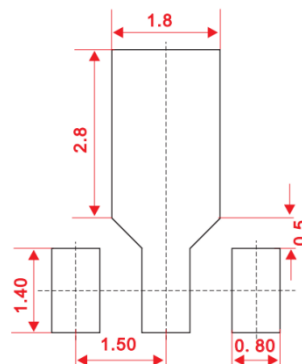
➤ Package Information

SOT89-3L



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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