



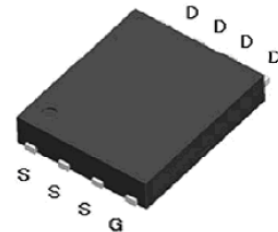
SSCU033P30GN6

P-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
-30V	$\pm 20V$	3.3m Ω @-10V	-90A
		6m Ω @-4.5V	

➤ Pin configuration

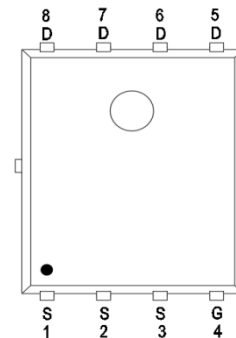


PDFN5X6-8L(Top View)

➤ Description

The SSCU033P30GN6 uses advanced trench technology to provide excellent $R_{DS(ON)}$ 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.

100% UIS + ΔV_{DS} + R_g Tested!



Pin Configuration

➤ Applications

- PWM Applications
- Load Switch
- DC-DC Converters
- Wireless Chargers

➤ Ordering Information

Device	Package	Shipping
SSCU033P30GN6	PDFN5X6-8L	5000/Reel



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		-30	V
V_{GSS}	Gate-to-Source Voltage		± 20	V
I_{D}	Continuous Drain Current ^d	$T_{\text{C}}=25^{\circ}\text{C}$	-90	A
		$T_{\text{C}}=100^{\circ}\text{C}$	-42	
I_{DSM}	Continuous Drain Current ^a	$T_{\text{A}}=25^{\circ}\text{C}$	-25.5	A
		$T_{\text{A}}=70^{\circ}\text{C}$	-18.5	
I_{DM}	Pulsed Drain Current ^b		-320	A
P_{D}	Power Dissipation ^c	$T_{\text{C}}=25^{\circ}\text{C}$	39	W
		$T_{\text{C}}=100^{\circ}\text{C}$	15.6	
P_{DSM}	Power Dissipation ^a	$T_{\text{A}}=25^{\circ}\text{C}$	4.2	W
		$T_{\text{A}}=70^{\circ}\text{C}$	2.7	
I_{AS}	Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse		-33	A
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		272	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	Max.	Unit
$R_{\theta\text{JA}}$	Junction-to-Ambient Thermal Resistance ^a	30	39	$^{\circ}\text{C}/\text{W}$
$R_{\theta\text{JC}}$	Junction-to-Case Thermal Resistance	3.2	4.5	

Note:

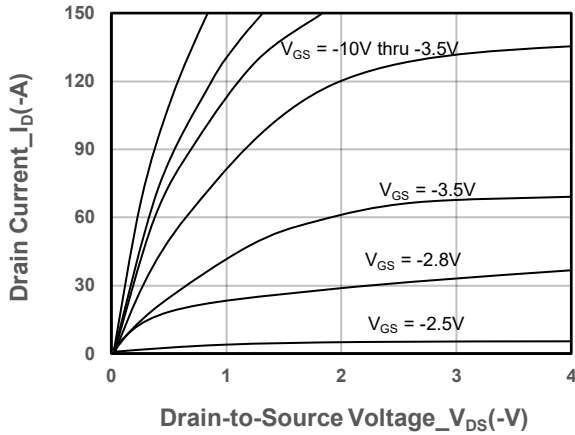
- The value of $R_{\theta\text{JA}}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation P_{D} is based on $T_{\text{J(MAX)}}=150^{\circ}\text{C}$, 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)**

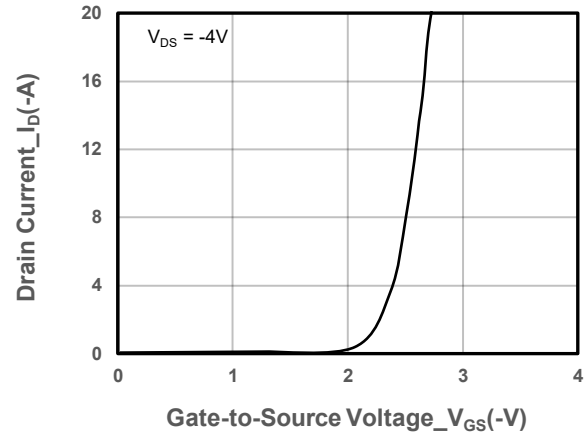
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250uA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-1	-1.6	-2.2	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -20A		3.3	5	mΩ
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -15A		6	8	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, 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 = -10A			-1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		4		Ω
Input Capacitance	C _{ISS}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		3944		pF
Output Capacitance	C _{OSS}			678		
Reverse Transfer Capacitance	C _{RSS}			546		
Total Gate Charge	Q _G	V _{GS} = -10V, V _{DS} = -15V, I _D = -20A		95		nC
Gate to Source Charge	Q _{GS}			13		
Gate to Drain Charge	Q _{GD}			26		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = -10V, V _{DS} = -15V, I _D = -20A, R _G = 3Ω		15		ns
Rise Time	T _r			13		
Turn-off Delay Time	T _{D(OFF)}			50		
Fall Time	T _f			16		
Diode Recovery Time	T _{rr}	I _F = -20A, di/dt = -100A/us		19		ns
Diode Recovery Charge	Q _{rr}	I _F = -20A, di/dt = -100A/us		13		nC



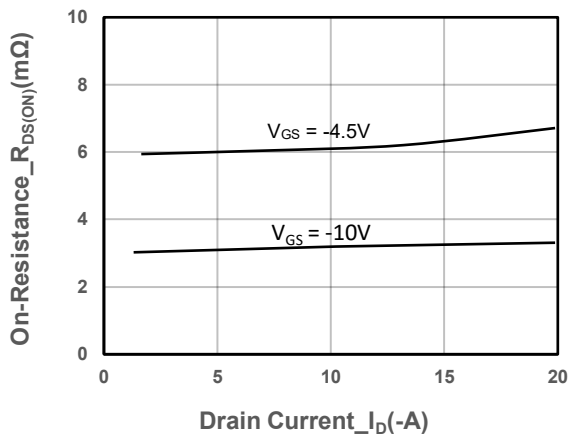
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



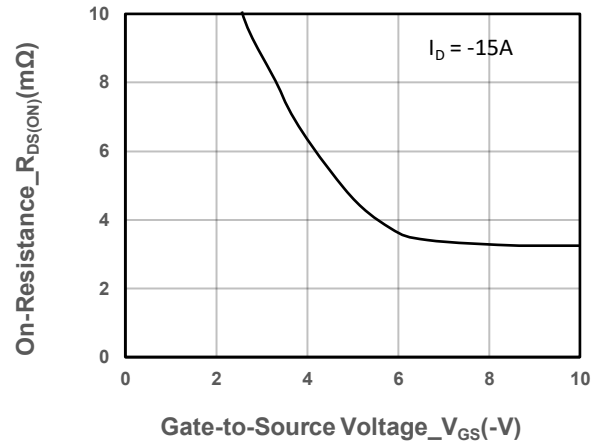
Output Characteristics



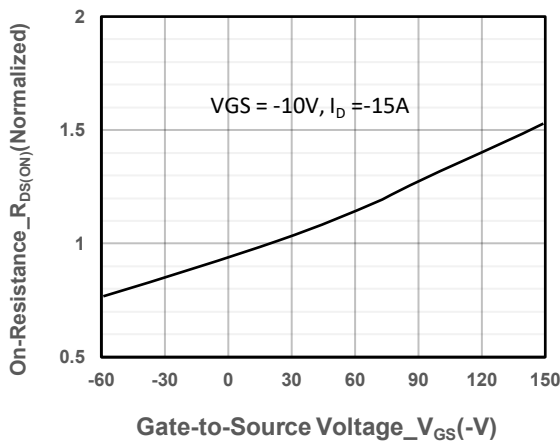
Transfer Characteristics



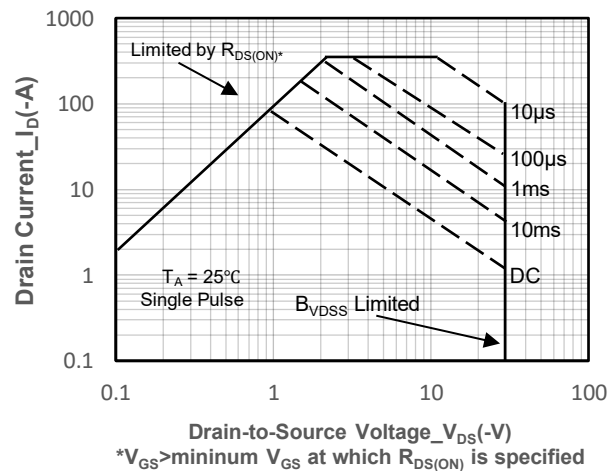
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

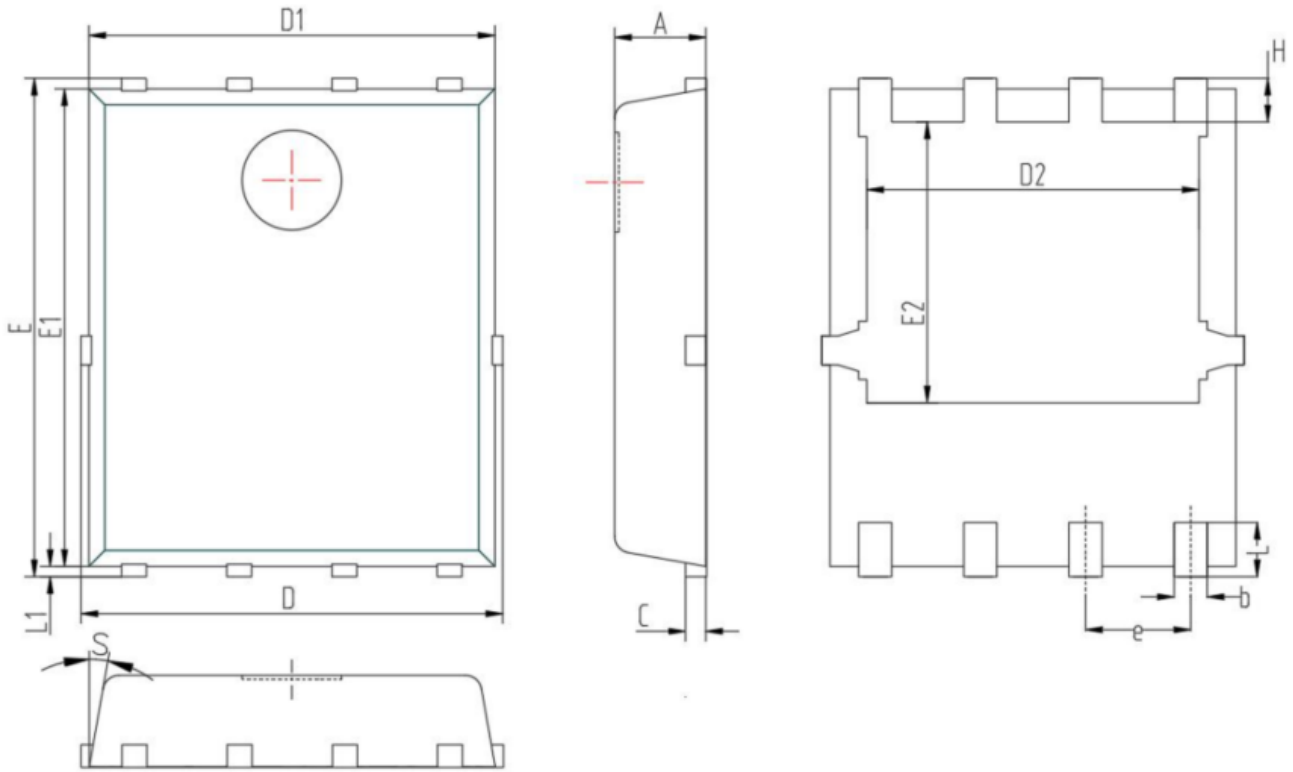


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.90	1.05	1.20
b	0.25	0.30	0.51
c	0.15	0.25	0.35
D	4.80	5.10	5.40
D1	4.80	5.00	5.20
D2	3.70	4.00	4.30
E	5.80	6.15	6.50
E1	5.50	5.75	5.95
E2	3.30	3.45	3.67
e	1.27BSC		
H	0.40	0.60	0.93
L	0.45	0.65	0.85
L1	0.00	0.10	0.25
S	0°	--	12°



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