SSC8630GN4

N and P-Channel Enhancement Mode Power MOSFET

➢ Features

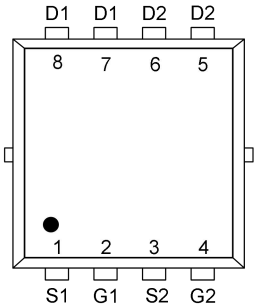
N-Channel

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
30V	±20V	9mΩ@10V	38A
		11mΩ@4.5V	

P-Channel

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
-30V	±20V	25mΩ@-10V	-25A
		40mΩ@-4.5V	

➢ Pin configuration

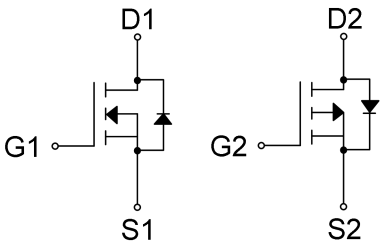


PDFN3.3X3.3-8L (Top View)

➢ Description

The SSC8630GN4 uses advanced trench technology to provide excellent RDS(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.

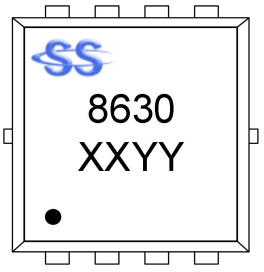
100% UIS + ΔVDS + Rg Tested!



Pin Configuration

➢ Applications

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



Marking

(XXYY: Internal Traceability Code)

➢ Ordering Information

Device	Package	Shipping
SSC8630GN4	PDFN3.3X3.3-8L	5000/Reel

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

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-to-Source Voltage		V_{DSS}	30	-30	V
Gate-to-Source Voltage		V_{GSS}	±20	±20	V
Continuous Drain Current [a]	T_A=25℃	I_D	38	-25	A
	T_A=100℃		22	-14	A
Pulsed Drain Current [b]		I_{DM}	152	-100	A
Power Dissipation [a]		P_{DSM}	2.5	2.3	W
Avalanche Energy [b] L=0.5mH Single Pulse		E_{AS}	81	50	mJ
Power Dissipation [c]	T_A=25℃	P_D	21	21	W
	T_A=100℃		8.6	8.2	W
Operation junction temperature		T_J	-55 to 150	-55 to 150	℃
Storage temperature range		T_{STG}	-55 to 150	-55 to 150	℃

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

Symbol	Parameter	N-Channel	P-Channel	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]	51	54	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	5.8	6.1	

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 current rating 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.

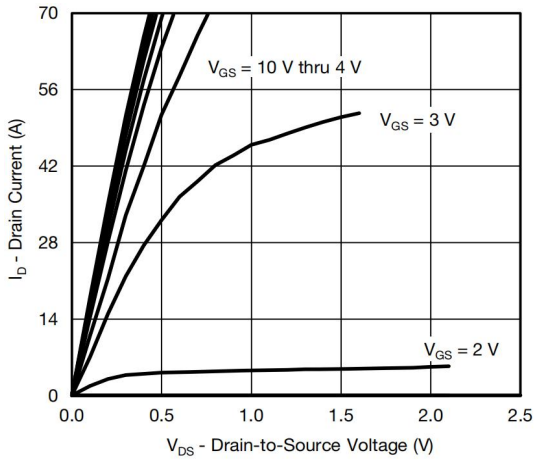
➢ N-Channel Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1	1.4	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		9	12	mΩ
		V_{GS} = 4.5V, I_D = 20A		11	18	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS} = 0V			-1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Transconductance	G_{FS}	V_{DS} = 5V, I_D = 5A		10		s
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 5A		0.8	1.3	V
Input Capacitance	C_{ISS}	V_{DS} = 15V, V_{GS} = 0V, f = 1MHz		880		pF
Output Capacitance	C_{OSS}			132		
Reverse Transfer Capacitance	C_{RSS}			110		
Total Gate Charge	Q_G	V_{GS} = 10V, V_{DS} = 15V, I_D = 10A		19		nC
Gate to Source Charge	Q_{GS}			3.1		
Gate to Drain Charge	Q_{GD}			2.6		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 10V, V_{DS} = 15V, R_L = 10Ω, R_{GEN} = 6Ω,		12		ns
Rise Time	T_r			11		
Turn-off Delay Time	$T_{D(OFF)}$			24		
Fall Time	T_f			7.8		

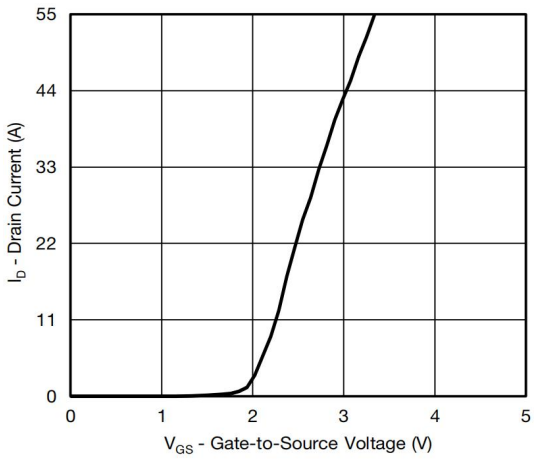
➢ P-Channel Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-30			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 = -20A		25	32	mΩ
		V_{GS} = -4.5V, I_D = -20A		40	52	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -30V, V_{GS} = 0V			-1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
Transconductance	G_{FS}	V_{DS} = -5V, I_D = -5A		15		s
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = -5A		-0.8	-1.3	V
Input Capacitance	C_{ISS}	V_{DS} = -15V, V_{GS} = 0V, f = 1MHz		892		pF
Output Capacitance	C_{OSS}			156		
Reverse Transfer Capacitance	C_{RSS}			135		
Total Gate Charge	Q_G	V_{GS} = -15V, V_{DS} = -10V, I_D = -10A		23		nC
Gate to Source Charge	Q_{GS}			1.9		
Gate to Drain Charge	Q_{GD}			3.4		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = -15V, V_{DS} = -10V, R_L = 10Ω, R_{GEN} = 6Ω,		11		ns
Rise Time	T_r			24		
Turn-off Delay Time	$T_{D(OFF)}$			67		
Fall Time	T_f			34		

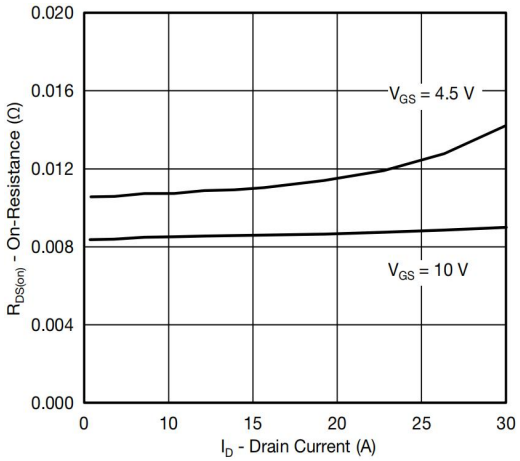
➢ N-Channel Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



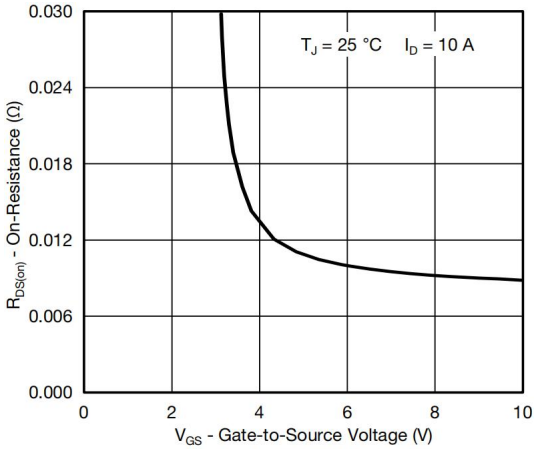
Output Characteristics



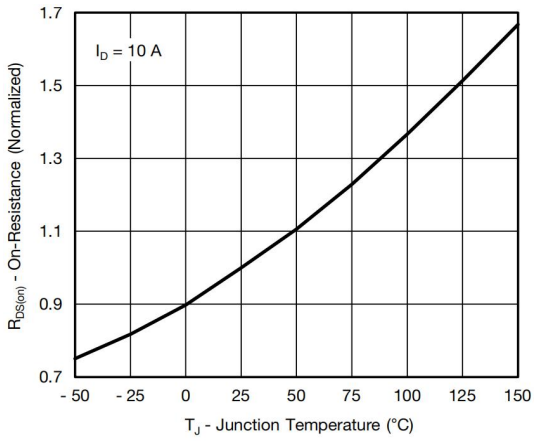
Transfer Characteristics



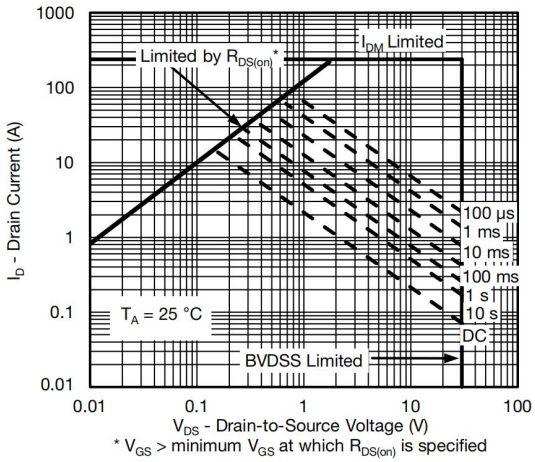
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

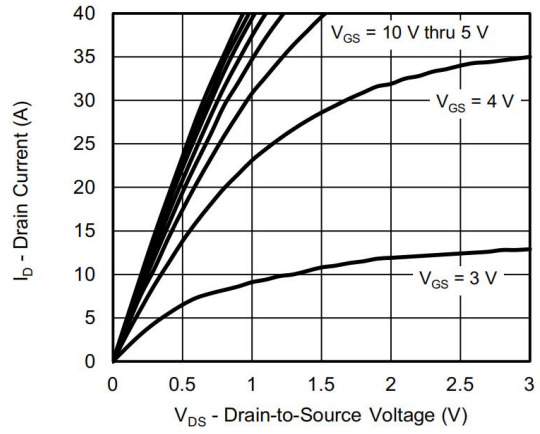


On-Resistance vs. Junction Temperature

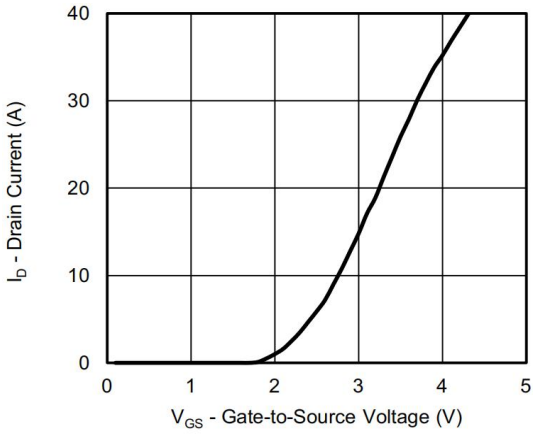


Safe Operating Area

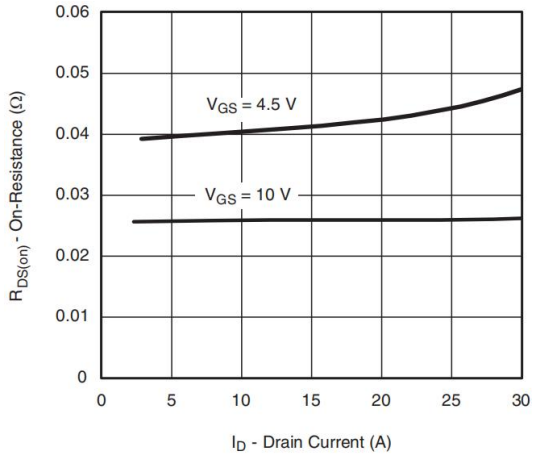
➢ P-Channel Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



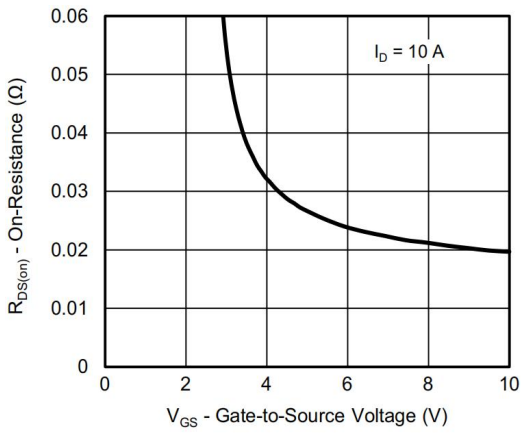
Output Characteristics



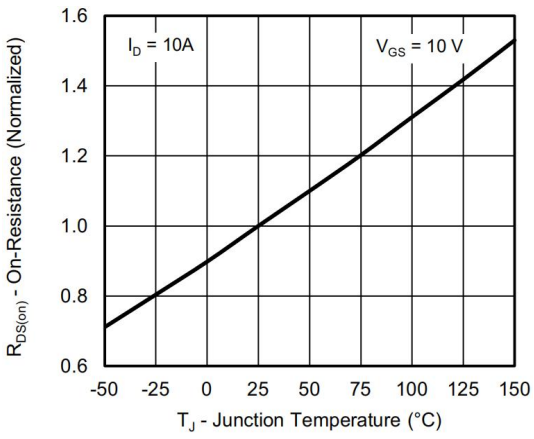
Transfer Characteristics



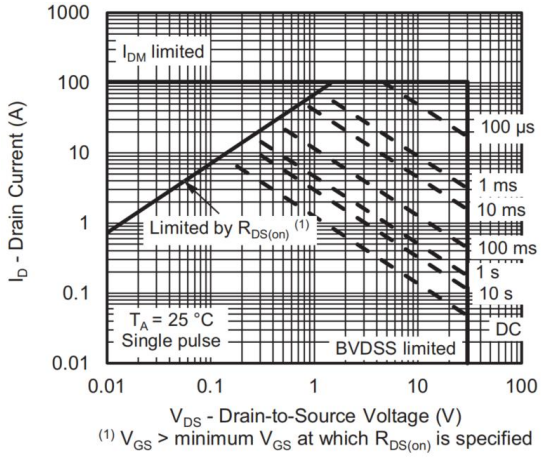
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage

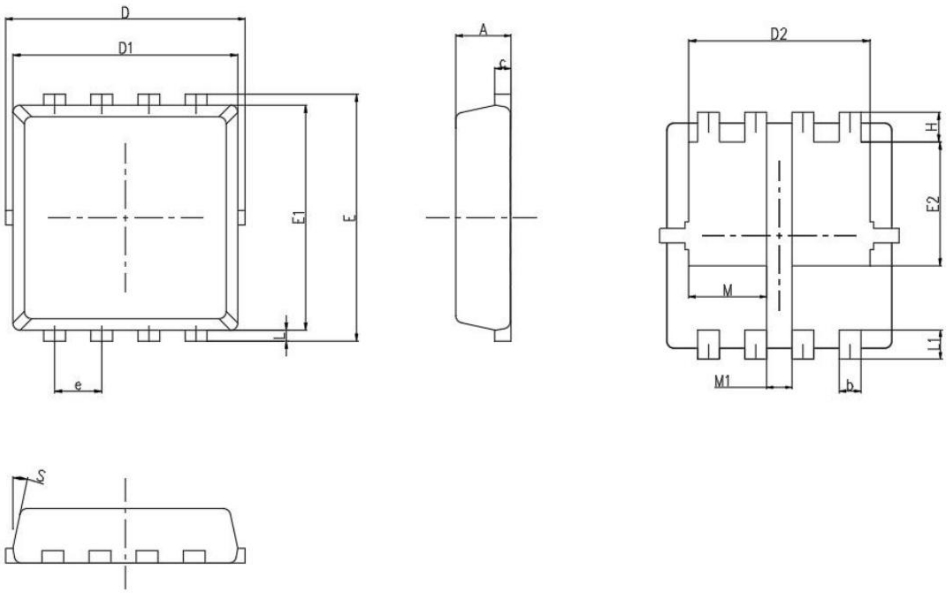


On-Resistance vs. Junction Temperature



Safe Operating Area, Junction-to-Ambient

➢ Package Information



Symbol	MILL IMETER		
	Min	Nom	Max
A	0.60	0.75	0.90
b	0.25	0.30	0.35
c	0.10	0.20	0.30
D	3.00	3.20	3.45
D1	3.05	3.15	3.25
D2	2.40	2.50	2.60
E	3.10	3.30	3.50
E1	2.90	3.05	3.20
E2	1.55	1.75	1.95
e	0.65BSC		
H	0.20	0.40	0.57
L	0.06	0.10	0.20
L1	0.30	0.40	0.55
S	10°	12°	14°
M	0.95	1.05	1.15
M1	0.4BSC		

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