SSC8623GN4

N and P-Channel Enhancement Mode Power MOSFET

➢ Features

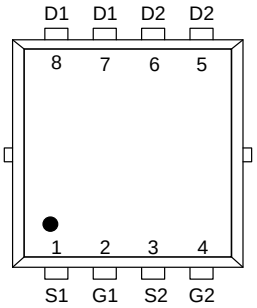
N-Channel

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
20V	±12V	14mΩ@4V5	21A
		17mΩ@2V5	

P-Channel

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
-20V	±12V	24mΩ@-4V5	-18A
		37mΩ@-2V5	

➢ Pin configuration

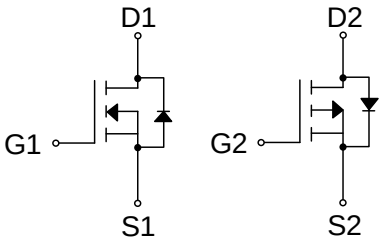


PDFN3.3X3.3-8L (Top View)

➢ Description

The SSC8623GN4 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.

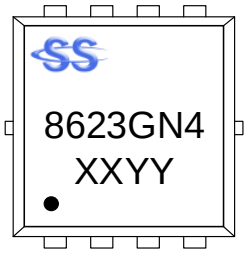
100% UIS + ΔVDS + Rg Tested!



Pin Configuration

➢ Applications

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



Marking

(XXYY: Internal Traceability Code)

➢ Ordering Information

Device	Package	Shipping
SSC8623GN4	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}	20	-20	V
Gate-to-Source Voltage		V_{GSS}	±12	±12	V
Continuous Drain Current [a]	T_A=25℃	I_D	21	-18	A
	T_A=100℃		12	-10	A
Pulsed Drain Current [b]		I_{DM}	80	-65	A
Power Dissipation [a]		P_{DSM}	2.5	2.5	W
Avalanche Energy [b] L=0.5mH Single Pulse		E_{AS}	25	25	mJ
Power Dissipation [c]	T_A=25℃	P_D	11.4	11.4	W
	T_A=100℃		4.6	4.6	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]	50	50	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	11	10	

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.

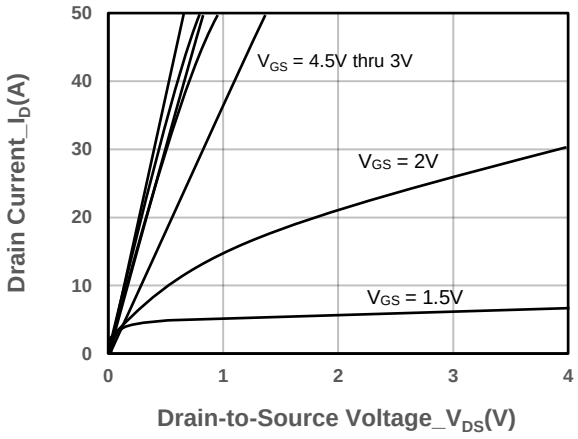
➢ N-Channel Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	0.5	0.7	1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 4A		14	21	mΩ
		V_{GS} = 2.5V, I_D = 3A		17	25	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V			±100	nA
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = 1A			1.3	V
Input Capacitance	C_{ISS}	V_{DS} = 10V, V_{GS} = 0V, f = 1MHz		710		pF
Output Capacitance	C_{OSS}			112		
Reverse Transfer Capacitance	C_{RSS}			100		
Total Gate Charge	Q_G	V_{GS} = 4.5V, V_{DS} = 10V, I_D = 3A		9		nC
Gate to Source Charge	Q_{GS}			1.4		
Gate to Drain Charge	Q_{GD}			2.4		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = 4.5V, V_{DS} = 10V, I_D = 3A, R_{GEN} = 3Ω		5		ns
Rise Time	T_r			15		
Turn-off Delay Time	$T_{D(OFF)}$			22		
Fall Time	T_f			7		

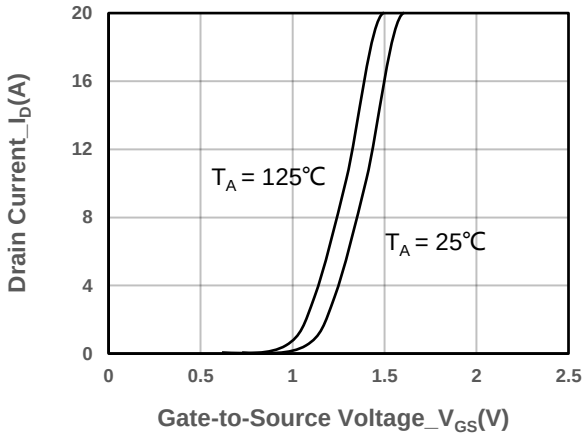
➢ P-Channel Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250uA	-0.4	-0.68	-1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -4A		24	33	mΩ
		V_{GS} = -2.5V, I_D = -3A		37	50	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -16V, V_{GS} = 0V			-1	μA
Gate-Source Leak Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V			±100	nA
Forward Voltage	V_{SD}	V_{GS} = 0V, I_S = -2A		-0.82	-1.3	V
Input Capacitance	C_{ISS}	V_{DS} = -10V, V_{GS} = 0V, f = 1MHz		830		pF
Output Capacitance	C_{OSS}			190		
Reverse Transfer Capacitance	C_{RSS}			197		
Total Gate Charge	Q_G	V_{GS} = -4.5V, V_{DS} = -10V, I_D = -4A		15		nC
Gate to Source Charge	Q_{GS}			2.3		
Gate to Drain Charge	Q_{GD}			2.2		
Turn-on Delay Time	$T_{D(ON)}$	V_{GS} = -4.5V, V_{DS} = -10V, R_L = 4Ω, R_{GEN} = 1Ω, I_D = -2.5A		10		ns
Rise Time	T_r			30		
Turn-off Delay Time	$T_{D(OFF)}$			20		
Fall Time	T_f			11		

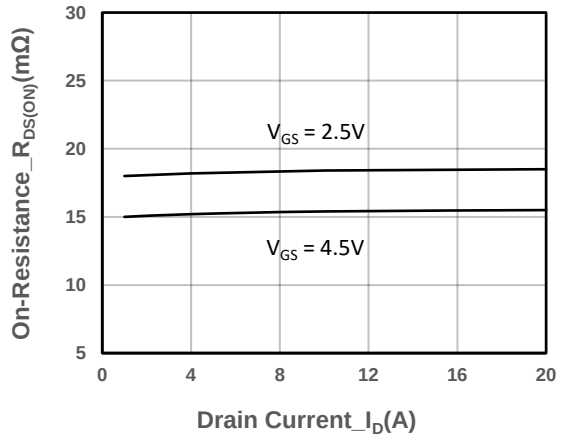
➢ N-Channel Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



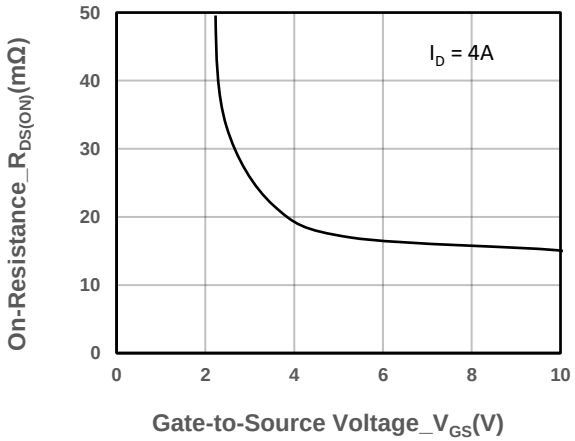
Output Characteristics



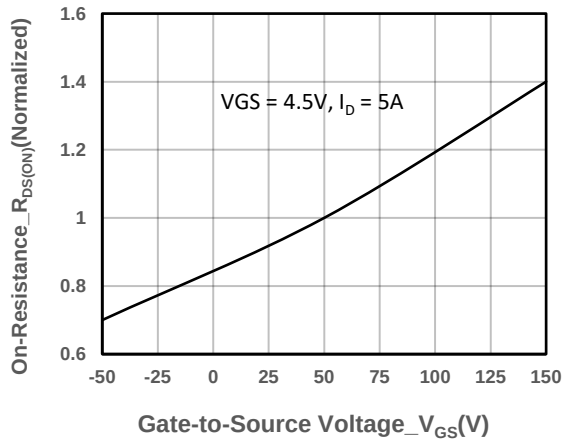
Transfer Characteristics



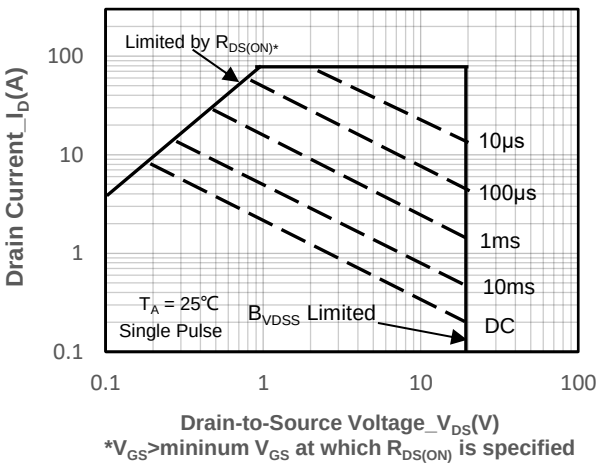
On-Resistance vs. Drain Current and Gate Voltag



On-Resistance vs. Gate-to-Source Voltage

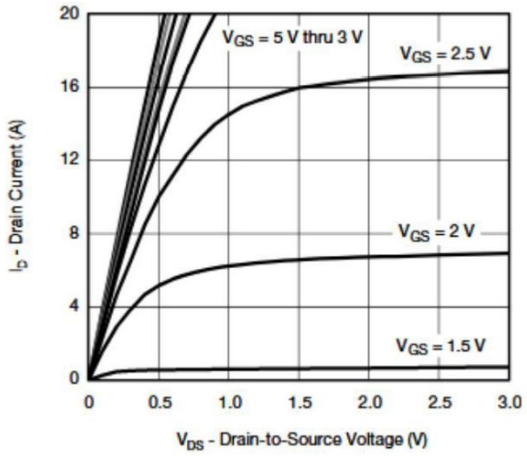


On-Resistance vs. Junction Temperature

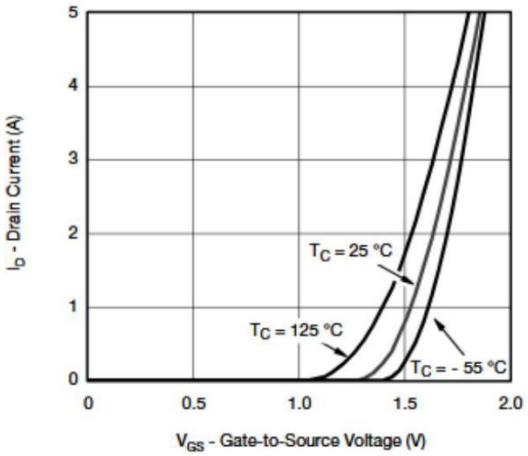


Safe Operating Area vs. Junction-to-Ambient

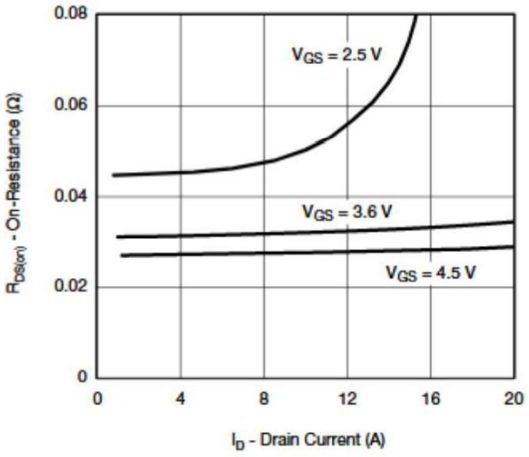
➢ P-Channel Typical Performance Characteristics (T_A=25℃ unless otherwise noted)



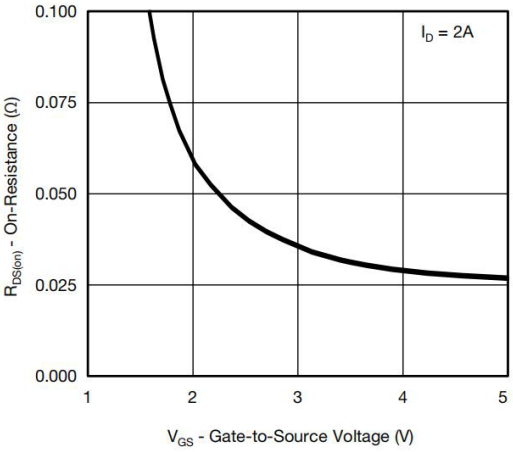
Output Characteristics



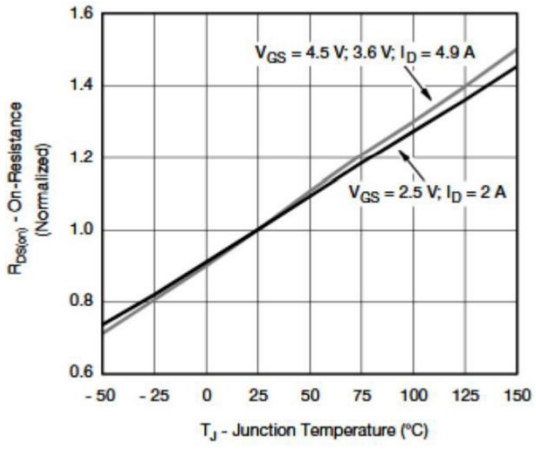
Transfer Characteristics



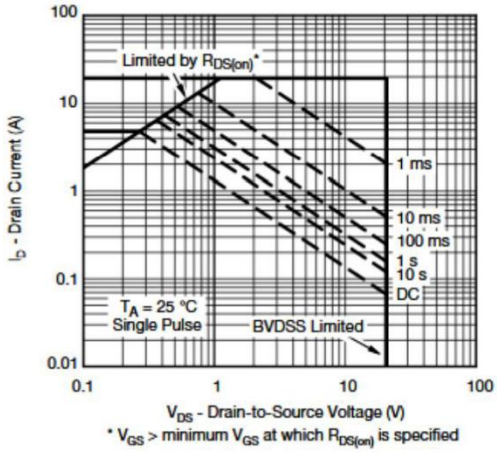
On Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage

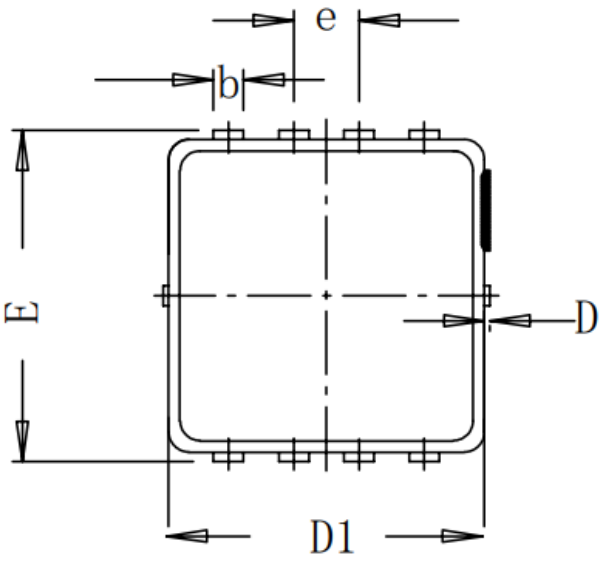


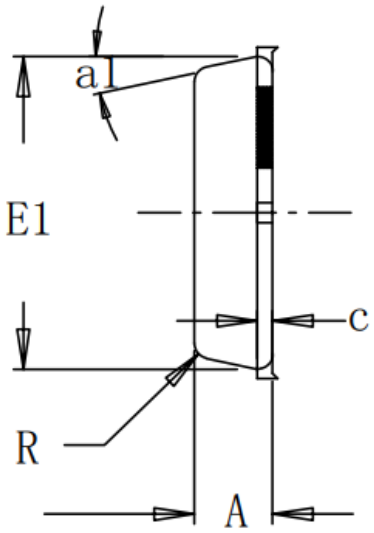
On-Resistance vs. Junction Temperature

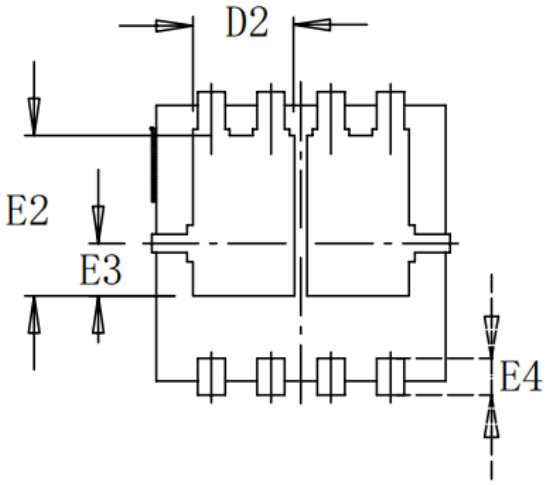


Safe Operating Area, Junction-to-Ambient

➢ Package Information







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SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.75	0.78	0.81
b	0.297	0.3	0.35
c	—	0.152	—
D	0.00	0.05	0.1
D1	3.12	3.15	3.18
D2	—	1.05	—
E	3.2	3.3	3.4
E1	3.09	3.12	3.15
E2	—	1.75	—
E3	—	0.575	—
E4	—	0. 4	—
R	—	0.15	—
e	0.65BSC		
a1°	—	12°	—

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